systems

MDPI

Article

Future Strategy of Lifelong Education through Systems Analysis in Republic of Korea: Long-Term Research Conducted Based on Two Surveys in 2016 and 2023

Jihoon Jeong †, Dongchul Hong †, Joonho Chang and Sekyoung Youm *

Department of Industrial and Systems Engineering, Dongguk University, Seoul 04620, Republic of Korea; jjh0713@dgu.ac.kr (J.J.); sky_0201@dgu.ac.kr (D.H.); jchang@dongguk.edu (J.C.)

* Correspondence: skyoum@dgu.edu; Tel.: +82-2-2260-3377

† These authors contributed equally to this work.

Abstract: This study is a long-term research project on the Fourth and Fifth Comprehensive Lifelong Education Promotion Plan from 2018 to 2023. It explores factors and prospective scenarios of lifelong education to create the educational environment that is likely to be prevalent in Korea after 2035. First, internal factors affecting lifelong education in 2016 were gathered from a literature review and expert interviews, and external factors related to laws and policies were identified through surveys of 65 participants, including government officials, university representatives, and lifelong education companies. Second, a causal map was developed based on these results using the multi-factor system, a tool to design future policy directions. Third, scenarios for strategic environments based on uncertain future factors in the causal map were developed, and future strategies for these scenarios were identified. Among the identified future strategies, those applicable to all scenarios were selected via the wind tunneling method as important strategies that must be prioritized in the Fourth Comprehensive Lifelong Education Promotion Plan from 2018 to 2023, which was to be implemented by the Korean government in 2017. Lastly, the second survey was conducted in 2023 based on the first survey for comparison with the past outcome and to provide an outlook for the Fifth Comprehensive Lifelong Education Promotion Plan from 2024 to 2029, which is to be implemented by the Korean government in 2023. By analyzing various factors and environments, the results of this study are expected to be useful as a portfolio for developing policy designs to achieve desirable lifelong education for the future.

Keywords: adult learning; lifelong learning; causal map; factor analysis for educational system; strategic planning for lifelong education

Citation: Jeong, J.; Hong, D.; Chang, J.; Youm, S. Future Strategy of Lifelong Education through Systems Analysis in Republic of Korea: Long-Term Research Conducted Based on Two Surveys in 2016 and 2023. *Systems* **2023**, *11*, 557. https://doi.org/10.3390/systems11120557

Received: 14 October 2023
Revised: 15 November 2023
Accepted: 24 November 2023
Published: 26 November 2023

1. Introduction

Korea has achieved rapid economic growth, with a strong proclivity for education. The country still possesses the highest percentage of spending for education per household among Organization for Economic Cooperation and Development (OECD) member states [1]. Notably, Korea exhibits the fastest growth in the aging index among OECD member states, and the country is likely to face challenges from an aging population [2]. Hence, lifelong education, along with the importance of a "second life" after retirement at the age of 60, will become increasingly important and the proportion of welfare policies in the country will increase [3]. Furthermore, if Democratic People's Republic of Korea (North Korea) and Republic of Korea (South Korea) are reunified, it will be necessary to provide re-education across all aspects of life due to differences between the two countries' existing systems.

The Korean government has been interested in lifelong education since the 1990s and introduced the Lifelong Education Act. Without a long-term strategy, however, it simply increased the number of lifelong education providers. In addition to this increased

number of providers, the government's lifelong education programs lacked management standards and evaluation frameworks, and they were not properly managed. As a result, among OECD member states, Korea exhibited a very low level of satisfaction with lifelong education [4]. The quantitative growth of the Korean government-led lifelong education market led to a cycle of poor quality in lifelong education. Currently, proper course evaluation and academic performance evaluation are lacking in Korea's lifelong education, which has contributed to academic credit inflation due to the poor quality of lifelong education. Due to the inflation of academic credit, lifelong education students are evaluated poorly in society.

Against the backdrop of lifelong education in Korea, the COVID-19 pandemic unexpectedly worsened educational inequality and set the participation rate of poorly educated people, rural residents, economically inactive people, temporary and daily workers, and low-income people in lifelong education back five years [5]. Hence, increasing participation in lifelong education would require reorganizing directions for the future or reinforcing existing policies to improve structural access.

This study identified future strategies for lifelong education through factor analysis and conducted long-term research to determine how the importance and priority of previously analyzed factors have changed with the establishment of new lifelong education policies. The aims of this study are as follows. First, it develops a causal loop diagram of the Korean lifelong education system by analyzing the key driving forces behind the lifelong education market for the long term with a 2016 expert questionnaire survey. Based on the analysis, the authors examine the environment and system for lifelong education for the next 15–20 years and suggest future strategies for the current lifelong education system. Second, this study identifies the future factors for the Korean lifelong education market and the future impact of current laws or policy factors and priority in amendments for applicable regulations from stakeholders at lifelong education institutions in Korea. Based on the above, the authors conducted a future scenario analysis to suggest directions for a stepwise exit strategy to be adopted by universities, what role the government should play, and future strategies to ensure a virtuous cycle in the future lifelong education market. Third, a 2023 expert questionnaire survey is used to examine how the importance and priority of the factors identified in 2016 have changed, and the results are then compared. Furthermore, the authors investigate which of the previously proposed scenarios is more accurate and provide a reference to identify a new strategy for the future of lifelong education.

2. Literature Review

2.1. Korean Lifelong Education Market

Previous studies on the Korean lifelong education market have mostly covered the factors that constitute the lifelong education market. Kwak, Park, and Kim (2014) analyzed the trends of lifelong education research articles conducted in universities and published in Korea to develop and promote university lifelong education at a time of growing calls for change in the traditional paradigm of higher education [6]. The authors categorized the research topics into seven classes and found that the microscopic approaches to analyzing specific programs were a major research trend. They concluded that lifelong education market research should be conducted from a macroperspective.

Regarding studies on Korean policies and laws in the lifelong education market, Lee and Choi (2009) analyzed Korea's major lifelong education policies for the development and progress of local communities [7]. The authors stated that the 2000 Lifelong Education City Project was significant as it created a new model through a harmonious combination of the central government's aim of establishing local learning communities and implementation by local governments. Yoon (2013) analyzed the domains of lifelong education, which should be prioritized by residents as the responsibility of city mayors and provincial governors to promote lifelong education, as highlighted in the amendment of the Lifelong Education Act (December 2007), and what would need to happen if the Gyeongnam Institute for Lifelong Education were established [8].

Sun and Choi (2012) analyzed the current status and problems of the government's policies for elderly people and suggested policy measures to promote lifelong education to use elderly people's human resources and improve their quality of life [9]. Lee and Baek (2010) developed an analytical framework for lifelong education policies based on the strategic thinking model. They analyzed the government's lifelong education policies and predicted that the development of lifelong vocational skills for employability in connection with job creation would become increasingly important [10]. Lee (2012) analyzed lifelong education policies proposed by the European Union as an option to overcome an economic crisis and compared them with Korea's policies [11]. Ko (2010) analyzed the amendment of the Lifelong Education Act in 2007 and outlined the key issues [12]. The author noted that only the laws were changed as a policy instrument in the system, whereas social consensus on the philosophy of lifelong education was continuously overlooked.

Regarding studies on the model of the lifelong education market, Lee and Ahn (2007) analyzed the similarities and differences between adult education and human resource development from the point of view of lifelong education and examined a debate on the learning vs. performance paradigm in human resources development [13]. In conclusion, the authors provided an alternative view that lifelong education and human resources development can exist and develop together. Referring to the OECD theory of learning competition in 1970, the human resources development (HRD) lifelong education strategy model, and the traditional career development model, Choi (2007) explored the possibilities and potential directions in turning the Korean career education model into a lifelong education model [14]. Jeong (2014) analyzed the possibility of combining the social economy, which has emerged as an alternative to market capitalism and economic neoliberalism, with the learning potential of lifelong education [15]. The author noted that the social economy can turn into a learning community beyond a simple group of production or consumption, and lifelong education may embrace the social economy to promote diversification in research fields and restore the original spirit and form of lifelong education.

With regard to studies on the environmental factors of the lifelong education market, Yoo and Ji (2013) analyzed that remote learning accelerated the transition to a lifelong education society, made it easier for learners to access lifelong education, and helped instructors to freely provide the latest information in various online formats to learners, which represent key factors in the current lifelong education [16]. Kim and Jeong (2020) noted that while lifelong education rapidly went online during the COVID-19 pandemic, instructors lacked online competencies for lifelong education in many aspects to efficiently provide online education; therefore, it would be necessary to prepare strategies to respond to future online system [17]. Kim and Choi (2012) examined how migrants with multicultural backgrounds, such as migrant workers or marriage migrants, obtained a job in Korea [18]. They suggested that lifelong education for migrants with multicultural backgrounds may connect migrants with jobs, and lifelong education can contribute to social integration by creating a common platform of education for everyone. Lim (2010) examined strategies to establish a lifelong education framework with universities and local governments for building a local lifelong education community [19]. The author suggested establishing the model of a lifelong education framework with universities and local governments, reorganizing universities into multifunctional educational institutions for adult learners, providing a lifelong education information system in collaboration with universities, and creating a council between different ministries for lifelong education. Park (2014) analyzed the needs of different groups of adults for the directional, educational, and institutional domains of university lifelong education according to their university education experience [20]. The author found that adults attending universities were interested in learning itself, whereas potential adult university students wanted to prepare for a second life through learning.

