

The Effect of Lifelong Education Quality on City Brand Equity and Intention to Reuse: Focusing on the Case of Lifelong Education in Osan

Kwang-Su Lee ¹

¹ Kyonggi University Graduate School, Department of e-Business; Ph.D. student; idaph2@naver.com

* Correspondence

<https://doi.org/10.5392/IJoC.2022.18.2.081>

Manuscript Received 18 May 2022; Received 23 June 2022; Accepted 23 June 2022

Abstract: *The purpose of this study was to identify the structural causation between the service quality of lifelong education, city brand equity, and intention to reuse. For this study, the case of lifelong education in Osan, wherein local governments are leading efforts to promote lifelong education, was selected as the subject. A structured offline survey as well as an online survey were conducted to collect data from citizens of Osan who participated in lifelong education at least once. The results show that lifelong education service quality and city brand equity have a significant positive impact on intention to reuse, and that service quality has a significant positive impact on intention to reuse through city brand equity. The significance of this study lies in the revelation of the mediating impact of city brand equity, in the relationship between the service quality of lifelong education and individuals' intention to reuse lifelong education. This study also contributes establishing lifelong education service policies to increase the intention to reuse lifelong education.*

Keywords: Brand Equity; Intention to Reuse; Service Quality; Customer Orientation; Osan

1. Introduction

According to the Ministry of Education, in 2021, the implementation of anti-viral spread measures related to the novel coronavirus (COVID-19) pandemic reduced daily activities throughout society overall, resulting in poor citizen participation in lifelong learning. Nonetheless, adult (aged 25–79) participation in lifelong learning in South Korea is 30.7%, indicating that 3 out of 10 adults are participating in lifelong learning (40.0% in 2020) [1]. Lifelong education is as an essential element that not only improves the quality of human life but also promotes social development by helping people live a more meaningful and creative life [2]. As an education system that supports national development, lifelong education in South Korea has developed in close correlation with various fields that include not only the economy but also society, culture, and politics, as its role has expanded to regional, industrial, and talent development [3]. Moreover, the Lifelong Learning City Project that began in 2001 has designated 175 (77.4%) out of 226 municipal governments as of 2020, which shows that many lower-level local governments are aware of the importance of lifelong education and are executing various related projects [4]. Most municipal governments are constantly striving to establish lifelong education policies and stably execute related projects by enacting and amending ordinances on lifelong education [5].

While municipal governments' lifelong education projects focused on developing new programs or expanding and diversifying the scope of participants in the past, they must now improve the service quality of lifelong education, increase competitiveness, and pursue continuous participation. In other words, more efforts must be made to induce continuous participation in lifelong education. To this end, it is necessary to increase lifelong learners' intention to reuse and conduct research to assess and improve the service quality of lifelong education and study the factors that increase persons' intention to reuse.

Zeithaml et al. [6] stated that "Perceived service quality is the direction and extent of the discrepancy between consumer expectations and perceptions." Generally, education service quality measures the degree to which education meets learners' expectations, with the goal of providing satisfactory education services [7]. It was discovered that when learners perceive high service quality in education, they develop strong reuse intentions [6][8]. Factors influencing

education service quality such as instructors, operational service, educational facilities, and employee service positively affect reuse intentions through customer satisfaction [9][10], while factors such as program content/instructor, institutional support/general service, and facility/environment also affect intention to reuse through service value, trust, and relationship commitment [11]. Based on structural model analysis involving three service quality factors, namely education service, administrative service, and environment in lifelong education institutions in culture and arts, Kim [2] argued that higher education service quality leads to stronger reuse intentions through satisfaction. Studies on the relationship between service quality and intention to reuse have also been conducted in various other fields such as yoga centers, airport railways, real estate, medical services, and commercial air transport [12-16].

Given that cities' role and function have become more important since the implementation of the local self-governing system, the importance of city branding and the strategic management of city brands has also increased. It was discovered that service quality affects brand equity in culture and tourism in many fields that constitute a city's competitiveness [17-21]. However, there is insufficient research on city brand equity and intention to reuse lifelong education. City brand equity can be defined as a people's perceptions of a city's attractive value, that is, value-added elements such as a city's cultural and tourism resources and its economic characteristics [22]. Competition among cities is intensifying amidst the globalization era, and city administrations are adopting corporate brand strategies to create a sustainable environment and striving to find the city's commercial value and identity by combining tangible and intangible resources [23]. Once city brand equity increases, the city's identity will sharpen, alongside the projection of a favorable image, which will, in turn, secure sustainable competitiveness.

Many studies have proved the effect of service quality on brand equity and intention to reuse and the effect of city brand equity on intention to reuse. However, there is almost no research on how the service quality of lifelong education affects city brand equity and intention to reuse. Therefore, this study examines the effect of the service quality of lifelong education on intention to reuse through city brand equity by studying Osan, which is known as an "education city."

2. Literature Review

2.1 Municipal governments' lifelong education offerings

Lifelong education refers to all types of systematic educational activities other than regular school curricula, including supplementary education to upgrade educational attainment, literacy education for adults, occupational education for ability enhancement, humanities and liberal education, cultural and arts education, and citizens' participation education [24]. According to the Lifelong Education Act in South Korea, "The State and local governments shall establish and promote the lifelong education promotion policy and project to provide all people with opportunities to participate in lifelong education, while also providing relevant information and support such as counseling so that all people can choose and participate in lifelong education to meet their requirements and needs" [25].

Lengrand [26] defined lifelong education as "education conducted throughout the lifetime" to improve the quality of human life and pursue social development. Lifelong education is important because it helps people live a more meaningful and creative life [2]. Therefore, it is important for national policy to provide all citizens with lifelong education opportunities. In recognition of this duty, lifelong education is becoming increasingly important to municipal governments that are struggling to create and maintain a sustainable city.

