An Evaluation of Apartment Managers' Satisfaction regarding Landscape Management in Apartment Complexes

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ABSTRACT

This study aims to find out methods to more efficiently maintain and manage landscape areas within apartment complexes by analyzing various factors related to landscape management and managers' perception. The following results were obtained. First, 50.3% of the surveyed apartment complexes performed own landscaping, while 25.2% hired landscaping services partially, which indicates that apartment management offices maintained facilities by themselves or partially hired landscaping companies due to a shortage of funds. Second, among apartments that perform own landscaping, 37.5% of them were built more than 20 years ago, while 34.3% of apartment complexes that were built less than 5 years ago were found to hire professional management. Regarding the total number of households, 34.7% of those that perform own landscaping had less than 300 households, while 48.6% of those that hire full landscaping had more than 2,000 households. Third, regarding landscaping cost, 63.9% of those that perform own landscaping spent less than 20 KRW per square meter, while 28.6% of those that hire full landscaping spent less than 20 KRW per square meter and 25.7% spent less than 50 KRW per square meter, showing that the management cost was higher in the apartments hiring full landscaping. Fourth, work types also showed differences between landscape management types. Only 50.9% of self landscaping apartment complexes were found to regularly trim trees, while 91.4% of apartments that hire full landscaping services performed the same tasks, keeping trees healthy and visibly more appealing. Fifth, the apartments hiring full landscaping showed a higher level of work satisfaction (3.46) than those performing own landscaping (2.67). Sixth, on the matter of the level of satisfaction depending on the type of work, most items showed a statistically significance in apartments hiring full landscaping (3.11–3.43 on average), compared to apartments performing own landscaping (2.4–2.9 on average). Apartment managers showed a relatively higher satisfaction level in landscape management by hiring professional landscaping services.

Keywords: hiring full landscaping, performing own landscaping, professional landscaping services

Introduction

As new lifestyle trends such as healing, therapy, health and wellbeing started to emerge in daily life, the natural, eco-friendly and ecological values of outdoor spaces within apartment complexes have been more highlighted than ever before. In other words, people's increasing desire for life in nature and demand for pleasant living conditions have increased the importance of ecological environments in out-

door spaces within apartment complexes, and have gradually evolved strategies for diversifying and differentiating outdoor landscaping (Shin, 2010). Since the deregulation of new apartment sale prices was introduced in 1999, housing construction companies have made efforts to increase their competitiveness not only by improving the quality of interior materials but also by adopting eco-friendly strategies. For instance, various green spaces that residents can experience like theme parks, ecological forests and show gardens

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have been created in outdoor spaces, which has raised the share of landscape spaces (Park and Im, 2009). That is, people's demand for pleasant living environments for a healthier life in stark urban environments has been ever increasing (Kim and Sung, 2010), and another survey reported that people living in apartment complexes viewed green and landscape spaces as the most important factor in improving their quality of life (Lee and Chon, 2008). As the quantity of landscape spaces within apartment complexes has gradually increased, it has become more important to maintain the quality of green spaces for leisure, healing, experience and education for residents. As such, the importance of landscaping in outdoor spaces within apartment complexes has increased, and various types of landscape spaces have been created. However, several problems started to be exposed in creating healthy and beautiful landscape environments due to an absence of clear guidelines for maintenance. In particular, in most cases, landscape planting constructors tend to maintain landscape spaces after the construction of apartment complexes is completed, and some are unable to hire the landscaping company for the full maintenance of landscape spaces but had to hire the landscaping company only for some types of maintenance due to a lack of budget for maintenance (Kim et al., 2012).