Regarding studies on the lifelong education market in preparation for population aging, Shin (2007) investigated the current status of Korean elderly education and examined future directions for elderly education as lifelong education [21]. Ahn, Kim, and Kwak (2012) stressed the importance of remote learning for human resources development due

to increased life expectancy and identified persistent problems with the current remote lifelong education, such as the lack of a credit recognition system, absence of clear goals and systematic remote learning, accelerating conflicts between different groups due to economic inequality, problems with managing learners, and issues related to learning information [22]. Jeon and Song (2012) analyzed the effect of different types of motivation for lifelong education on satisfaction with education and changes in life among elderly people [23]. The authors examined whether different types of motivation for lifelong education led to changes in life and found that learning-oriented and goal-oriented types influenced overall changes in life, including family, social relationships, leisure, physical health, emotional health, and happiness.

2.2. International Lifelong Education Market

Gidley (2011) analyzed the impact of issues related to knowledge acquisition in the last 100 years on different aspects of the educational environment [24]. The author suggested that the increased ability to acquire knowledge in an integrated way along with a variety of technological advances paved the way for democratization in education, and these advances will go further and contribute to expanding lifelong education in the twenty-first century. McAvinia and Oliver (2002) focused on how higher education institutions provide on-demand support material to students via their centralized website [25]. More importantly, they considered how they structured their website to meet the needs of different departments and provided key technical support, finding that these efforts led to increased student engagement and awareness and helped establish the basis for lifelong education. Cambridge (2008) investigated the outcomes of eFolio, an e-portfolio project in Minnesota, United States [26]. The author concluded that accessibility, planning, and searchability were important in implementing an e-portfolio to support lifelong education. Su, Feng, Yang, and Chen (2012) investigated the nature of educational practices for developing lifelong education learners from the viewpoint of university students [27]. They suggested that the nature of lifelong education may contradict traditional lifelong education due to many future factors, and it is important to prepare a curriculum with a practical perspective as deteriorating curriculum quality has a huge effect on satisfaction among students in actual learning programs. Bolhuis (2003) investigated different perspectives regarding lifelong education based on self-directed learning [28]. The author emphasized the importance of experience in social and cultural contexts, previous knowledge, and emotional aspects in learning and suggested that it is crucial to develop a process-based model of lifelong education. Janssen et al. (2007) discussed how to explore learning pathways, which have become more complex due to increased flexibility and modularity in higher education [29]. The authors suggested analyzing learners' pathways and providing feedback accordingly to support informed decision making. Watkins and Marsick (2021) deemed the learning process as becoming increasingly nonlinear, with students able to study many different majors [30]. The authors highlighted the importance of exploring directions theoretically different from conventional analysis from the perspective of the complex system theory.

Dahlin (2012) conducted a philosophical study on historical development in terms of the meaning of education as part of human nature [31]. The author suggested that a mental utopia based on changed human psychology would be replaced by a digital utopia based on advances in supercomputers and brain power enhanced using neural transplants. Gidley and Hampson (2005) noted that school education is mostly unprepared for future changes due to outdated values, and it may be difficult for the traditional education system to keep up with the rapidly changing society in the future [32]. The authors suggested an open education system that includes the concept of lifelong education.

Rieckmann (2012) suggested that universities will contribute to not only new knowledge but also developing skills for members of society and thereby play an important role in shaping the future of society globally through sustainable development [33]. The author, however, noted that many universities are making these changes from a microp-

erspective and have not yet developed a system that allows for sustainable changes. In addition, Rieckmann identified important factors through systems thinking, which can maintain sustainable development for lifelong education. Boeren, Roumell, and Roessger (2020) found that while many different free e-learning courses are available, their actual impact is likely to be concentrated on the learners who are already highly educated before attending lifelong education [34]. Smythe, Wilbur, and Hunter (2021) noted that lifelong education courses went online due to COVID-19 in Canada, but the actual participation rate was low, as the data plans that could provide appropriate Internet speed were not affordable for many Canadians [35]. Waller, Hodge, Holford, Milana, and Webb (2020) highlighted that the lifelong education system helps to reduce educational inequality, and vocational training for economic activities serves as a crucial public investment in sustaining society [36].

3. Methodology

3.1. Data Collection

This study analyzes how the importance and priority of previous factors have changed in the long term whenever new lifelong education policies have been established. The first 2016 questionnaire survey was sent to 300 officials from Korean lifelong education institutions between 15 October 2015 and 30 January 2016. Excluding responses with low reliability, data from 65 out of 68 respondents who completed the survey were collected and used to identify the final factors of the multi-actor system. After the first questionnaire survey, the second one was conducted from 1 to 30 March 2023 using the same questions as those in the first one and two new questions. The questionnaire survey was sent to 400 professors in lifelong education departments across the country, 68 of whom responded. Excluding responses with low reliability, this study used data from 59 out of the 68 respondents. The second questionnaire survey used the same Likert scale survey method as the first one based on a four-point scale indicating positive or negative responses, excluding responses that were neither positive nor negative.

3.2. Procedure

In Step 1, this study collected factors identified from STEPPER [1], which was further specified from the existing STEEP [2] methodology at the KAIST Moon Soul Graduate School of Future Strategy in 2016 and factors related to the future of lifelong education from a literature review and interviews. Through expert interviews, the collected factors were organized to draw a causal map for the lifelong education market. In Step 2, the first questionnaire survey on relevant experts and stakeholders was conducted to finally select uncertain future factors (external factors) and law and policy factors (means) from the factors identified above. Considering all the factors, the multi-actor system was used as a methodology to draw a causal map for the lifelong education market to establish future strategies based on the causal relationship between the variables. In Step 3, the authors prepared scenarios for strategic environments based on uncertain future factors in the causal map. In Step 4, this study set directions for the current system based on each of the prepared future scenarios and identified future strategies accordingly. Among the identified future strategies, the common future strategies applicable to all the scenarios were selected via the wind tunneling method as important strategies that should be prioritized in the Fourth Comprehensive Lifelong Education Promotion Plan from 2018 to 2023, which was to be implemented by the Korean government in 2017; the other strategies applicable to each of the other scenarios were organized separately. In Step 5, the second questionnaire survey was administered in 2023 based on the first one to provide comparisons with the past and an outlook for the Fifth Comprehensive Lifelong Education Promotion Plan from 2024 to 2029, which is to be implemented by the Korean government in 2023.

3.3. Analysis of Future Factors for Lifelong Education

To analyze the environment of lifelong education in Korea, the authors of this study chose to use the causal map method, which describes the relationships between important factors driving the system or market. Because the conventional causal map has the disadvantage of simply considering the environment within the system, the multi-actor system was modified in this study to include external environmental factors, uncertain future factors, and factors to measure the success or failure of strategies (Enserink, 2010) [37].

The purpose of the conventional causal map is simply to examine future strategies by identifying scenarios based on the relationships between different factors to analyze the overall system or market. This methodology, however, applies uncertain future factors and important laws or policies, which constitute the environment of the system or market, based on the evaluation criteria, as illustrated in Figure 1, to produce a causal map for identifying future strategies.

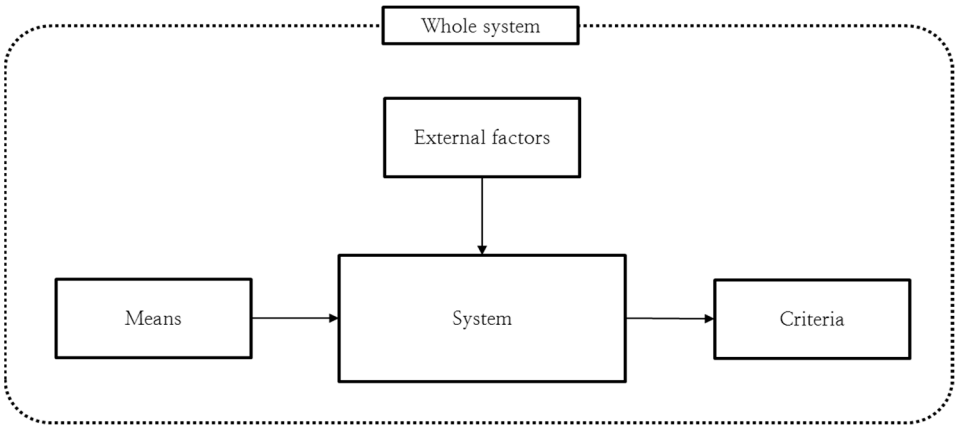

Figure 1. Framework of the multi-actor system.