While studies on the development of lifelong education in South Korea have focused primarily on systems, policies, and projects led by the central government, it is now imperative to study and practice the development of lifelong education from the perspective of lower-level local governments [4]. Municipal governments are implementing aggressive policies by establishing visions and goals in lifelong education policies, forming and running dedicated organizations, hiring lifelong educators, allocating budgets, enacting related ordinances, and operating halls and centers for lifelong learning. They are also striving to manage lifelong learning performance. According to the Korean Association of Lifelong Learning Cities' Study on the Basic Status of National Lifelong Learning Cities, local governments have executed performance management as follows: 74 used performance indicators (42.3%), 61 managed learner records (34.9%), 111 compiled operational performance brochures (63.4%), 97 held performance briefing sessions (55.4%), and 112 supported social contribution activities (64.0%) [5]. These statistics indicate a high proportion of supplier-centered performance management, suggesting the need to assess and improve the consumer-centered service quality of lifelong education.

2.2 Education service quality

The recent pan-industry consumer-centered industrial changes have also penetrated lifelong education, and service quality is emerging as an important element of lifelong education [11]. In their study on customer service quality,

Zeithaml et al. [6] defined service quality as the “overall excellence or superiority of the service” and provided 10 service quality dimensions in the SERVQUAL model: reliability, responsiveness, competence, courtesy, credibility, security, communication, understand the customer, access, and tangibles. These were subsequently developed into reliability, responsiveness, assurance, empathy, and tangibles that can quantify customer evaluation of service quality through comparison of customers’ expectations and actual performance level. Determination of service quality can be described as the degree of consistency between the customer’s service expectations and perceived service quality. In other words, consumers are (dis)satisfied if the service they receive (mis)matches their expectations.

Education service quality refers to the full complement of service characteristics that can satisfy learners’ needs [27]; it is the result of comparing and evaluating learners’ perceived and expected services, which are determined by variables such as learners’ expectations, technical and functional characteristics, and image [28]. Accordingly, based on previous studies, the present study used lifelong education program content and instructors, support and general services, and facilities and environment as independent variables [9] [11].

2.3 City brand equity

With cities becoming the hub of the global economy, urban economic development has created a new form of competition, and many cities are actively trying to build an urban image and develop a city brand. A city’s image and brand are key elements of city marketing, which increases a city’s attractiveness, creates a city identity, and enhances its competitiveness, thereby inducing various effects that bolster urban residents’ pride and satisfaction [23]. Koo and Lee [22] assumed that the various images constituting the city brand contribute to attitudes and loyalty toward the brand. They classified city brand measurement factors into residence image, tourism image, and investment image at the cognitive level, brand attitude at the attitudinal level, and brand loyalty at the behavioral level. In this study, brand equity was classified into awareness and image.

The best practices of companies that have succeeded through strategic brand management have drawn attention to the importance of brand equity. Aaker [29] understood brand equity as an additional concept related to a brand name that transcends a product’s physical attributes and defined it as the aggregate of assets and liabilities related to a brand as well as its name and symbol, which increases or decreases the value of the product or service to consumers. Keller [30] defined brand-related marketing activities in terms of consumer-based brand equity as a differentiated effect of brand knowledge to which consumers respond. Lassar et al. [31] summarized the concept of brand equity from customers’ perspective in the five aspects given below and defined brand equity based on the results. First, brand equity represents customer perception rather than any other objective indicator. Second, brand equity represents the brand’s global value. Third, the brand’s global value also resides in the brand name, along with the physical aspect of the brand. Fourth, brand equity is not absolute and is related to competition. Fifth, brand equity has a positive effect on financial performance. In other words, brand equity is when the brand name increases the product’s perceived utility and desirableness.

Brand equity has emerged as an important consideration in culture and tourism, and various studies are conducted on this topic [17-21]. Previous studies suggest that local festivals’ service quality significantly affects city brand equity and regional preference [17][18][21] and that higher service quality in rural villages and medical tourism will significantly affect brand equity, customer orientation, behavioral intention, and intention to recommend [19][20], implying that increased lifelong education service quality exerts a significant effect on city brand equity.

However, there is insufficient research on the relationship between service quality and brand equity in education. In a study on education service quality, student satisfaction, brand equity, and loyalty, Lee [32] argued that instructors and access, excluding administrative service, positively affected all brand equity factors.

Accordingly, with reference to previous research [33], this study proposed the following hypothesis:

H1. The service quality of lifelong education will have a significant effect on city brand equity.

2.4 Intention to reuse

Recently, municipal governments’ lifelong education policies aim to improve education service quality and increase citizens’ reuse as part of the effort to constantly improve the quality of citizens’ lives instead of providing one-time public services. This is premised on the understanding that citizens’ willingness to participate continuously in lifelong education can bring not only quantitative but also qualitative development to the city.

Hellier et al. [34] argued that intention to reuse refers to customers’ judgments about repurchasing a particular service from the same company, considering their current situation. Intention to reuse is the indicator that most directly and clearly represents customer evaluation of whether to continue using a product or service [35]. Oliver [36] claimed that to increase intention to reuse, customers must be satisfied and have a positive attitude toward the product or service.

From municipal governments’ perspective, citizens’ stronger reuse intentions regarding lifelong education and their actual continued participation will increase administrative efficiency and policy competitiveness and contribute to the overarching goal of improving the quality of citizens’ lives. For citizens, this will also reduce the time and effort investment in educational choices.