Kim and Sung (2010) researched the introduction of and change in landscape spaces within apartment complexes and suggested positive changes in landscape as a differentiation strategy for apartment complexes. Many studies were also conducted to examine the characteristics and factors of changes in outdoor spaces and landscape over time (Hong et al., 2009; Kim, 2003; Kim et al., 2005; Shin, 2010). Studies on residents' satisfaction of outdoor spaces within apartment complexes (Han, 2011; Oh et al., 2005; Park, 2005; Park and Lee, 2010; Shim, 2011; Son, 2007; Yoo, 2014) reported that their demand for the landscaping value and comfort of green and water spaces integrated with spaces for relaxation, walking and entertainment was the highest. From the perspective of maintenance to increase residents' satisfaction of outdoor spaces within apartment complexes, Shim (2002) researched the optimization of the classification of works related to the maintenance of landscape plants, and Lee et al. (1994) examined the status of

planting and maintaining plants within apartment complexes. Park (2005) analyzed the satisfaction of landscape within apartment complexes and suggested ways to maintain and improve landscape, and Kim et al. (2012) analyzed the status of landscape management within apartment complexes and suggested directions for improvement. As such, earlier studies focused on changes in and the characteristics of landscape within apartment complexes and residents' satisfaction of landscape and examined the status of the maintenance of outdoor spaces in selected targets in each region. However, it seems to be difficult to identify changes in the status depending on apartment managers' awareness of and types of management.

Against this backdrop, this study aimed to survey the satisfaction of apartment landscape management and to identify differences between management types by focusing on landscape managers of apartment complexes and the types of management, and thus to provide base information on directions for improving the efficiency of landscape management within apartment complexes.

Research Methods

Scope

This study conducted a questionnaire survey on apartment managers and analyzed results in order to suggest ways to efficiently manage landscape for different landscape management types within apartment complexes. The questionnaire survey was conducted on heads of apartment management, persons in charge of landscape and other staff members working in apartment management offices, and a total of 100 apartment complexes located within the metropolitan area in Korea were targeted.

Methods

The items surveyed in this study were as follows: the general characteristics of managers and landscape management types; the characteristics of apartment complexes by management type; cost of landscape management; management items; satisfaction of performance; and satisfaction

of work types. The general characteristics of managers surveyed included gender, age, years of service, and type of work. Management types were divided into performing own landscaping, hiring partial landscaping services, hiring full landscaping services, and the location of apartment complexes, the year of construction completion and the number of households in each management type were analyzed. The cost of landscape management per square meter was surveyed, and high-cost landscaping works were identified. The items of landscape management were divided into trimming and pruning entire trees, removing dead trees, pest control of trees, weed control, and facility management. The satisfaction of performance was surveyed focusing on three areas: satisfaction of expertise, technical satisfaction and service satisfaction. The satisfaction of work types was also segmented as follows: landscape plants; size and shape of planting; frequency of trimming and pruning; fertilizing; weed control; pest control of trees; management of facilities (playground, lighting); and landscape improvement (remodeling; Table 1). The cost and items of landscape management were surveyed using nominal scales, and the satisfaction of performance and work types was measured using a 5-point Likert scale. The frequency analysis of the collected data was performed using IBM SPSS Statistics 20, and cross-tabulation analysis (chi-squared test) was conducted to test significant differences between items (characteristics of apartment complexes, management cost, items) by dividing landscape management types into performing own landscaping, hiring partial landscaping services and hiring full landscaping services. In addition, one-way ANOVA was conducted to measure the satisfaction of performance and

work types by management type. The questionnaire survey was carried out from August 1 to 31, 2018, and a total of 143 questionnaires were collected and analyzed.

Results and Discussion

General characteristics of managers

The general characteristics of managers who participated in the questionnaire survey (Table 2) show that the share of males and females was 69.9% (100 persons) and 30.1% (43 persons) respectively, indicating that the share of males was over two times higher than that of females. The results can be attributed to the fact that the demand for males is higher than that for females due to the roles of apartment managers. In terms of age group, the share of those in their 50s was the highest (51.0%, 73 persons), followed by those in their 60s or older (26.6%, 38 persons), those in their 40s (20.3%, 29 persons), and those in their 30s (2.1%, 3 persons). Those in their 50s-60s and older accounted for 77.6%, which coincides with the social perception that apartment management is considered as a post-retirement job. In terms of the length of service, the number of those who worked for less than 5 years and for over 20 years were found to be evenly distributed. Specifically, those who worked for 10-15 years accounted for 26.6% (38 persons), and those who worked for over 20 years accounted for 21% (30 persons). In terms of the type of work, the share of heads of apartment management was the highest (74.1%, 106 persons), followed by office jobs (14%, 20 persons) and technical positions (10.5%, 15 persons).