A total of 32 internal factors in lifelong education were extracted from the literature review and the aforementioned STEPPER, and 15 of them were finally selected through expert interviews, as listed in Table 1. Law and policy factors and future factors listed in Table 1 were identified through the literature review and expert interviews, and each factor was finally selected or categorized according to its importance.

Table 1. Internal, external, and future factors for lifelong education.

Section	Detailed Factor
Internal factors	Fertility rate, aging society, welfare expenditure, income after retirement, tax, personal gross disposable income, youth unemployment rate, multicultural families and immigration, number of Korean universities, re-employment and establishment of businesses by middle-aged people, home-based work (including freelancing), high-value-added society, increased education expenses, creation and transfer of new lifelong education institutions, job segmentation, and birth of new occupation groups
Means and external factors	K-MOOC policy, policy to attract overseas universities, lifelong education city policy, support policy of municipalities and ministries for lifelong education, Lifelong Education Act, policy for university structural reform
Uncertain future factors	Government finances, degree system [3], introduction of foreign MOOCs, GDP growth rate, refugees, different feelings about change in the information society [4]

The explanations for each factor are as follows:

Internal Factor 1: Fertility Rate

The fertility rate is closely related to the number of students. According to the Statistics Korea data in 2023, the Korean population has a low fertility rate of 0.7, and by 2040 the youth population will be 3.18 million, 50% of the 2023 figure [38].

Internal Factor 2: Aging Society

Structural changes in education have been shown to account for a significant part of the overall increase in life expectancy [39]. Republic of Korea became an aging society in 2017 and is evaluated to be more active in lifelong education and leisure activities than the existing aging generation [40].

Internal Factor 3: Welfare Expenditure

The National Assembly Budget Office is concerned with fiscal deficits due to excessive welfare expenditure, emphasizing the need to reduce fiscal deficits and generational gaps through value-added creation such as lifelong education instead of monetary welfare in the aging era [41].

Internal Factor 4: Income After Retirement

By 2035, when the baby boom generation becomes over 60, they will receive lower pensions due to the imbalance between welfare expenditure and tax revenue, hence the need for preparations, such as lifelong education for re-employment [42].

Internal Factor 5: Tax

Since 2014, the Korean government has increased taxes such as tobacco tax and resident tax to secure local tax revenue to cover the costs of welfare policies such as free medical care and free meals. This may lead to fiscal imbalances and suggests the need for alternatives such as online education to reduce education expenses, as seen in the United States [43].

Internal Factor 6: Personal Gross Disposable Income

Personal gross disposable income is closely related to both education spending and the participation rate in lifelong education. Since 2000, the proportion of personal gross disposable income has been decreasing annually, and this is expected to continue, considering taxes, education expenses, and inflation [44].

Internal Factor 7: Youth Unemployment Rate

The youth unemployment rate is directly related to a country's ability to secure welfare-related tax revenue. According to a national research report, welfare expenditure, which was approximately 3.8% of GDP in 1997, increased to approximately 13% in 2020, a 3.4-fold increase. Therefore, lifelong education policies for the re-employment of middle-aged people are considered important for the long-term maintenance of the welfare system [45].

Internal Factor 8: Multicultural Families and Immigration

Multicultural families and immigrants are considered a new student demographic for lifelong education, with the population of multicultural families expected to increase to 1.2 million by 2030 and 2.16 million by 2050 [46].

Internal Factor 9: Number of Korean Universities

Republic of Korea is restructuring approximately 50% of its existing universities as the number decreased to 460,000 in 2020. Efforts to attract foreign students or transform into lifelong education institutions are being encouraged but are proceeding slowly due to opposition from universities [47].

Internal Factor 10: Re-employment and Establishment of Businesses by Middle-Aged People

Lifelong education policies aim to increase the success rate of re-employment and the establishment of businesses by middle-aged people. However, lifelong education programs and policies for re-employment are deemed not practically helpful [48].

Internal Factor 11: Home-Based Work (Including Freelancing)

The expansion of home-based work is associated with the creation of new jobs and an increase in free time, which relates to the expansion of the lifelong education market [49].

Internal Factor 12: High-Value-Added Society

The spread of knowledge-based high-value industries is considered an important factor for national growth in modern society. According to the EU's "Europe 2020 Strategy", an era of high-value-added demands strengthening creativity and innovation can be achieved through lifelong education [50].

Internal Factor 13: Increased Education Expenses

Although the level of public expenditure on higher education in Korea is below the OECD average, the private burden rate is significantly higher than that in other OECD countries [51]. With the global trend of rising education costs, the importance of online lifelong education systems such as MOOCs is increasing.

Law and Policy Factor 1: K-MOOC Policy

The K-MOOC policy, which offers citizens lifelong education free of charge, faces challenges including a differentiation strategy, resistance from existing universities, the credibility of academic credit recognition, and content competitiveness issues, experts note [52].

Law and Policy Factor 2: Policy to Attract Overseas Universities

Despite a shortage of students for domestic universities, the Korean government continues to implement a national policy to attract overseas educational institutions, allocating up to KRW 40 billion over five years from 2014 to incentivize the establishment of these foreign universities [53]. This policy may successfully attract prestigious institutions but also intensify competition for local universities.

Law and Policy Factor 3: Lifelong Education City Policy

Initiated in 2007, the Lifelong Education City Policy has faced criticism due to its low participation and satisfaction rates, which many attribute to misalignment with current realities [54].

Law and Policy Factor 4: Support Policy of Municipalities and Ministries for Lifelong Education

Korea's current support policy for lifelong education is hampered by budget constraints, complicating the provision of basic services. Policy overlaps among departments exacerbate budget reallocation issues, undermining policy sustainability and weakening the differentiation and competitiveness of lifelong education [55].

Law and Policy Factor 5: Lifelong Education Act

The Lifelong Education Act has broadened its definition since 2016 to encompass all educational programs, thereby diversifying degree systems. Nevertheless, it is still criticized for its lack of systematic structure and needs revisions, largely due to the absence of a long-term policy direction [56].

Law and Policy Factor 6: Policy for University Structural Reform

The policy for university structural reform is under scrutiny for its unilateral approach and indistinct criteria for identifying underperforming universities. As a result, universities are expected to shift toward online, digital, learning-centric higher lifelong education systems to mitigate the effects of a shrinking student-age population and the limitations of quantitative growth [57].

Future Factor 1: Government Finances

The success of lifelong learning cities hinges on sustained and long-term financial backing from the government [58]. However, the budget for lifelong education in Korea constitutes less than 0.05% of the Ministry of Education's budget, which is markedly less than that of counterparts like Japan, the USA, and the UK.

Future Factor 2: Degree System

In line with Republic of Korea's Lifelong Education Act's broadened scope to include all educational courses, it is projected that online degree attainment will surge by 2035, eclipsing offline achievements, and incorporating online courses from foreign institutions into domestic offline degrees will become feasible [56].

Future Factor 3: Introduction of Foreign MOOCs

In contrast to Korea's educational setting, some American universities offer doctoral degrees via MOOCs. The expanding reach of MOOCs from well-known international

universities, which draw a global student body, is likely to aggravate the scarcity of students for other institutions at both local and international levels [59].

Future Factor 4: GDP Growth Rate

GDP is widely used in studies as a forward-looking indicator that correlates with educational environments and unemployment rates, based on Okun's law. This law suggests a reciprocal relationship between unemployment and economic growth, indicating that they move in opposite directions [60].

Future Factor 5: Influx of Foreign Residents (Including Refugees)

In 2015, the number of foreign residents in Republic of Korea surpassed 2 million. Additionally, by 2015, there were 766 refugee applications in Republic of Korea, a figure that has increased by more than 300% in three years [61]. As Republic of Korea's excellent public safety and welfare environment becomes known, the influx of foreign residents and refugees is increasing. By around 2035, due to the decrease in the birth rate, Korean companies are expected to employ more foreign workers, and more refugees from Syria, North Korea, China, the Philippines, and other countries are expected to enter the country.

Future Factor 6: Different Feelings About Change in the Information Society

The pace of change in modern society is surpassing the absorptive capacity of existing educational systems, resulting in universities facing difficulties in meeting the demands of society. The rapid increase in knowledge and swift changes in the information society are creating a gap in societal adaptation, which in turn will highlight the importance of lifelong education as a means to provide consistent educational opportunities [62].

As the next step, to finally select law and policy factors and future factors, a questionnaire survey was administered to 65 officials from government lifelong education institutions, university lifelong education institutions, and external lifelong education companies. It asked the respondents about the importance (=impact on the future) of each of the law and policy factors and future factors and priority for improvement.