Studies on service quality and intention to reuse have been conducted in various fields. For instance, Kim et al. [12] argued that the service quality of yoga centers in South Korea affects customer satisfaction and intention to reuse. Lee et al. [13] claimed that the service quality of airport railways affects users’ intention to reuse. In a study analyzing the relationship between real estate agency service quality and trust and intention to reuse, Lee [14] argued that high-quality real estate service affects intention to reuse. Moreover, Jang [16] claimed that higher airline service quality leads to higher intention to reuse. Oh et al. [9] used structural equation modeling to comparatively analyze the quality of and users’ satisfaction with cultural education programs offered at public libraries and cultural centers and discovered a strong correlation among service quality, service value, trust, and relationship commitment and intention to reuse. Kim et al. [10] argued that factors influencing education service quality such as educational facilities, instructors, and operational services have a significant effect on customer satisfaction, which, in turn, affects repurchase.

Therefore, with reference to these studies, this study proposes the following hypothesis:

H2. The service quality of lifelong education will have a significant effect on the intention to reuse lifelong education.

Regarding the relationship between brand equity and reuse, Jeon and Kim [37] argued that brand equity has a positive effect on intention to reuse through immersion. In a study on how airline cultural marketing affects corporate image, brand equity, and relationship continuity intention, Park [38] showed that brand equity has a significant effect on relationship continuity intention. Moreover, consumers are willing to continue using airlines that have positive brand awareness and a positive brand association, while also offering quick task handling and reliable services, which are measurements of perceived quality that have a positive effect on relationship continuity intention. In other words, if customers are provided with continuous high-quality services, they will decide to continue using the services and/or recommend them to others. As such, previous studies have already proved that brand equity has a positive effect on satisfaction, intention to recommend, increased regional preference, and intention to reuse, and the same effect is expected to be found in lifelong education as well. Hence, this study proposed the following hypotheses:

H3. City brand equity will affect intention to reuse lifelong education.

H4. The service quality of lifelong education will have a significant effect on intention to reuse lifelong education through city brand equity.

3. Materials and Methods

3.1 Research model

This study used a structural equation model to determine the effect of the service quality of a local government’s lifelong education offerings and city brand equity on intention to reuse. A literature review was conducted to examine research variables and develop the research model, after which the hypotheses were proposed on theoretical grounds. In the model, which was designed based on the hypotheses, the independent variables were three sub-variables of lifelong education service quality: program content/instructor, support/general service, and facility/environment. City brand equity, the mediating variable, also comprised three sub-variables: awareness, image, and perceived quality. The dependent variable was intention to reuse. The research model is shown in Figure 1 below.

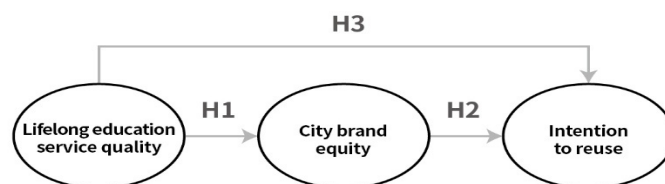


Figure 1. Research model

3.2 Data collection

This study conducted paper and online surveys (the latter via Google Forms) among lifelong education users in Osan from March 30, 2022 to April 6, 2022. The surveys were only administered to persons who participated in lifelong education in Osan at least once. Out of 200 questionnaires, 190 completed copies were retrieved, and 134 were used, after the exclusion of 56 containing inaccurate responses. Out of 410 online survey responses, 381 cases, excluding 29 involving inappropriate responses or non-participants in lifelong education, were used. Thus, a total of 515 data cases were used in the analysis. Small gifts were offered to online survey respondents.

3.3 Survey structure and analysis method

The measurement tool for education service quality, which is the independent variable, comprises 30 items related to lifelong education service quality, distributed equally across the sub-variables of content/instructor, support/general service, and facility/environment. The items were derived after revising and supplementing those Oh et al. [14] and Kim [16] used to suit the environmental characteristics of lifelong learning. The measurement tool for the mediating variable, city brand equity, was developed by revising and supplementing Seok's [35] items pertaining to brand awareness (5 items), image (6 items), and perceived quality (6). Finally, to measure intention to reuse, the dependent variable, we revised and supplemented Kim's [2] survey items and developed 4 items in keeping with the characteristics of this study. These are summarized in (Table 1). SPSS 24.0 and AMOS 24 were used for analysis. Frequency analysis, descriptive analysis, reliability analysis, difference analysis (independent samples t-testing and one-way analysis of variance [ANOVA]), correlation analysis, confirmatory factor analysis (CFA), and structural equation analysis were conducted. Bootstrapping was performed to check the mediating effect, and significance was set at the 95% level.

Table 1. Survey summary

Category	Factor	Item	Survey item	Source
	Basic information	8	Gender, age, place of residence, education, participation in lifelong education, channel of participation, living in Osan or not, number of rounds of participation in lifelong education	
Independent variables	Education service quality – Program content/instructor	10	Teaching method, class level, instructor's enthusiasm, materials provided, instructor's knowledge, respondent's understanding of lecture content, instructor's inducement of learning, instructor's guidance of learners, novelty of lecture, instructor's sincerity	[9] [11]
	Education service quality – Support/general service	10	Employee's helpfulness, program guide, guidebooks and notices, registration procedures, complaint resolution, online search, online information notices, employee response, individual response, employee expertise	
	Education service quality – Facility/environment	10	Comfort, cooling/heating, provision of educational materials, performance and conditions of educational materials, possession of materials, notices, lighting, cleanliness, amenities, indoor environment	
Mediating variable	City brand equity – Awareness	5	Awareness of Osan, comparison and distinction, distinction of Osan's characteristics, association of Osan's characteristics, association of Osan's symbols	[33]
	City brand equity – Image	6	Abundant lifelong education programs, differentiation of the city, city's uniqueness, interest in the city, city's image, Osan's image as an education city	
	City brand equity – Perceived quality	6	Osan's reliability, meeting expectations of Osan, satisfaction with living in Osan, quality of Osan's lifelong education, service quality of lifelong education employees in Osan, Osan's infrastructure	
Dependent variable	Expectations of relationship continuity	4	Continuous operation expectation, intention to use continuously, intention to recommend to others, first choice intention	[2]