Table 1. Contents of survey

Distinction		Item
General information		• Gender / age / duration of employment / type of work
Landscape management method		• Performing own landscaping / hiring partial landscaping services / hiring full landscaping services
Apartment complex information		• Location of apartment / years after completion / number of households in an apartment complex
Landscape management cost		• Management cost per square / high-cost item
Landscape management items		• Pruning / removing dead wood / pest control / weed control / facility management
Landscape management satisfaction	Performance	• Expertise / technology / service
	Work types	• Satisfaction in landscape plants / size and shape of trees and shrub / pruning frequency / fertilizer work / weed control / pest control of trees / facility management / landscape improvement (remodeling)

Table 2. General information of respondents

	Distinction	Frequency	Percent(%)
Gender	Male	100	69.9
	Female	43	30.1
	Total	143	100.0
Age	30s	3	2.1
	40s	29	20.3
	50s	73	51.0
	60s or older	38	26.6
	Total	143	100.0
Duration of employment	5 years or less	23	16.1
	6-10 years	26	18.1
	11-15 years	38	26.6
	16-20 years	26	18.1
	More than 20 years	30	21.0
	Total	143	100.0
Type of work	Director of management office	106	74.1
	Technical position	15	10.5
	Office	20	14.0
	Others	2	1.4
	Total	143	100.0

Apartment characteristics by landscape management type

The number of apartment complexes which are performing own landscaping was the highest (50.3%, 72 persons), followed by hiring partial landscaping services (25.2%, 36 persons), and hiring full landscaping services (24.5%, 35 persons; Table 3). Another study on the types of management in apartment complexes in Gyeonggi-do (Kim et al., 2012) reported that the share of own landscaping management and hiring landscaping services was 75% and 19% respectively, but the results of this study show that those that either hiring landscaping services partially or fully accounted for about 50%, indicating that there is a growing tendency of hiring professional landscaping management.

A chi-squared test was performed to identify whether different management types were adopted depending on the location of apartment complexes, the year of construction completion and the size of apartment complexes, and dif-

Table 3. Distinction by type of landscape management

	Distinction	Frequency	Percent(%)
Performing own landscaping		72	50.3
Hiring partial landscaping services		36	25.2
Hiring full landscaping services		35	24.5
	Total	143	100.0

ferences were found depending on the year of construction completion (Table 4). That is, among those that perform own landscaping, the apartment complexes that were constructed over 20 years ago accounted for 37.5%, while the apartment complexes of the same age accounted for merely 8.6% of those that hire full landscape management. Among those that were constructed less than 5 years ago, those that hire full landscape management accounted for 34.3%, 8.2 times higher than those that perform own landscaping (4.2%). The results indicate that the more recently apartment complexes were constructed, the higher the share of those that hire full landscape services for management, and can be attributed to the age of apartment complexes. Those that were constructed long ago tend to have smaller landscape spaces and a lower awareness of the importance of landscape management than those that were recently constructed, which seems to lead to an increasing share of own landscaping and hiring partial professional services. Recently-constructed apartment complexes tend to secure larger landscape spaces, and the number of households is reduced consequently. However, as the unit price has increased, more economic effects can be secured and the demand for pleasant living environments has also gradually increased (Kim and Sung, 2010), which seems to result in shifting from performing own landscaping management to hiring full landscaping management. Whether the type of management is affected by the size of apartment complexes was also analyzed, and the share of those that had less than 300 households among those that perform own landscaping was the highest (34.7%), followed by those that had 500-999 households (30.6%), those that had 300-499 households (15.3%). On the contrary, among those that hire full landscaping services, those that had over 2,000