4. Results and Discussion

4.1. Causal Relationships and Future Strategies in the Lifelong Education Market (from the First 2016 Questionnaire)

Table 2 lists the results of the first 2016 survey on legal and policy factors. The Lifelong Education Act had the biggest impact on the lifelong education market. Policy to attract foreign universities was found to have an impact on other Korean universities and ultimately the lifelong education market, although foreign universities would not directly have a considerable impact on the lifelong education market, even if foreign universities came in. It was found that K-MOOC policy currently has no significant effect, but its importance will increase depending on the future policy direction.

Table 2. Results of the questionnaire regarding law and policy factors.

Factor	Average Value	Importance	Priority
Lifelong Education Act	2.6	Very important	1st
Lifelong education city policy by region	2.4	Important	2nd
University Structural Reform Policy	2.4	Important	3rd
Government Lifelong Education City Policy	2.3	Important	4th
K-MOOC policy	1.9	Not important	5th
Policy to attract foreign universities	1.6	Not important	6th

Table 3 provides the results of future factors. The most important future factor was government finance, which exhibited the biggest impact, as government finance can allow for sustainable growth in lifelong education policies and have a substantial impact on boosting the lifelong education market. The second most important future factor was the difference in feeling of information society change as it is closely related to the need for lifelong education. GDP growth rate was also an important future factor that affects unemployment rate, education spending, and leisure time.

Table 3. Results of the questionnaire about future factors.

Factor	Average Value	Importance	Priority
Government finance	2.7	Very important	1st
Difference in feeling of information society change	2.4	Important	2nd
GDP growth rate	2	Important	3th
Extension of degree system	1.7	Not important	4th
Introduction of foreign MOOCs	1.7	Not important	5th
Refugee inflow	1.4	Not important	6th

Considering these final results, each of these factors was included in the causal map, and additional expert interviews were conducted to identify the causal map for the final analysis of future strategies in lifelong education, as illustrated in Figure 2.

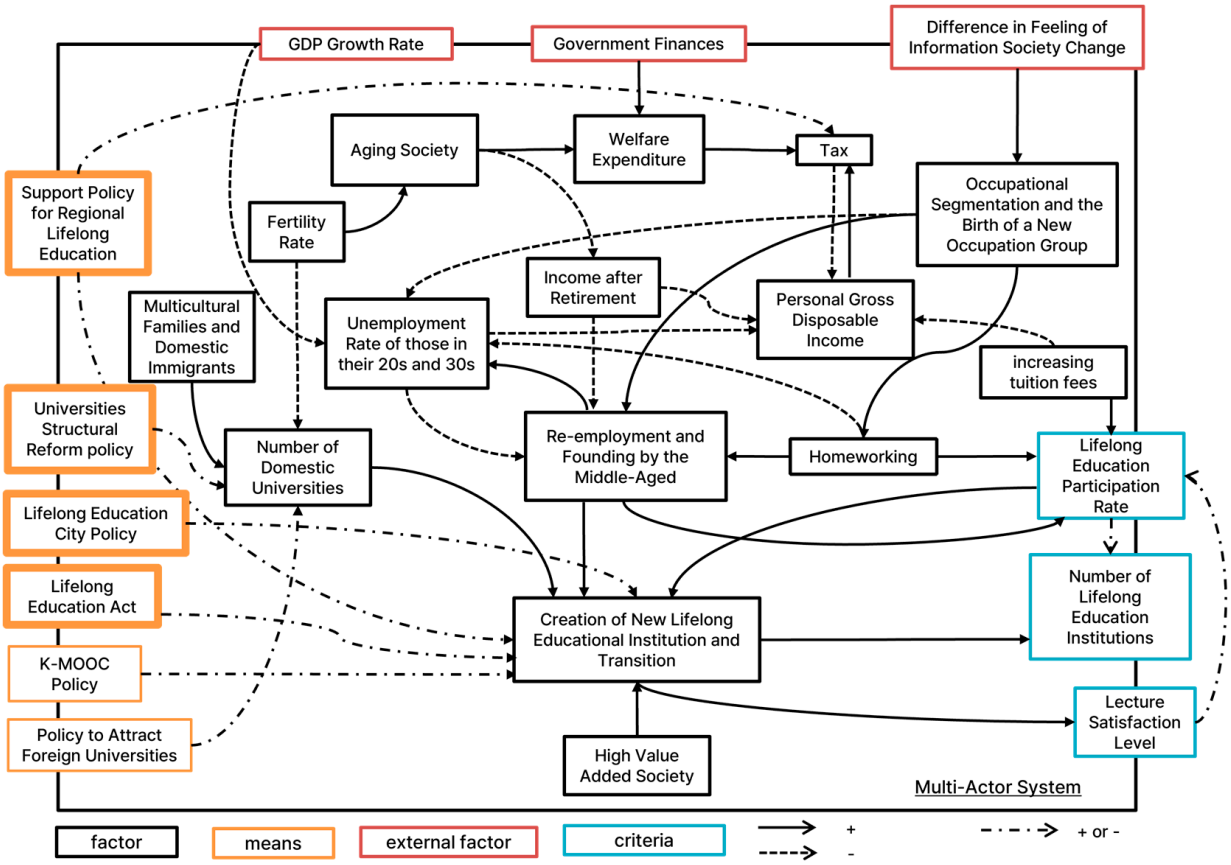

Figure 2. Final causal map for the lifelong education market.

Based on the causal map in Figure 2, the authors set up six scenarios for lifelong education in Korea through future factors (external factors) with experts in lifelong education. The methods for deriving various future scenarios are as follows.

First, a decision tree was constructed, as shown in Figure 3, based on the survey results of future factors deemed important in Table 3 to derive eight scenarios. Among the derived scenarios, scenarios 3 and 4, which were judged to have a similar overall image, were integrated into scenario 3, and scenarios 5 and 8 were integrated into scenario 6 (as a result, the original scenario 6 was changed to scenario 5).

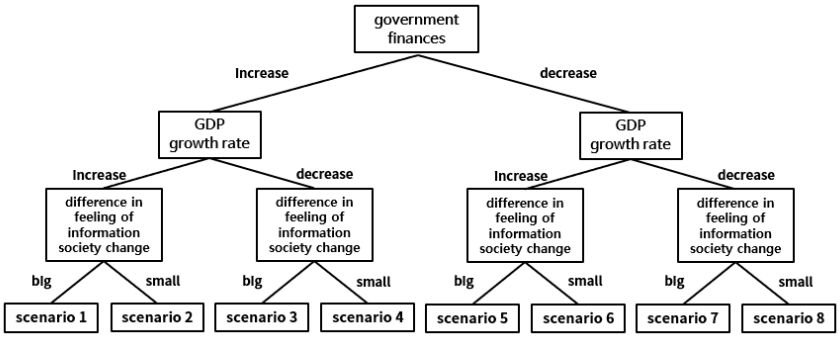

Figure 3. Scenario derivation decision tree.

Additionally, the settings for establishing future strategies through these scenario analyses were as follows:

(1) The technological society applied to each scenario is set in an era where a super-augmented reality lifelong education system, capable of producing effects very similar to offline experiences, can be applied due to the distribution of virtual reality devices.
(2) The future images predicted based on the six scenarios are introduced.
(3) Each future strategy through the scenarios aims for a virtuous cycle of the lifelong education system, and the future strategies to be established in the fourth comprehensive plan for lifelong education promotion from 2018 to 2023 are derived for this achievement.
(4) Corresponding laws or policies are presented along with the strategies, including the direction of amendments.
(5) After all strategies are derived, the future strategies that should be prioritized in the fourth comprehensive plan for lifelong education promotion, starting from 2018, are derived through the wind tunneling technique.

The future strategies corresponding to each developed scenario were finalized through expert interviews. Future strategies for each of the scenarios were identified, and expert interviews were conducted to finally organize the strategies. These strategies, identified through the wind tunneling technique, were applicable to all scenarios and represent the policy directions that should be prioritized in the Comprehensive Lifelong Education Promotion Plan.

Figure 4 outlines common strategies identified from the final scenarios and strategies by scenario.