4. Results

4.1 Demographic characteristics

As a result of examining the demographic characteristics of the 514 respondents whose data were used in the analysis, it was found that there were 433 women (84.2%) and 81 men (15.8%), indicating a gender distribution where female respondents outnumbered males. Regarding respondents' age, 25 were in their 20s (4.9%), 101 were in their 30s (19.6%), 197 were in their 40s (38.3%), 108 were in their 50s (21.0%), 71 were in their 60s (13.8%), and 12 were in their 70s or above (2.3%), indicating that the majority of the respondents were in their 40s. By place of residence, 441 lived in Osan (85.8%), 70 lived outside Osan (13.6%), and 3 lived overseas (0.6%). Regarding education level, 336 respondents were college graduates (65.4%), followed by 98 high school graduates (19.1%), 63 who attended graduate school or higher (12.3%), 11 middle school graduates (2.1%), and 6 elementary school graduates (1.2%). As for the channel of participation in lifelong learning in Osan, 279 learned about the offerings via a website (54.3%), followed by 161 who were recommended by others (31.3%), 34 who received promotional materials (6.6%), 23 who saw fliers (4.5%), and 17 who received the relevant information through other channels (3.3%). Regarding number of rounds of lifelong learning participation, 81 respondents participated in lifelong education in Osan at least 10 times (15.8%), followed by 71 who participated at least 5 times (13.8%), 142 who participated at least 3 times (27.6%), and 220 who participated once or twice (42.8%; Table 2). Demographic characteristics were examined through frequency analysis, and given that there are various respondents for each item, it seems that the results of this study can be generalized.

Table 2. Respondents' demographic characteristics

Category	Detail	N(514)	Percentage
Gender	Male	81	15.8
	Female	433	84.2
Age	20s and below	25	4.9
	30s	101	19.6
	40s	197	38.3
	50s	108	21.0
	60s	71	13.8
	70s and above	12	2.3
Place of residence	Osan	441	85.8
	Outside Osan	70	13.6
	Overseas	3	.6
Education	Elementary school graduate	6	1.2
	Middle school graduate	11	2.1
	High school graduate	98	19.1
	College graduate	336	65.4
	Graduate school or higher	63	12.3
Participation channel	Recommended by others	161	31.3
	Website	279	54.3
	Fliers	23	4.5
	Promotional materials	34	6.6
	Other	17	3.3
Number of participation rounds	Once or twice	220	42.8
	At least 3 times	142	27.6
	At least 5 times	71	13.8
	At least 10 times	81	15.8

*Rounded to the nearest ten

4.2 Descriptive statistics and reliability analysis results

Descriptive analysis was conducted to examine the means and standard deviations (SDs) of the variables and sub-variables. Education service quality scored 4.07 out of 5 points, while city brand equity and intention to reuse scored 3.53 and 4.44, respectively. Among the sub-variables of education service quality, program content/instructor had the lowest score at 4.04, while support/general service and facility/environment scored 4.07 and 4.10, respectively. For city brand equity, awareness had the lowest score at 3.23, and perceived quality had the highest score at 3.70.

Cronbach’s alpha was used to check response reliability. Generally, in the social sciences, responses are considered reliable if Cronbach’s alpha is 0.6 or higher. In the present study, in all cases, Cronbach’s alpha exceeded 0.6, with intention to reuse reaching the minimum value (.899). Reliability was therefore confirmed (Table 3).

Table 3. Descriptive statistics and reliability analysis results

Category	Detail	Minimum	Maximum	Mean	SD	Cronbach’s alpha
Education service quality	Content/instructor	2.00	5.00	4.04	.77	0.955
	Support/general service	2.00	5.00	4.07	.76	0.948
	Facility/environment	1.00	5.00	4.10	.77	0.967
	Total	2.00	5.00	4.07	.68	0.973
City brand equity	Awareness	1.00	5.00	3.23	1.01	0.928
	Image	1.00	5.00	3.66	.98	0.944
	Perceived quality	1.00	5.00	3.70	.95	0.947
	Total	1.00	5.00	3.53	.91	0.97
Intention to reuse		2.00	5.00	4.44	.71	0.899

4.3 Difference analysis

Independent samples t-testing and one-way ANOVA were used to identify differences in means among variables based on demographic analysis of the respondents. Independent samples t-testing is used to compare means across two groups, and one-way ANOVA is used when there are three or more groups to compare. For the latter, this study used the Scheffé test, which is the most commonly used post-hoc analysis when there is a statistically significant difference. The significance level was determined at the 95% level.

The results showed that there was no difference in means for gender, place of residence, education, or channel. However, there was a significant difference ($p < .01$) in city brand equity for age, and the difference in means for respondents in their 60s and above ($M = 3.77$) relative to those in their 40s ($M = 3.44$) and 30s ($M = 3.39$) was statistically significant. Moreover, respondents in their 60s and above seemed to view Osan as having high city brand equity compared to both those in their 30s and below and those in their 40s. Regarding lifelong learning education participation, there was a statistically significant difference in education service quality ($p < .01$) and city brand equity ($p < .01$): For education service quality, the mean of those respondents who participated in lifelong education at least 10 times ($M = 4.29$) differed from that of respondents who participated once or twice ($M = 4.00$) or at least 3 times ($M = 4.00$); for city brand equity, there was a difference in means between respondents who participated at least 10 times ($M = 3.78$) and those who participated once or twice ($M = 3.38$), where that of the former was higher than that of the latter. Detailed results are presented in Table 4.