Table 4. Apartments characteristics by landscape management types

Distinction		Frequency (%)			<i>p</i>
		Performing own landscaping	Hiring partial landscaping services	Hiring full landscaping services	
Location of apartment	Northern part of the Hangang River, Seoul	23(31.9)	5(13.9)	18(51.4)	.026*
	Southern part of the Hangang River, Seoul	26(36.1)	12(33.3)	4(11.4)	
	Southern Gyeonggi-Do	13(18.1)	13(36.1)	10(28.6)	
	Northern Gyeonggi-Do	6(8.3)	3(8.3)	2(5.7)	
	Other areas	4(5.6)	3(8.3)	1(2.9)	
	Total	143(100.0)			
Years after completion	Less than 2 years	4(5.6)	1(2.8)	2(5.7)	.000**
	2-4 years	3(4.2)	3(8.3)	12(34.3)	
	5-9 years	15(20.8)	8(22.2)	-	
	10-20 years	23(31.9)	11(30.6)	18(51.4)	
	Over 20 years	27(37.5)	13(36.1)	3(8.6)	
	Total	143(100.0)			
Number of households in apartment complex	Less than 300 households	25(34.7)	7(19.4)	7(20.0)	.000**
	300-499 households	11(15.3)	9(25.0)	2(5.7)	
	500-999 households	22(30.6)	9(25.0)	7(20.0)	
	1,000-2,000 households	6(8.3)	8(22.2)	2(5.7)	
	Over 2,000 households	8(11.1)	3(8.3)	17(48.6)	
	Total	143(100.0)			

* $p < .05$, ** $p < .01$.

households accounted for 48.6%, indicating that the more household apartment complexes have, the higher the share of hiring full services for landscape management.

Management cost by landscape management type

A chi-squared test was performed to analyze differences in the cost of management and high-cost landscaping works between landscape management types (Table 5). There were significant differences between landscape management types at the significance level of 95%, but there was no significant difference in the perception of high-cost landscaping works between management types. It was found that landscape accounted for over 50% of the total cost of basic management.

In terms of landscape management cost, the share of those that spent 20 KRW/m² or lower among those that perform own landscaping was the highest (63.9%), but the share of those that spent 50 KRW/m² or higher was merely 6.9%. The share of those that spent 20 KRW/m² or lower

among those that hire full landscaping management was the highest (28.6%), followed by 50 KRW/m² or lower (25.7%), and 50 KRW/m² or higher (11.4%), which indicates that the cost of landscape management per m² in the case of hiring full services was higher. Similarly, Kim et al. (2012) also reported that apartment complexes that spent less than 5 million KRW (76%) on landscape management annually mostly perform own landscaping, and those that spent 10-30 million KRW (11%) hire professional landscaping companies. The results indicate that the type of self landscaping management by the office of apartment has long been preferred to reduce management expenses.

Management items by landscape management type

Differences in management items between landscape management types were analyzed, and there were significant differences in tree trimming and pruning between

landscape management types (Table 6). Among those that perform own landscaping, only 50.9% were found to trim and prune trees, while 91.4% of those that hire full landscaping services performed tree trimming and pruning. In particular, trimming and pruning need to be professionally

managed since the healthy growth and landscaping values of trees can be secured by removing shoots or spreading branches, and blooming and fruit bearing can be achieved by pruning dead, sick and broken branches, and old leaves (Lee and Lee, 2012). In terms of pest control, Lee et al.