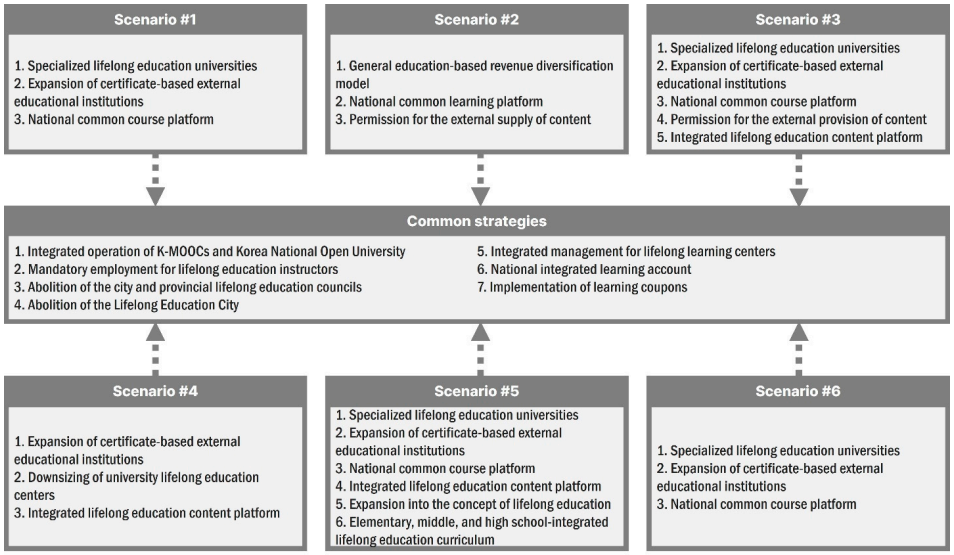

Figure 4. Common strategies and strategies by scenario.

4.2. Results of the Comparison of the 2023 and 2016 Questionnaire Surveys

The 2023 expert questionnaire survey was conducted for the third purpose of this study, namely to examine how the importance and priority of the factors identified in 2016 have changed. In addition, the authors also investigated which of the previously proposed scenarios was more accurate.

4.2.1. Comparison of Law and Policy Factors

Table 4 lists the importance of law and policy factors. The count for each of the variables in terms of importance was consistent with that in the previous questionnaire survey, which means that trends in the overall importance had not changed during the next policies. Nevertheless, the percentages of variables showed some differences in terms of importance. The percentages of the factors of the K-MOOC policy, Government Lifelong Education City Policy, and Lifelong Education Act saw a decline in the 2023 survey compared to the 2016 one, which means that the importance of other factors had increased.

Table 4. Comparison of importance in law and policy factors.

Survey Year	Importance	K-MOOC Policy		Policy to Attract Foreign Universities		Government Lifelong Education City Policy		Lifelong Education City Policy by Region		Lifelong Education Act		University Structural Reform Policy	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
2016	Very important	13	20.0%	10	15.4%	26	40.0%	32	49.2%	42	64.6%	30	46.2%
	Important	34	52.3%	22	33.8%	31	47.7%	27	41.5%	17	26.2%	28	43.1%
	Not very important	18	27.7%	28	43.1%	8	12.3%	4	6.2%	6	9.2%	7	10.8%
	Not important	0	0.0%	5	7.7%	0	0.0%	2	3.1%	0	0.0%	0	0.0%
2023	Very important	12	20.3%	5	8.5%	18	30.5%	31	52.5%	38	64.4%	36	61.0%
	Important	28	47.5%	18	30.5%	27	45.8%	22	37.3%	17	28.8%	19	32.2%
	Not very important	18	30.5%	30	50.8%	12	20.3%	5	8.5%	4	6.8%	1	1.7%
	Not important	1	1.7%	6	10.2%	2	3.4%	1	1.7%	0	0.0%	3	5.1%

The questionnaire was based on a four-point scale, which has the advantage of categorizing four and three points as positive and two and one points as negative. Responses that were neither negative nor positive were eliminated, making it possible to see a direction in positive or negative responses. In this respect, dichotomization analysis was used to determine the percentage of the sum of items with three and four points as a variable called positive percentage for importance and comprehensively examine the percentage of the respondents who considered the items as important. Figure 5 outlines the positive percentage for importance.

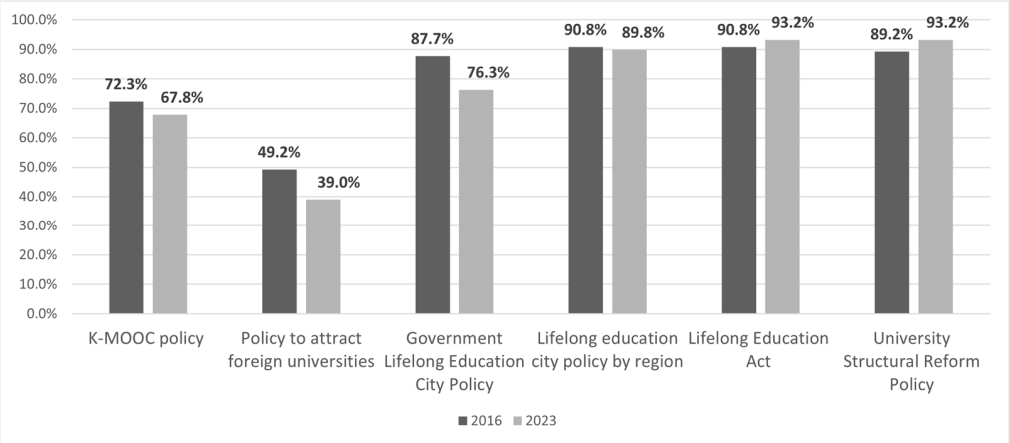

Figure 5. Comparison of the positive percentage for importance in law and policy factors.

As illustrated in Figure 5, K-MOOC policy, policy to attract foreign universities, Government Lifelong Education City Policy, and lifelong education city policy by region were less important than before. Policy to attract foreign universities and Government Lifelong Education City Policy decreased in importance by approximately 10%. Meanwhile, the Lifelong Education Act and University Structural Reform Policy were more important than before, and their combined positive percentage for importance was highest in 2023. The positive percentage of lifelong education city policy by region remained similar, whereas that of the Government Lifelong Education City Policy fell by 13.4%. Based on these results, it can be argued that because lifelong education policies are mainly implemented by local governments, lifelong education city policy by region is more important than Government Lifelong Education City Policy. K-MOOC policy saw a decline from the first survey as K-MOOCs provided by the government were considered less competitive in the market due to the creation of various other lifelong education platforms. The positive percentage of policy to attract foreign universities decreased by 9.8% because few foreign universities had been attracted over the previous seven years, and various social factors, such as exchange rates due to COVID-19, had been at play.

Table 5 lists the priority in law and policy factors. Except for lifelong education city policy by region and University Structural Reform Policy, the other factors remained unchanged in terms of the most selected priority. Lifelong education city policy by region had the highest number of respondents, taking third place for priority in 2016 but second in 2023. University Structural Reform Policy had the highest number of respondents, taking fourth place for priority in 2016 but first in 2023. The factor most frequently selected in 2016 was Lifelong Education Act, but it was University Structural Reform Policy in 2023.

Table 5. Comparison of priority in law and policy factors.

Factor		K-MOOC Policy		Policy to Attract Foreign Universities		Government Lifelong Education City Policy		Lifelong Education City Policy by Region		Lifelong Education Act		University Structural Reform Policy	
Period		**2016**	**2023**	**2016**	**2023**	**2016**	**2023**	**2016**	**2023**	**2016**	**2023**	**2016**	**2023**
Count	1st	5	12	3	9	4	10	12	18	31	19	11	21
	2nd	8	14	3	11	17	17	14	26	9	12	16	13
	3rd	6	12	6	12	19	24	16	19	11	13	10	8
	4th	14	19	9	11	9	20	12	19	6	8	17	11
	5th	27	28	9	19	13	18	4	8	4	5	5	4
	6th	5	15	35	38	3	11	7	10	4	2	6	2
SUM		195	318	137	266	241	348	257	397	305	262	253	266
Percentage		14.0%	17.1%	9.9%	14.3%	17.4%	18.7%	18.5%	21.4%	22.0%	14.1%	18.2%	14.3%
Final rank		5th	3rd	6th	4th	4th	2nd	2nd	1st	1st	6th	3rd	4th

For a comprehensive analysis, data were reorganized, as listed in Table 5. The SUM row represents the sum of points for ranks multiplied by the number of the respondents who gave the ranks, with six points for the first rank and one point for the sixth rank. Hence, the factor with the highest combined SUM ranked first overall, and each factor's rank was listed in the final rank row. The percentage row shows the percentage of each factor with the sum of SUMs as the denominator and its SUM as the numerator. The data were reorganized, and the following overall results were found:

- In 2016, the Lifelong Education Act ranked first. In 2023, however, it ranked sixth, recording the largest drop.

- In 2023, lifelong education policy by region ranked first. It suggests that local policies, which are more applicable in practice, are more important than the Lifelong Education Act, which is a broader concept. Furthermore, given that Government Lifelong Education City Policy, a policy with a whole-of-government approach, ranked second, policies should be prioritized over laws.
- K-MOOC policy, policy to attract foreign universities, Government Lifelong Education City Policy, and lifelong education city policy by region had higher priority than before. Lifelong Education Act and University Structural Reform Policy saw lower priority than before.
- In 2016, the range was 12.1% from 9.9% to 22%. In 2023, the range decreased to 7.3% from 14.1% to 21.4%. This indicates that the difference in priority was smaller than before.
- While K-MOOC policy decreased in importance compared to in the first survey, it moved up two places in the priority of future factors to be considered compared to the first survey. This suggests that as a national platform that can provide free lifelong education would be the most important, it should be prioritized over policy to attract foreign universities and University Structural Reform Policy in the upcoming new lifelong education policies.