Table 4. Summary of mean difference analysis results according to respondents’ demographic characteristics

Category	Detail	N	Education service quality			City brand equity			Intention to reuse		
			Mean	SD	t(p)	Mean	SD	t(p)	Mean	SD	t(p)
Gender	Male	81	4.13	.73	0.749 (.427)	3.61	.91	0.80 (.424)	4.42	.68	-0.227 (.820)
	Female	433	4.06	.67		3.52	.91		4.44	.72	
Place of residence	Osan	441	4.05	.69	-1.393 (.164)	3.52	.91	-0.52 (.600)	4.44	.71	0.504 (.614)
	Outside Osan	73	4.17	.64		3.58	.91		4.40	.73	

Age	30s and below (a)	126	4.09	.73	1.119 (.341)	3.39	.91	4.472 (.004) b, a < d	4.33	.81	1.582 (.193)
	40s (b)	197	4.01	.63		3.44	.90		4.44	.70	
	50s (c)	108	4.07	.68		3.67	.87		4.50	.66	
	60s and above (d)	83	4.17	.72		3.77	.95		4.51	.65	
Education	High school graduate or lower (a)	115	4.14	.69	2.088 (.125)	3.70	.91	2.71 (.067)	4.53	.67	1.595 (.204)
	College graduate (b)	336	4.03	.68		3.49	.89		4.42	.70	
	Graduate school or higher (c)	63	4.17	.64		3.44	.99		4.35	.84	
Channel	Recommended by others (a)	161	4.11	.71	0.412 (.662)	3.67	.92	2.70 (.068)	4.42	.74	1.26 (.284)
	Website (b)	279	4.06	.67		3.49	.90		4.47	.70	
	Fliers/promotional materials /others (c)	74	4.03	.66		3.41	.91		4.33	.69	
Rounds of participation	Once or twice (a)	220	4.00	.69	4.424 (.004) a, b < d	3.38	.89	4.509 (.004) a < d	4.35	.73	2.176 (.090)
	At least 3 times (b)	142	4.00	.71		3.55	.90		4.46	.70	
	At least 5 times (c)	71	4.15	.59		3.67	.89		4.51	.65	
	At least 10 times (d)	81	4.29	.61		3.78	.93		4.56	.72	

4.4 Correlation analysis

Pearson correlation coefficients were used to determine the significance of the correlations among the variables. Correlation coefficients range between 1 and -1. Analysis results showed a significant positive correlation among all variables. Specifically, education service quality was correlated with city brand equity ($r = .625, p < .01$) and intention to reuse ($r = -.533, p < .01$), and city brand equity showed a significant correlation with intention to reuse ($r = .567, p < .01$). These results are presented in Table 5.

Table 5. Correlation analysis results

	Education service quality	City brand equity	Intention to reuse
Education service quality	1		
City brand equity	.625**	1	
Intention to reuse	.533**	.567**	1

** $p < .01$

4.5 CFA

Prior to testing the hypotheses, this study used AMOS 24.0 to conduct CFA on the model. Generally, a model is considered fit if GFI, AGFI, and NFI are 0.9 or above. In this study, those values met or closely approximated the threshold, establishing acceptable model fit. CR was examined to check the construct reliability, which exceeded 1.96 in all cases. The standardized loading also exceeded 0.5. Given that construct reliability cleared the 0.7 threshold, and average variance extracted (AVE) was also above 0.5, the model's fitness and validity were confirmed. These are presented in (Table 6).

Table 6. CFA results

Classification		Unstandardized	Standardized	SE	CR	P	Construct reliability	AVE
Lifelong education service quality	→ Facility/environment	1	0.813				0.886	0.681
	→ Support/general service	1.095	0.902	0.049	22.215	***		
	→ Content/instructor	0.937	0.764	0.05	18.795	***		
City brand equity	→ Awareness	1	0.808				0.921	0.701
	→ Image	1.127	0.934	0.043	26.01	***		
	→ Perceived quality	1.093	0.932	0.042	25.946	***		

Intention to reuse service	→	Intention to reuse 1	1	0.798			0.842	0.607	
	→	Intention to reuse 2	1.206	0.86	0.053	22.658			***
	→	Intention to reuse 3	1.388	0.951	0.054	25.534			***
	→	Intention to reuse 4	1.338	0.773	0.068	19.557			***

$\chi^2 = 105.484$, $df = 38$, $p = .000$, $CMIN/DF = 2.22$, $GFI = .907$, $NFI = .939$, $NNFI(TLI) = .924$, $CFI = .946$, $RMSEA = .057$, $RMR = .032$, $AGFI = .839$
 *** $p < .001$

4.6 Hypothesis testing

Model fit, construct validity, and construct reliability were determined through CFA. Next, analysis was performed to test this study’s hypotheses. Prior to hypothesis testing via path analysis, this study confirmed the fit of the model, which met or closely approximated the threshold, confirming acceptable model fit.

Next, path significance was determined based on the results produced in AMOS 24.0. Lifelong education service quality had a significant effect on city brand equity ($B = .911$, $CR = 14.44$, $p < .001$) and on intention to reuse ($B = .236$, $CR = 4.447$, $p < .001$). City brand equity also had a significant effect on intention to reuse ($B = .283$, $CR = 6.892$, $p < .001$). A visual representation and the analysis results are presented in Figure 2. and Table 7, respectively.