Table 5. Management cost and high-cost item by landscape management types

		Frequency (%)			<i>p</i>
Distinction		Performing own landscaping	Hiring partial landscaping services	Hiring full landscaping services	
Cost on landscape	Under 20 KRW/m ²	46(63.9)	18(50.0)	10(28.6)	.002**
	21-30 KRW/m ²	12(16.7)	5(13.9)	5(14.3)	
	31-40 KRW/m ²	8(11.1)	5(13.9)	7(20.0)	
	41-50 KRW/m ²	1(1.4)	3(8.3)	9(25.7)	
	Over 50 KRW/m ²	5(6.9)	5(13.9)	4(11.4)	
	Total	143(100.0)			
High-cost item	Basic landscape management	40(55.6)	23(63.9)	23(65.7)	.649
	Landscape renovation	5(6.9)	4(11.1)	3(8.6)	
	Herbaceous · flowering shrub	12(16.7)	2(5.6)	2(5.7)	
	Facility management	13(18.1)	6(16.7)	7(20.0)	
	Defects correction	2(2.8)	1(2.8)	-	
	Total	143(100.0)			

p* < .05, *p* < .01.

Table 6. Differences of management items by landscape management types

Distinction		Frequency (%)			<i>p</i>
		Performing own landscaping	Hiring partial landscaping services	Hiring full landscaping services	
Pruning	Performed	40(50.9)	29(80.6)	32(91.4)	.000**
	Not performed	32(44.4)	7(19.4)	3(8.6)	
	Total	143(100.0)			
Removal of undesired trees and dead wood	Performed	59(81.9)	34(94.4)	32(91.4)	.130
	Not performed	13(18.1)	2(5.6)	3(8.6)	
	Total	143(100.0)			
Pest control	Performed	64(88.9)	35(97.2)	35(100.0)	.051
	Not performed	8(11.1)	1(2.8)	-	
	Total	143(100.0)			
Weed control	Performed	66(91.7)	34(94.4)	32(91.4)	.856
	Not performed	6(8.3)	2(5.6)	3(8.6)	
	Total	143(100.0)			
Facility management	Performed	56(77.8)	29(80.6)	31(88.6)	.406
	Not performed	16(22.2)	7(19.4)	4(11.4)	
	Total	143(100.0)			

p* < .05, *p* < .01.

(1994) highlighted the importance of adopting proper pest control methods for tall trees in large-sized apartment complexes, and the importance of professional management as a factor that affects the comfort and healthiness of outdoor spaces within apartment complexes. The results of this study also show that 88.9% of those that perform own landscaping controlled pests, and 97.2% of those that hire partial landscaping services, and 100% of hiring full landscaping services were found to control pests. The overall rate of pest control was high, but those that perform own landscaping were found to do so with their own human resources. Although there was no statistically significant difference in the overall management conditions between management types, the rate of those that hire full landscape management was relatively higher in most items than others. These results demonstrate that apartments tend to receive more professional landscape management by hiring full services.

Satisfaction of performance by landscape management type

To identify differences in managers' perception of performance between landscape management types, differences in their satisfaction of expertise, technical skills and service were analyzed. Duncan's post-hoc test was conducted (Table 7), and statistically significant differences in perception were observed in the three different landscape management groups. First, the mean value of landscape

management expertise in the self landscaping management and partial landscaping services groups was 2.63 and 3.08 respectively, showing a low satisfaction level, while the satisfaction level in the full professional service group (3.46) was higher than the average. Second, the mean value of technical satisfaction in the self landscaping management group (2.64) was lower than that of the rest two groups (on average 3.06-3.37). Third, in terms of service satisfaction, the mean value in the full professional service group was 3.54, showing a difference from the rest two groups (on average 2.75-3.08). The overall results of the satisfaction of landscape management expertise, technical skills and service show that the satisfaction of the three surveyed areas in the full professional service group (on average 3.37-3.54) was higher than the average, which indicates that landscape management needs to be professionally performed, and that at the same time landscape managers need to be provided with opportunities to obtain professional knowledge on landscape or techniques of field management.