4.2.2. Comparison of Future Factors

Table 6 summarizes the importance of future factors in the 2016 and 2023 questionnaire surveys. A comparison of the two surveys revealed that the most frequently selected factors in terms of importance remained unchanged, except for the introduction of foreign MOOCs and refugee inflow. The introduction of foreign MOOCs was less important in 2023 than in 2016, with the same number of respondents choosing "important" and "not very important". Refugee inflow had the highest number of respondents choosing "not very important" in 2016 but "important" in 2023. Among the factors that remained unchanged, the percentage of government finance, GDP growth rate, and difference in feeling of information society change increased in the 2023 survey compared to the 2016 one. Government finance was the most frequently selected factor in both the 2016 and 2023 surveys.

Table 6. Comparison of importance in future factors.

Survey Year	Importance	Government Finance		Extension of Degree System		Introduction of Foreign MOOCs		GDP Growth Rate		Refuge Inflow		Difference in Feeling of Information Society Change	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
2016	Very important	45	69.2%	6	9.2%	5	7.7%	16	24.6%	6	9.2%	35	53.8%
	Important	19	29.2%	37	56.9%	40	61.5%	34	52.3%	23	35.4%	24	36.9%
	Not very important	1	1.5%	20	30.8%	17	26.2%	11	16.9%	27	41.5%	6	9.2%
	Not important	0	0.0%	2	3.1%	3	4.6%	4	6.2%	9	13.8%	0	0.0%
2023	Very important	46	78.0%	12	20.3%	7	11.9%	14	23.7%	8	13.6%	43	72.9%
	Important	12	20.3%	26	44.1%	24	40.7%	33	55.9%	26	44.1%	16	27.1%
	Not very important	1	1.7%	18	30.5%	24	40.7%	10	16.9%	22	37.3%	0	0.0%
	Not important	0	0.0%	3	5.1%	4	6.8%	2	3.4%	3	5.1%	0	0.0%

Figure 6 outlines the positive percentage for importance. The positive percentage for the importance of government finance, extension of degree system, and introduction of foreign MOOCs declined, and they were found to be less important than in 2016. The biggest decline of 16.7% was observed in the introduction of foreign MOOCs. This may indicate that foreign MOOCs are not very competitive, as they have less content provided with Korean subtitles, and the Korean MOOC system feels more familiar to users in Korea. The factor that saw the largest increase of 13% was refugee inflow, which may be because more people from different cultures increase the need for lifelong education. More notably,

the growing popularity of K-POP may have increased interest in Korean culture and led to more Korean language education, and the respondents considered it more important. The difference in feeling of information society change was 90.8% in 2016 and reached 100% in 2023, which suggests that the importance of this factor increased as the impact of artificial intelligence on people's lives increased. In 2016, government finance accounted for the highest percentage, whereas it was difference in feeling of information society change in 2023.

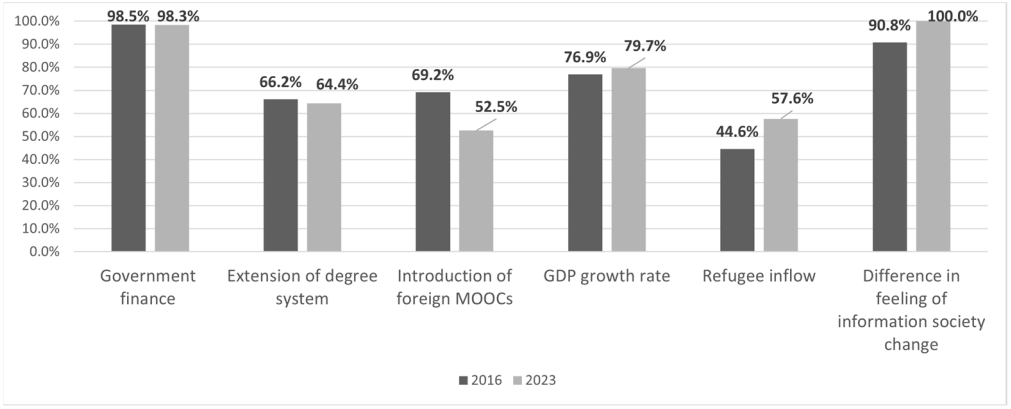

Figure 6. Comparison of the positive percentage for the importance of future factors.

Table 7 lists the priority of future factors. Only government finance, refugee inflow, and the difference in the feeling of information society change remained unchanged in the most selected priority. Extension of the degree system ranked fourth in 2016 but third in 2023. The introduction of foreign MOOCs ranked fifth in 2016 but fourth in 2023. GDP growth rate came in second in 2016 but ranked third in 2023.

Table 7. Comparison of priority in future factors.

Factor		Government Finance		Extension of Degree System		Introduction of Foreign MOOCs		GDP Growth Rate		Refuge Inflow		Difference in Feeling of Information Society Change	
Period		**2016**	**2023**	**2016**	**2023**	**2016**	**2023**	**2016**	**2023**	**2016**	**2023**	**2016**	**2023**
Count	1st	41	30	2	4	2	1	1	3	0	1	18	28
	2nd	15	21	7	10	8	2	18	7	3	8	16	13
	3rd	7	4	14	16	9	12	17	19	6	2	13	9
	4th	0	3	20	9	16	17	11	7	8	12	10	6
	5th	1	1	13	8	20	11	13	18	12	15	5	1
	6th	1	0	9	12	10	16	5	5	36	20	3	0
SUM		352	312	198	193	186	153	228	191	123	140	283	289
Percentage		25.7%	24.4%	14.5%	15.1%	13.6%	12.0%	16.6%	14.9%	9.0%	11.0%	20.7%	22.6%
Final rank		1st	1st	4th	3rd	5th	5th	3rd	4th	6th	6th	2nd	2nd

From the comprehensive analysis, the authors found the following:

- In both 2016 and 2023, government finance ranked first as the most selected factor, and refugee inflow came in sixth. This suggests that, unlike the results regarding importance, government finance to develop and maintain lifelong education was the most important priority at the end of the day.

- Only the extension of the degree system moved up in its rank. This means that, while lifelong education was previously considered a hobby, it is now important to recognize the process of learning in lifelong education, such as academic credit certification and training certification.
- While the difference in feeling of information society change ranked first as the most important factor, it ranked second to government finance in terms of priority.
- In 2016, the range was 16.7% from 9% to 25.7%. In 2023, the range decreased to 13.3% from 11.1% to 24.4%. This indicates that the difference in priority was smaller than before.

4.2.3. New Questionnaire Survey of the Future Factor of Artificial Intelligence

The Korea Information Society Development Institute (KISDI), a national agency of Republic of Korea, has established that AI can have a significant impact on the education and vocational training system by introducing new ways of learning, and the government should establish a framework for lifelong education to enable citizens to develop AI competencies in preparation [63]. However, there is also a contrary view that, while AI has influence, its impact within the Republic of Korea's lifelong education system may not be significant due to variables such as budget and policy. Therefore, a new future factor of social changes due to AI was introduced in the 2023 re-survey, and the question was "If it is included in the existing survey, how do you rate its importance and priority?" Table 8 presents the importance of social changes due to AI. In terms of importance, "very important" accounted for the largest number of 34 respondents. In terms of priority, third accounted for the largest number of 16 respondents. Considering that the number of the respondents choosing third and fourth in priority was higher than that of the respondents choosing first and second, its priority to be considered was relatively lower than that of other important factors.

Table 8. Comparison of importance in social changes due to AI.

Factor	Importance	Count	%	Priority	Count	Priority	Count
Social changes due to AI	Very important	34	57.6%	1st	12	5th	3
	Important	24	40.7%	2nd	11	6th	1
	Not very important	1	1.7%	3rd	16	7th	2
	Not important	0	0.0%	4th	14		

Figure 7 shows the factor's positive percentage for importance compared to other future factors. The importance of social changes due to AI was 98.3%, which was similar to that of the existing future factor of government finance. It was found to be the second most important factor after the difference in feeling of information society change.