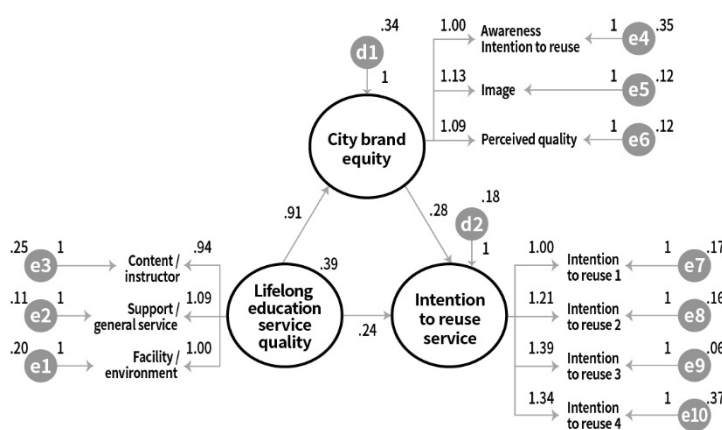


Figure 2. Research model

Table 7. Path analysis results summary

Path	Estimate	S.E.	C.R.	P	Result
Lifelong education_ service quality → City brand equity	0.911	0.063	14.44	***	Significant
Lifelong education_ service quality → Intention to reuse service	0.236	0.053	4.447	***	Significant
City brand equity → Intention to reuse service	0.283	0.041	6.892	***	Significant

$\chi^2 = 105.484$, $df = 38$, $p = .000$, $CMIN/DF = 2.22$, $GFI = .907$, $NFI = .939$, $NNFI(TLI) = .924$, $CFI = .946$, $RMSEA = .057$, $RMR = .032$, $AGFI = .839$
 *** $p < .001$

Next, bootstrapping was used to test the mediating effect in order to examine how education service quality affects intention to reuse through city brand equity Table 8. Bootstrapping with 2,000 samples and testing at the 95% level revealed that city brand equity was significant as a partial mediator in the relationship between lifelong education service quality and intention to reuse. This indicates that higher service quality leads to a better perception of city brand equity, which increases the intention to reuse lifelong education services. Thus far, for hypothesis testing, analysis was conducted using SPSS 24.0 and AMOS 24.0, and the results are summarized and presented in (Table 9).

Table 8. Validation of the mediating effect

Classification			Unstandardized			Standardized			Result
			Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	
Service quality of lifelong education	City brand equity	Intention to reuse service	0.494**	0.236**	0.258*	0.56*	0.267**	0.293**	Significant (partial mediation)

* $p < .05$, ** $p < .01$ **Table 9.** Summary of the hypothesis testing results

Hypothesis	Hypothesis	Result
Hypothesis 1	The service quality of lifelong education will have a significant effect on city brand equity.	Accepted
Hypothesis 2	The service quality of lifelong education will have a significant effect on intention to reuse lifelong education.	Accepted
Hypothesis 3	City brand equity will affect intention to reuse lifelong education.	Accepted
Hypothesis 4	The service quality of lifelong education will have a significant effect on intention to reuse lifelong education through city brand equity.	Accepted

5. Discussion

Thus far, the significance of the study's results was examined through comparative analysis with previous studies. Based on the findings, this study has the following implications.

First, this study has academic implications linked to its confirmation that lifelong education service quality exerts a significant effect on city brand equity. This implies that various types of lifelong education services provided by different local governments can serve as a pastime for citizens or a means by which they can enhance their knowledge and build networks, while also contributing to enhancing the city's brand value. Therefore, this study has practical implications in that each local government should not only aim to increase city brand equity but also improve the service quality of lifelong education. Additionally, as previous studies have emphasized [2][11], it is necessary to improve instructors, programs, facilities, and expertise in order to improve lifelong education service quality.

Second, this study provides additional academic implications by confirming that increased city brand equity leads to increased intention to reuse lifelong education. The difference analysis results proved that those who participated in multiple rounds of lifelong education tended to rate the city's brand equity more highly than others. Therefore, from a practical viewpoint, efforts must be made to encourage more people to participate continuously in lifelong education.

This study aimed to empirically investigate the relationships among the service quality of municipal governments' lifelong education offerings and city brand equity and intention to reuse and between city brand equity and intention to reuse. To this end, it tested how lifelong education service quality affects city brand equity and intention to reuse among citizens who utilized local governments' lifelong education offerings at least once and how city brand equity is related to intention to reuse. Based on the findings, the study provides academic and practical implications. However, this study has the following limitations that future studies should consider in terms of research process and results.

First, the research sample is limited. This study was conducted in Osan, the city of lifelong education, which introduces limitations in terms of generalizing the results. Therefore, future studies should expand the scope to the service quality of municipal governments' lifelong education offerings across South Korea.

Second, this study did not separate offline and online education when measuring lifelong education service quality. However, the characteristics of offline and online education are bound to have certain similarities and differences, which must be considered when measuring the service quality.

Third, satisfaction was not considered in the relationship between service quality and intention to reuse. Considering that many previous studies [2] [9-12] have proved the effect of service quality on intention to reuse through satisfaction, satisfaction is a key factor in determining the causal relationship between service quality and intention to reuse and should therefore be considered as a variable in the research model.

Fourth, service quality variables from previous studies were revised and supplemented to suit the investigative context of lifelong education service quality. Since these variables have not been developed as a specialized tool for examining lifelong education, a scale that ensures higher reliability is needed.

Fifth, the situation in which the use of ICT technology in lifelong education services of public institutions is daily increasing was not considered. Recently, ICT technology is an important factor in educational services; therefore, related research model should be established and research conducted in consideration of the variables.