Satisfaction of work types by landscape management type

To identify differences in managers' perception of satisfaction of work types between landscape management types, the satisfaction of a total of eight items was compared as follows: overall satisfaction of landscape plants; size and shape of planting; frequency of trimming and

Table 7. One-way ANOVA results of the apartment managers' satisfaction level in the landscape management

Distinction	Management type	Mean	F	p
Expertise in landscape management	Performing own landscaping	2.63	13.98	.000**
	Hiring partial landscaping services	3.08		
	Hiring full landscaping services	3.46		
Technical satisfaction	Performing own landscaping	2.64	9.76	.000**
	Hiring partial landscaping services	3.06		
	Hiring full landscaping services	3.37		
Service satisfaction	Performing own landscaping	2.75	7.47	.000**
	Hiring partial landscaping services	3.08		
	Hiring full landscaping services	3.54		

Note. When determining the mean, 1= very dissatisfied; 5= very satisfied.

* $p < .05$, ** $p < .01$.

pruning; fertilizing; weed control; pest control of trees; management of facilities; and landscape improvement. The results of analysis (Table 8) show that there were statistically significant differences in six items except the satisfaction of weeding and facility management between landscape management types. Specifically, the overall satisfaction of landscape plants showed differences between landscape management types as follows: full professional landscaping services, 3.37; own landscaping management, 2.63; and partial professional services, 2.97. The satisfaction of the size and shape of planting, fertilizing and landscape improvement was as follows: own landscaping management, 2.40-2.64 on average; partial professional services, 2.72-2.91 on average; and full professional services, 3.11-3.34 on average. The satisfaction of the fre-

quency of trimming and pruning and pest control of trees in the own landscaping management group (on average 2.53-2.90) was found to be lower than the partial professional services group (on average 3.0-3.28) and the full professional services group (on average 3.37-3.43). Among the surveyed work types, the frequency of trimming and pruning showed the highest difference (0.84) between own landscaping management and full professional services. The demand for professional skills on healthy and beautiful landscape environments in outdoor spaces within apartment complexes was also found to show differences between management types. Similar to the satisfaction of performance, the overall satisfaction of work types in the own landscaping management group was lower than the partial and full professional services groups. The results coincide with

Table 8. One-way ANOVA results of the apartment managers' satisfaction level by work types in landscape management

Distinction	Management type	Mean	F	p
Overall landscape	Performing own landscaping	2.63	9.77	.000**
	Hiring partial landscaping services	2.97		
	Hiring full landscaping services	3.37		
Size and shape of plants	Performing own landscaping	2.64	8.11	.000**
	Hiring partial landscaping services	2.91		
	Hiring full landscaping services	3.34		
Tree pruning frequency	Performing own landscaping	2.53	10.54	.000**
	Hiring partial landscaping services	3.00		
	Hiring full landscaping services	3.37		
Frequency of fertilizer application	Performing own landscaping	2.40	7.57	.001**
	Hiring partial landscaping services	2.72		
	Hiring full landscaping services	3.11		
Weed control	Performing own landscaping	3.08	0.31	.730
	Hiring partial landscaping services	3.19		
	Hiring full landscaping services	3.20		
Tree & shrub pest control	Performing own landscaping	2.90	5.43	.005**
	Hiring partial landscaping services	3.28		
	Hiring full landscaping services	3.43		
Facility management	Performing own landscaping	3.14	0.40	.669
	Hiring partial landscaping services	3.26		
	Hiring full landscaping services	3.31		
Landscape improvement	Performing own landscaping	2.63	4.74	.010*
	Hiring partial landscaping services	2.78		
	Hiring full landscaping services	3.14		

Note. When determining the mean, 1= very dissatisfied; 5= very satisfied.

* $p < .05$, ** $p < .01$.

the results of Park (2005), and demonstrate that professional work types such as trimming, pruning, fertilizing and pest control need to be done professionally, although many apartment complexes tend to perform them on their own due to problems such as a lack of budget for maintaining outdoor spaces, knowledge on landscape management and professional human resources.