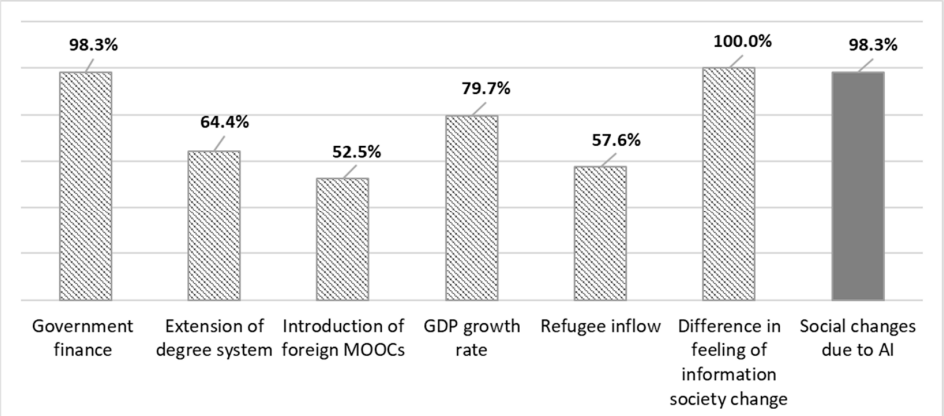

Figure 7. Comparison of the positive percentage for importance in social changes due to AI.

4.2.4. Analysis of Directions for Future Scenarios

In the first survey, different scenarios were examined through the question "In what direction do you think lifelong education policies are likely to go?" After providing the respondents with information about the scenarios, the survey was administered with the question "Towards which scenario do you think policies are moving?" As presented in Table 9, Scenarios 2 and 4, which can be viewed as opposite, were ranked highest. In other words, the scenarios chosen as potential future directions are divided evenly between Scenario 2, a positive scenario, and Scenario 4, a negative one. This suggests that the outlook for the future of lifelong education in Korea is still in a transitional period with a mix of positive and negative views.

Table 9. Total and mean for predicted scenarios.

	Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**	**Scenario 5**	**Scenario 6**
Count	189	248	213	248	124	206
%	91.7%	120.4%	103.4%	120.4%	60.2%	100.0%

5. Conclusions

This study focused on identifying factors impacting the lifelong education system in Korea and future strategies for lifelong education through different scenarios. This study holds significance as it drew a causal map of the lifelong education system in Korea as a whole, which has not been analyzed before, and identified law and policy factors and future factors, which experts on the ground considered, to find future strategies for lifelong education. It is also relevant as it conducted a timely re-survey for the period of new policy making to analyze changes over the long term. Finally, this study also holds significance in that it analyzed different scenarios in lifelong education and suggested future policy directions as a portfolio to prepare for the upcoming future.

The novelty and expected implications of this paper can be summarized as follows:

(1) This study, unlike previous research, addressed the entire lifelong education system. While most prior studies tend to deal with only one issue, this research approached the concept as a whole market, deriving sustainable future strategies within various future scenarios, including wild cards such as unification. Hence, by providing the future direction of current policies within various scenarios, it can assist in making decisions related to policies considering their importance and sustainability.

(2) For the causal map analysis of lifelong education, factors from various aspects were analyzed based on a survey of 65 stakeholders from universities, government, and external lifelong education institutions. Accordingly, we could understand the future of lifelong education as perceived by current stakeholders. Furthermore, based on the survey results, we could discern the ranking of policies that stakeholders believe should be revised from a futurological perspective in terms of their future impact. The causal map of lifelong education derived through this analysis can be utilized as a foundational study for factors to consider when establishing future policies.

(3) The results of this study can be useful in designing the future direction of policies by considering various external factors, moving beyond a simple causal relationship map. The analysis from the perspective of the entire market and associating the derived future strategies with the direction of amendments to the existing Lifelong Education Act means this study can serve as foundational research for future legislative revisions.

However, a limitation of this study is that it is difficult to generalize the findings as the survey was administered to a limited number of experts in specialized fields. Additionally, the analysis is based on an overall perspective rather than individual cases or specific project levels. In future studies, it will be necessary to obtain additional materials that discuss problems in policy formulation by each ministry and to further derive future strategies at the actual operational level, which are more specific than the national policy level.

Thus, we propose following up this research with a causal map study that can add more factors based on this study's causal map and analyze the factors in greater depth. In addition, a study should be conducted to improve the existing scenarios based on the changed factors and suggest directions for improvement in the existing policies. Finally, the authors propose comparing and analyzing the effectiveness of improved lifelong education policies.

Author Contributions: Conceptualization, J.J.; methodology, formal analysis, J.J.; investigation, J.J.; resources, D.H.; data curation, D.H.; writing—original draft preparation, J.J.; visualization, J.C.; validation, J.C.; writing—review and editing, S.Y.; project administration, S.Y. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Data Availability Statement: No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

[1] 'STEPPER' is a term coined by the Korea Advanced Institute of Science and Technology Graduate School of Future Strategy, representing the seven elements they propose as changing the future: Society, Technology, Environment, Population, Politics, Economy, and Resources, by taking the first letter from each element.

[2] STEEP stands for Social, Technological, Economic, Environmental, and Political five categories of external factors used in strategic analysis and futures thinking to understand the various forces that might influence future changes and trends.

[3] The Korean government is introducing an "adult learner model" in 2018 to meet lifelong education demands and improve the universities' financial condition. Under the model, based on Article 2 of the Lifelong Education Act, all courses—including the regular curriculum—must expand to lifelong learning, and the diversity of the degree system will also be expanded to reflect a greater range of program structures.

[4] With knowledge from 1750 to 1900 set as 1, it was found that knowledge had doubled over the 50 years from 1900. Due to this exponential increase in speed, it would then double twice in a cycle of 73 days in 2020 (Jeong, 2016). This rapidly changing speed of information society will lead to the need for lifelong education to increase.

References

1. OECD. *Education at a Glance 2016: OECD Indicators*; Organization for Economic Co-Operation and Development, OECD: Paris, France, 2016.
2. National Statistical Office, Republic of Korea. *Population and Housing Census of 2015*; National Statistical Office: Seoul, Republic of Korea, 2015.
3. Kim, D.B.; Jeong, K.H.; Lee, E.J. The effects of elderly's participation in lifelong education on the ego integrity, and the mediating effect of life satisfaction. *Korean Gerontol. Soc.* **2012**, *32*, 801–817.
4. Lee, H.-J. The effects of learning outcome by lifelong education participation on adult learners in university continuing education institutions. *J. Educ. Res.* **2011**, *19*, 129–165.
5. Korean Educational Development Institute. The status and change of adult participation in lifelong learning during COVID-19. *KEDI Brief* **2022**, *12*, 6–8.
6. Kwak, S.; Park, H.; Kim, H. The research trends in the publications on university-based lifelong education—Based on theses and dissertations published in Korea from 1982 to 2012. *J. Lifelong Educ.* **2014**, *20*, 63–92.
7. Lee, B.; Choi, E. A study on the analysis of the trends of policy process of lifelong education in Korea. *J. Lifelong Educ. HRD* **2009**, *5*, 221–246.
8. Yoon, J. Determining the priority of lifelong education promotion policy in Gyeongsangnam-do through AHP analysis. *J. Korea Contents Assoc.* **2013**, *13*, 517–526. [CrossRef]
9. Sun, T.; Choi, E. Analysis of life-long education policy & exploration of policy development to prepare for the retirement of baby-boom generation. *J. Lifelong Educ. HRD* **2012**, *8*, 83–105.
10. Lee, H.; Baek, P. Strategic thinking, model-based analysis of national lifelong learning policies and implications—Mainly after the amendment of the Lifelong Education Act. *J. Lifelong Educ.* **2010**, *16*, 183–209.
11. Lee, S. Paradigm conversion and task of life-long education policy under the economic crisis of the European Union. *J. Korea Contents Assoc.* **2012**, *12*, 518–529. [CrossRef]
12. Ko, Y. The changes of lifelong education legislation in Korea and related issues. *J. Lifelong Educ. HRD* **2010**, *6*, 1–27.
13. Lee, H.; Ahn, D. Lifelong education and human resource development in the HRD paradigm debate. *J. Lifelong Educ.* **2007**, *13*, 77–102.