6. Conclusions

The key findings of this study are as follows. First, this study analyzed the differences in the means of lifelong education service quality, the city of Osan's brand equity, and intention to reuse lifelong education based on demographic characteristics. The results showed that there was no difference in education service quality and intention to reuse by age. However, persons in their 60s and above rated Osan's brand equity more highly than those in their 40s and below. Moreover, those with higher participation in Osan's lifelong education offerings held a superior view of Osan's education service quality than those who participated less than 3 times, while individuals who participated in Osan's lifelong education at least 10 times had more positive perceptions of the city's brand equity than those who participated once or twice. In other words, persons with higher lifelong education participation rated education service quality highly and perceived excellent city brand equity. This implies that, among the myriad efforts local governments make to enhance their city's competitiveness, expanding lifelong education services for the middle-aged and the elderly and improving education service quality could be the most effective paths to increasing city brand equity. In other words, increasing city brand equity by strengthening the city brand will also affect citizens' intention to reuse lifelong education.

The results of testing the hypotheses in this study are as follows. First, Hypothesis 1, "The service quality of lifelong education will have a significant effect on city brand equity," was accepted. This result indicates that higher lifelong education service quality leads to higher city brand equity, which supports previous studies' findings [10][11].

Second, Hypothesis 2, "The service quality of lifelong education will have a significant effect on the intention to reuse lifelong education," was accepted. This indicates that adult learners' intention to reuse lifelong education can be bolstered by improving the three subfactors of lifelong education service quality used in this study, namely program content/instructor, support/general service, and facility/environment. This result is consistent with previous research [2].

Third, Hypothesis 3, "City brand equity will affect the intention to reuse lifelong education," was accepted. This is in line with the results of previous studies [18][19][20][21] that claimed that the factors that were found to increase brand equity in the context of local festivals, medical services, and commercial air transport services have a significant effect on loyalty, preference, and relationship continuity intention.

Fourth, Hypothesis 4, "The service quality of lifelong education will have a significant effect on the intention to reuse lifelong education through city brand equity," was accepted. Kim [11] proved that the service quality of cultural and arts education does not have a direct effect on intention to reuse but exerts an indirect effect through service value, relationship commitment, and trust. Furthermore, Kim [2] discovered that education service quality has a significant effect on intention to reuse through service value, trust, and relationship commitment. This difference may be due to the service quality variables or the analysis subjects, and it was found that the role of the mediating variable has a significant effect on intention to reuse lifelong education. This study proved that the service quality of lifelong education has a positive effect on intention to reuse through city brand equity.

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

References

- [1] Ministry of Education, 2021 National Lifelong Education Statistics Report, 2022.
- [2] G. B. Kim, "A study on the relationship between service quality of, satisfaction with, and intention to re-use culture and arts lectures in lifelong education for middle-aged and elderly learners," Ph.D. dissertation, Dongseo Univ., 2021.
- [3] H. B. Lee and E. S. Choi, "A Study on the Analysis of the Trends of Policy Process of Lifelong Education in Korea: With Special Reference to the Lifelong Education Policy for Community Development", *The Journal of Lifelong Education and HRD*, vol. 5, no. 3, pp. 221–246, 2009, doi: <https://doi.org/10.35637/klehrd.2009.5.3.002>
- [4] Korean Association of Lifelong Learning Cities, Korean Association for Lifelong Educator, A Study on the Basic Status of National Lifelong Learning Cities, 2022.