Conclusion

This study aimed to analyze differences in how managers in charge of landscape spaces and facilities within apartment complexes perceive landscape management between management types, and to suggest measures to efficiently manage landscape spaces. To do so, a questionnaire survey was conducted on managers working in 100 apartment complexes located in the metropolitan area in Korea, and the following items were surveyed by dividing the participants into three management types: the characteristics of apartments; management cost; management items; and the satisfaction of performance and work types. The following conclusions were obtained.

First, performing own landscaping and hiring partial landscaping services accounted for 50.3% and 25.2% respectively, which indicated that in many cases landscape management was directly performed by the office of apartment management or was partially done by landscaping companies due to a lack of budget. Hiring full landscaping services was found to account for 24.5%, slightly higher than the percentage of full professional landscaping management (18.9%) reported by Kim et al. (2012). Second, among those that perform own landscaping, those that were constructed over 20 years ago showed the highest share (37.5%), while among those that were constructed less than 5 years ago, those that hire full landscaping services showed a higher share (34.3%) than those that perform own landscaping (4.2%). In terms of the number of households, the share of those that had less than 300 households among those that perform own landscaping was the highest (34.7%), and the share of those that had over 2,000 households was the highest (48.6%) among those that hire full landscaping services. These results demonstrate that re-

cently-constructed apartment complexes that have many households tend to highlight the importance of professional landscape management from the perspective of maintaining pleasant outdoor environments for residents. Third, in terms of the cost of landscape management, those that spent 20 KRW/m² or less and 50 KRW/m² or less accounted for 63.9% and 1.4% respectively of those that perform own landscaping, but among those that hire full landscape management, those that spent 20 KRW/m² or less and 50 KRW/m² or less accounted for 28.6% and 25.7% respectively, indicating that the cost of landscape management in the full professional management group tend to be higher. Kim et al. (2012) also reported that the share of those that spent less than 5 million won annually on landscape management was over 70% and the reason why those that perform own landscape management spent little were attributed to a lack of budget for landscape management. Fourth, in terms of work types, those that hire professional landscape management tended to show a higher rate of performance than those that perform own landscaping. In particular, only 50.9% of those that self managed landscape performed tree trimming and pruning, while 91.4% of those that hire full landscape management were found to perform the same tasks, showing differences in the maintenance of the health and landscape of trees. Fifth, the satisfaction of performance in the full professional landscape management group (on average 3.46) was higher than the self landscape management group (on average 2.67). Sixth, the analysis results of the satisfaction of work types showed that the full professional landscape management group (on average 3.11-3.43) showed statistically significantly higher scores in six items (overall satisfaction of landscape plants; size and shape of planting; frequency of trimming and pruning; fertilizing; pest control of trees; and landscape improvement) out of eight items than the self landscape management group (on average 2.4-2.9). That is, apartment managers tend to show a relatively higher satisfaction level in performing professional and technical landscape tasks by hiring professional management.

As such, only 50% of the surveyed apartment complexes in this study were found to perform own landscaping due to factors that directly affect improvement in the quality of outdoor environments within apartment complexes or

a lack of budget for management. In addition, managers showed different satisfaction levels depending on the type of management (own management or professional managements), and in particular, it was found that those that perform own landscaping did not perform professional tasks that can improve the aesthetic value and health of outdoor spaces including tree trimming and pruning, pest control and fertilizing in a systematic manner. Therefore, it is necessary to establish measures to improve, to some extent, the own landscaping method that experiences several practical problems such as a lack of budget, professional knowledge and human resources. To do so, guidelines for efficient landscape management need to be also suggested such as providing job trainings for apartment managers by engaging landscape experts; providing mentoring services through online communities; and standardizing landscape management works for apartment complexes. Still, there is a limitation in this study. Whether the managers in charge of performing own landscaping direct majored in landscape was not surveyed. It is also necessary to establish effective guidelines for landscape management by conducting follow-up studies on the status of green spaces and growth of plants in apartment complexes of each management type.

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