14. Choi, W. Implications of OECD lifelong education strategies for a Korean lifelong career development system. *J. Lifelong Educ.* **2007**, *13*, 77–102.
15. Jeong, K. Social economy and lifelong education—Meet the alternative movement and learning. *J. Lifelong Educ.* **2014**, *20*, 189–211.
16. Yoo, H.; Ji, H. Exploring key trends in domestic and international lifelong education and how to use remote learning. *J. Educ. Assign. Inst.* **2013**, *19*, 39–58.
17. Kim, Y.; Jeong, B. The effects of obstacles to online courses of lifelong education center learners affiliated with universities on lifelong education center satisfaction. *J. Humanit. Soc. Sci.* **2020**, *11*, 1255–1264.
18. Kim, J.; Choi, E. The lifelong educational search for the job acquisition process of immigrants with multicultural family backgrounds. *J. Lifelong Educ. HRD* **2012**, *8*, 79–103.
19. Lim, Y. Strategies for establishing a lifelong education system between universities/colleges and local governments for building a regional lifelong learning community. *J. Educ. Res.* **2010**, *8*, 109–130.
20. Park, S. Analysis of higher educational needs of adults. *J. Korean Policy Stud.* **2014**, *14*, 45–61.
21. Shin, M. The future direction of Korean elderly education in the lifelong learning period. *J. Lifelong Educ.* **2007**, *13*, 1–24.
22. Ahn, C.; Kim, H.; Kwak, Y. A study of distance education to activate continuing education. *J. Korean Inst. Inf. Technol.* **2012**, *10*, 127–131.
23. Jeon, M.; Song, S. Effects that the Type of Participation Motivation of Lifelong Education for the Elderly Influences in the Satisfaction of Education and Life-changing. *J. Korea Contents Assoc.* **2012**, *12*, 438–448. [CrossRef]
24. Gidley, J.M. Evolution of education: From weak signals to rich imaginaries of educational futures. *Futures* **2011**, *44*, 46–54. [CrossRef]
25. McAvinia, C.; Oliver, M. "But my subject's different": A web-based approach to supporting disciplinary lifelong learning skills. *Comput. Educ.* **2002**, *38*, 209–220. [CrossRef]
26. Cambridge, D. Audience, integrity, and the living document: eFolio Minnesota and lifelong and lifewide learning with ePortfolios. *Comput. Educ.* **2008**, *51*, 1227–1246. [CrossRef]
27. Su, Y.-H.; Feng, L.-Y.; Yang, C.-C.; Chen, T.-L. How teachers support university students' lifelong learning development for sustainable futures: The student's perspective. *Futures* **2012**, *44*, 158–165. [CrossRef]
28. Bolhuis, S. Towards process-oriented teaching for self- directed lifelong learning: A multidimensional perspective. *Learn. Instr.* **2003**, *13*, 327–347. [CrossRef]
29. Janssen, J.; Tattersall, C.; Waterink, W.; van den Berg, B.; van Es, R.; Bolman, C.; Koper, R. Self-organising navigational support in lifelong learning: How predecessors can lead the way. *Comput. Educ.* **2007**, *49*, 781–793. [CrossRef]
30. Watkins, K.E.; Marsick, V.J. Informal and incidental learning in the time of COVID-19. *Adv. Dev. Hum. Resour.* **2021**, *23*, 88–96. [CrossRef]
31. Dahlin, B. Our posthuman futures and education: Homo Zappiens, Cyborgs, and the New Adam. *Futures* **2012**, *44*, 55–63. [CrossRef]
32. Gidley, J.M.; Hampson, G.P. The evolution of futures in school education. *Futures* **2005**, *37*, 255–271. [CrossRef]
33. Rieckmann, M. Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures* **2012**, *44*, 127–135. [CrossRef]
34. Boeren, E.; Roumell, E.A.; Roessger, K.M. COVID-19 and the future of adult education. *Adult Educ. Q.* **2020**, *70*, 201–204. [CrossRef]
35. Smythe, S.; Wilbur, A.; Hunter, E. Inventive pedagogies and social solidarity: The work of community-based adult educators during COVID-19 in British Columbia, Canada. *Int. Rev. Educ.* **2021**, *67*, 9–29. [CrossRef]
36. Waller, R.; Hodge, S.; Holford, J.; Milana, M.; Webb, S. Lifelong education, social inequality and the COVID-19 health pandemic. *Int. J. Lifelong Educ.* **2020**, *39*, 243–246. [CrossRef]
37. Enserink, B. *Policy Analysis of Multi-Actor Systems*; Eleven International Publishing: Hague, The Netherlands, 2010.
38. Statistics Korea. *2022 Birth and Death Statistics*; Statistics Korea: Daejeon, Republic of Korea, 2023.
39. Luy, M.; Zannella, M.; Wegner-Siegmundt, C.; Minagawa, Y.; Lutz, W.; Caselli, G. The impact of increasing education levels on rising life expectancy: A decomposition analysis for Italy, Denmark, and the USA. *Genus* **2019**, *75*, 11. [CrossRef]
40. Kim, J.H. *The Effects of New Silver Generation Social Participation on Self Esteem and Psychological Well-Being*; Graduate School of Han Young Theological University: Seoul, Republic of Korea, 2014.
41. Baek, W.K. Future Directions of Fiscal Policy and Institutions for Fiscal Consolidation in the Low Growth and Fast Ageing Era. *J. Budg. Policy* **2014**, *3*, 1–34.
42. Korean Educational Development Institute (KEDI). *Strategies to Enhance the Effectiveness of Lifelong Learning in an Aging Society: Focusing on the Connection between Universities and Local Communities*; KEDI: Deoksan-myeon, Republic of Korea, 2015.
43. Park, J.W.; Jung, R.Y. Problems and Improvement Plans of Tax Support in Education Sector—Focusing on solution for youth unemployment issue. *Leg. Stud.* **2016**, *26*, 295–333.
44. Bank of Korea. *Korean System of National Accounts—Concepts, Sources and Methods*; Bank of Korea: Seoul, Republic of Korea, 2015.
45. Lee, C.J.; Min, B.K.; Lee, S.H.; Yoo, H.S.; Heo, J.H.; Sung, M.J.; Choi, J.S.; Kim, J.W.; Ryu, E.Y.; Woo, H.B.; et al. *Employmentless Low Growth and Super-Aged Society's Welfare System Research (NAFI Research Report No. 22-06)*; National Assembly Futures Institute: Seoul, Republic of Korea, 2022.

46. Lee, S.S.; Choi, H.J.; Park, S.J. *Impact of Multi-Cultural Family on Quantity and Quality of Population in Korea*; Korea Institute for Health and Social Affairs: Seoul, Republic of Korea, 2009.
47. Ko, Y.S. *Research on University Restructuring*; Korea Development Institute (KDI): Sejong-si, Republic of Korea, 2023.
48. Yoon, M.; Kim, H.B. A Study on the Re-employment Experience and Policy Perception of the Middle-Aged and Elderly. *Korean J. Local Gov. Stud.* **2022**, *26*, 281–305. [CrossRef]
49. National Assembly Futures Institute. *A Study on Strategies for Constructing a Future Lifelong Learning System (Research Report No. 20-09)*; National Assembly Futures Institute: Seoul, Republic of Korea, 2020.
50. National Lifelong Education Committee. *Europe 2020 Development Strategy and EU Lifelong Learning Agenda*; Global Lifelong Education Trends; National Lifelong Education Committee: Seoul, Republic of Korea, 2015.
51. Organisation for Economic Co-operation and Development. *Education at a Glance: OECD Indicators*; OECD Publishing: Berlin, Germany, 2023.
52. Ki, Y.H. Global MOOC's Learning and Analysis of K-MOOC Learning Experience. *J. Educ. Cult.* **2018**, *24*, 65–86.
53. Mo, J.L. The Status and Activation Plan of Attracting Foreign Universities. *Glob. Educ. Rep.* **2011**, *7*, 1–44.
54. Heo, J.M.; Hong, J.O. Analysis on the Community Centered Lifelong Education Support System. *J. Arts Humanit. Soc. Sci. Converg. Multimed.* **2016**, *6*, 211–220. [CrossRef]
55. Yang, B.; Jeon, K.S. The lifelong Education ordinance through analysis of the effectiveness of amended Lifelong Education—Focused on Maintenance condition of local government Lifelong education trends. *Compr. Educ. Stud.* **2012**, *10*, 89–117.
56. Kim, Y. An Analysis on the Achievements and Tasks of the Research on the Lifelong Education Law. *J. Educ. Law* **2017**, *29*, 53–74.
57. Kang, C.D. A critical study on university structural reform policy of government. *Korean Educ. Res.* **2015**, *21*, 275–306.
58. Osborne, M.; Houston, M.; Toman, N. *The Pedagogy of Lifelong Learning: Understanding Effective Teaching and Learning in Diverse Contexts*; Routledge: London, UK, 2007.
59. Choi, K.A. Tasks for Effective Use of K-MOOC as a Higher Continuing Education. *J. Lifelong Learn. Soc.* **2016**, *12*, 1–24. [CrossRef]
60. Lee, H.J. Economic Growth and Unemployment in Korea Implemented by Okun's Law: An Application of Differenced and Modified Models. *J. Arts Humanit. Soc. Sci. Converg. Multimed.* **2018**, *8*, 63–74.
61. Oh, B.H. The Challenges and Solutions on Refugee Policy in Korea. *J. Policy Dev.* **2015**, *15*, 69–95.
62. KnowledgeWorks. *2020 Forecast: Creating the Future of Learning*; KnowledgeWorks Foundation: Cincinnati, OH, USA, 2010.
63. Lee, K.E. Trends in research and policy alternatives on the impact of AI on jobs. *AI Trend Watch* **2020**, *11*, 1–10.