- [5] J. H. Kim and J. E. Park, "A Study on the Structural Composition System and Characteristics of Local Governments' Autonomy Laws for Lifelong Learning," *Journal of Lifelong Education*, vol. 27, no. 4, pp. 101–131, 2021, doi: <https://doi.org/10.52758/kjle.2021.27.4.101>
- [6] W. Boulding, A. Kalra, R. Staelin, and V. A. Zeithaml, "A dynamic process model of service quality: From expectation to behavior intention," *J. Mark. Res.*, vol. 30, no 1, pp.7–27, 1993, doi: <https://doi.org/10.2307/3172510>
- [7] R. C. Lewis and B. H. Hoom, *The Marketing of Service Quality*, 1983.
- [8] C. Fornell and B. Wernerfelt, "A model for customer complaint management," *Mark. Sci.*, vol. 7, no. 3, pp. 287–298, 1988, doi: <https://doi.org/10.1287/mksc.7.3.287>
- [9] D. G. Oh, J. S. Yeo, and S. Y. Choi, "Comparative Analysis of the Service Quality and Satisfaction of Cultural and Educational Programs in Public Libraries and the Culture and Art Centers Using a Structural Equation Model," *Journal of Korean Library and Information Science Society*, vol. 41, no. 3, pp. 291–307, 2010, doi: <https://doi.org/10.16981/kliss.41.3.201009.291>
- [10] J. H. Kim and S. B. Ree, "An Empirical Study on the Effect of Education Service Quality which Influences Re-Use and Customer Satisfaction: Focusing on Lifelong Education Centers," *Journal of Korean Society for Quality Management*, vol. 39, no. 1, pp. 155–166, 2011, UCI : G704-000306.2011.39.1.009
- [11] J. S. Kim, "A study on the structural relevance between culture and art education service quality, value, trust, relationship commitment, and adult learners' intentions to retake programs," Ph.D. dissertation, Chungnam National Univ., 2016.
- [12] S. R. Kim and H. Y. Joo, "The Effects of Service Quality, Image, and Service Value on Customers' Satisfaction and Intention to Revisit: Focusing on Yoga Center Service Quality," *Journal of Product Research*, vol. 25, no. 1, pp. 111–125, 2007, doi: <https://doi.org/10.36345/kacst.2007.25.1.010>
- [13] D. M. Lee, J. H. Na, and J. H. Kim, "Service Quality of Airport Express and Reutilization Intention," *Journal of Product Research*, vol. 33, no. 4, pp. 71–80, 2015, doi: <https://doi.org/10.36345/kacst.2015.33.4.008>
- [14] C. H. Lee, "A Study on the Relationships between Real Estate Brokerage Service Quality, Credibility, and Request Intention," *Journal of Digital Convergence*, vol. 14, no. 6, pp. 151–156, 2016, doi: <https://doi.org/10.14400/JDC.2016.14.6.151>
- [15] B. H. Park and K. J. Ju, "Investigating Structural Relationships among Service Quality, Relationship Quality, Re-Use Intention, and Recommendation Intention: A Focus on Customers in the Healthcare Industry," *Management & Information Systems Review*, pp. 209–223, 2016, doi: <https://doi.org/10.29214/damis.2016.35.5.011>
- [16] Y. J. Jang, "The Effects of Service Fairness and Service Quality on Airline Reuse Intention: The Moderating Effect of Value-Oriented," *The Journal of the Korea Contents Association*, vol. 20, no. 9, pp. 344–354, 2020, doi: <https://doi.org/10.5392/JKCA.2020.20.09.344>
- [17] S. S. Jeong, "A study on the relationships among festival service quality, festival performance, and customers' city brand equity and regional loyalty," Ph.D. dissertation, Dongguk Univ., 2012.
- [18] T. G. An and T. Y. Cho, "A Study of the Structural Relationship Among Festival Service Quality, Festival Performance, City Brand Loyalty, and Regional Loyalty: The Case of Suncheon Bay Reeds Festival," *Journal of Tourism and Leisure Research*, vol. 27, no. 8, pp. 297–316, 2015, UCI : G704-000823.2015.27.8.018
- [19] K. I. Song and C. Y. Liu, "The Effect of Rural Experiences of Village Service Quality on Brand Assets and Customer Orientation on Behavior Intention," *Tourism Research*, vol. 45, no. 3, pp. 291–317, 2020, doi: <https://doi.org/10.32780/ktidoi.2020.45.3.291>
- [20] J. M. So, "The Impact of Medical Tourism Service Quality on Brand Equity and Also Recommendation Purpose," *Journal of Tourism Management Research*, Vol. 20, No. 6, pp. 243–263, 2016, UCI : G704-SER000009812.2016.20.6.027
- [21] J. B. Park, "the impact of festival service quality and festival experience on local brand equity and local loyalty: focusing on comparison of festival type," Ph.D. dissertation, Anyang Univ., 2019.
- [22] J. R. Koo and J. H. Lee, "Evaluation and Indexation of City Brand Equity," *Productivity Review*, vol. 22, no. 3, pp. 177–205, 2008, doi: <https://doi.org/10.15843/kpapr.22.3.200809.177>
- [23] H. S. Bae, "A study on the effect of city image and city brand equity on residents' attitude in new towns," Ph.D. dissertation, Mokwon Univ., 2014.
- [24] Lifelong Education Act, Article 2 (Definitions)
- [25] Lifelong Education Act, Article 1 (Purpose), Article 4 (Duties of State and Local Governments)
- [26] P. Lengrand, *An Introduction to Lifelong Education*, London, The UNESCO Press, 1975.

- [27] Y. O. Lim, "(A) Study on customer loyalty to senior welfare centers: focusing on the relationships among customer satisfaction, perceived service quality, and perceived relational benefits," Ph.D. dissertation, Ewha Womans Univ., 2008.
- [28] C. Grönroos, "A service quality model and its marketing implications," *Eur. J. Mark.*, vol. 18, no. 4, pp. 36-44, 1984, doi: <https://doi.org/10.1108/EUM0000000004784>
- [29] D. A. Aaker, *Managing Brand Equity: Capitalizing on the Value of a Brand Name*. The Free Press, New York, 1991.
- [30] K. L. Keller, "Conceptualizing, measuring and managing customer-based brand equity," *J. Mark.*, vol. 57, no. 1, pp. 1-22, 1993, doi: <https://doi.org/10.1177/002224299305700101>
- [31] W. Lassar, B. Mittal, and A. Sharma., "Measuring customer-based brand equity," *J. Consum. Mark.*, vol. 12, no. 4, pp. 11-19, 1995, doi: <https://doi.org/10.1108/07363769510095270>
- [32] J. Y. Lee, "A study on the effect of education service quality on student satisfaction, department brand equity and loyalty," Ph.D. dissertation, Sejong University, 2017.
- [33] J. D. Seok, "A study on the relationships among experiences of regional festivals, city brand personality, city brand equity, and regional loyalty," Ph.D. dissertation, Dong-Eui University, 2019.
- [34] P. K. Hellier, G. M. Geursen, R. A. Carr, and J. A. Rickard, "Customer repurchase intention: a general structural equation model," *Eur. J. Mark.*, vol. 37, no. 11/12, pp. 1762-1800, 2003, doi: <https://doi.org/10.1108/03090560310495456>
- [35] E. J. Park, "A study on beauty shop service quality, satisfaction, and revisit according to customers' characteristics," Ph.D. dissertation, KyungSung University, 2011.
- [36] R. L. Oliver, "Measurement and evaluation of satisfaction in retail settings," *J. Retail.*, vol. 57, no. 3, pp. 25-48, 1981, doi: <https://doi.apa.org/record/1984-10995-001>
- [37] Z. B. Tian and Y.M. Kim, "The Effects of Taekwondo Experience of Chinese Taekwondo-Jang Trainee on Brand Equity, Taekwondo Flow and Taekwondo-Jang Reuse Intention," *Journal of Sport and Leisure Studies*, vol. 84, pp. 169-182, 2021, doi: <https://doi.org/10.51979/KSSLS.2021.04.84.169>
- [38] S. M. Park, "The effect of airline culture marketing on corporate image, brand equity, and relation continuing intention," Ph.D. dissertation, TongMyon University, 2017.



© 2022 by the authors. Copyrights of all published papers are owned by the IJOC. They also follow the Creative Commons Attribution License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.