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Influences of Boundary Space Amelioration on Residents' Key Perceptions in Communities

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Abstract

Boundary space amelioration (BSA) aims to eliminate barriers between two sites and activate the grey residual space in-between. School campus in Taiwan is often surrounded by walls, which blocks its connection to communities and often creates security concerns. School campus has become the most popular target for BSA, which tries to turn it into a functional and aesthetic space. This study intends to explore the influences of campus BSA within a community, especially its relationships with neighborhood safety, perceived change and place attachment. The result shows that the improvement of boundary environment has a significant influence on all three perceptions.

Keywords: Environmental design; Neighborhood safety; Perceived change; Place attachment

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DOI: <https://doi.org/10.21834/ajqol.v4i16.193>*

1.0 Introduction

As society changes, the school campus is no longer an enclosed learning environment, but a popular field of activity. The primary school campus, in particular, has a close connection to community life. The space that lies between the campus and the community is not merely a transition space, but also a place where the two interact and guard against each other. In the past, the principle of site planning in Taiwan was to enclose individual sites with walls. Planning and design were conducted in isolation within the walls. This planning approach often results in grey residual space between two adjacent sites, which is neither functional nor safe. The purpose of "Boundary space amelioration" is to remove the walls and activate the grey residual space between the two sites to turn it into a functional and aesthetic space. Campus boundary space makes up the transition space between the community and the school. However, through environmental transformation, including the use of open walls as well as greening and beautifying the walls could blur this boundary. Therefore, this study intends to explore the impact of campus boundary amelioration within a community, especially its relationships with neighborhood safety, perceived change and place attachment.

2.0 Literature Review

2.1 Boundary space amelioration (BSA)

The difference between boundary space amelioration (BSA) and general space amelioration is that BSA only ameliorates the adjacent space between two sites, and there is no need to rectify the original spatial structure. This type of space amelioration method reduces cost (Dober, 2000), and the amelioration efforts tend to focus on landscape and traffic circulation.

The amelioration of boundary space mainly targets landscape renovation that improves visual qualities. The visual elements include manmade elements and ecological resources (Daniel & Vining, 1983; Saeidi, Mohammadzadeh, Salmanmahiny, & Mirkarimi, 2017). In addition, a school campus also serves transportation, education, communication, and recreational functions, and it should integrate ecological, cultural and local characteristics with individuality (Ruihai & Dinghai, 2017). Outdoor space, street furniture, manmade objects, plants, sidewalks and buildings (Lynch & Hack, 1984; Zhang & Lin, 2011) are regarded as an environmental stimulus for the residents. In terms of campus landscape, lawns, trees, colors, planting density, sculpture, ponds, and fountains, etc. will affect people's perception (Lau, Gou, & Liu, 2014). Elements in the public space that provide comforts include leisure space, street furniture, proper sidewalk scale, planting, shading, and manmade objects (Mehta, 2014; Sullivan, Kuo, & Depooter, 2004).

According to the above-referenced literature and characteristics of the subject site, this study divides the spatial amelioration factors into six elements: "directional system and public art", "planting", "outdoor furniture", "sidewalk", "lighting facilities" and "fence or hedge".

2.2 Neighborhood safety

Safety is the basic needs of human beings. On the psychological aspect, it has the expected

effect on personality development. And psychological safety helps to make the needs of personal trust and communication be satisfied, creates a sense of belonging to the environment, and promote mental health (Bordovskaia & Baeva, 2015). Perception of safety will affect the walking ability and physical activity (Abdullah, Marzbali, Ramayah, Bahauddin, & Tilaki, 2016). Safety is the most important factor to explain walking behavior. If people feel the fear, they won't go out to use local facilities, participate in activities, or interact with strangers on the street (Pikora, Giles-Corti, Bull, Jamrozik, & Donovan, 2003).

According to the literature, we know that walking activity is an act of feeling safe to the place. Therefore, this study defines that neighborhood safety will base on the feeling of pedestrian and environmental safety around the campus. we divided neighborhood safety into two aspects: "criminal security" and "traffic safety".

2.3 Perceived change

Perception is the psychological process based on past experiences that people combine the information obtained from external environmental stimuli to evaluate and interpret (Grahn & Stigsdotter, 2010; Lindsay & Norman, 2013). Jessor and Jessor (1973) proposed that environmental perception is temporal, and the environmental attributes are perceived to have different development feelings over time or at different stages of life. The perceived change was first mentioned by Sell and Zube (1986), the study explores the responses of people's perceived to urban change and proposes three dimensions to assess how people feel when a place changes over time: "Scope, speed, and control." These three dimensions effectively solve the characteristics of perceived change, the value is that it will change over time and the city change into positive (enhance, upgrade) or negative (threat, stress) (Devine-Wright, 2009; von Wirth, Grêt-Regamey, Moser, & Stauffacher, 2016).

In this study, we use the Perceived Urban Change (PUC-t) proposed by von Wirth et al. (2016), to divide perceived change into two factors: "positive development" and "environmental change".

2.4 Place attachment

Place attachment is defined as the emotional connection to a specific environment. This emotional connection refers to the emotional devotion in a certain place, or the personal recognition of a specific environment (Scannell & Gifford, 2017). It will conduce to strong attachment in a fixed boundary over time in the place theory proposed by Yi-Fu Tuan (1975). People will have a strong emotional impact on fixed areas in process of time, so residents have more feeling of attachment to the community. If people have an attachment to their residence, they will be friendlier with their neighbors and trust others (Kasarda & Janowitz, 1974; Lewicka, 2013).

Place attachment research includes place emotional attachment and functional attachment. Emotional attachment is often referred to as place identity, while functional attachments are called place dependence. Many studies often use these two aspects to describe place attachment (Anton & Lawrence, 2016; Lin & Lockwood, 2014; Moore & Graefe, 1994). This study is based on the literature mentioned above, and the place

attachment is divided into two aspects: “place identity” and “place dependence”.

2.5 Relationships among BSA, perceived change, neighborhood safety, and place attachment

There is a significant relationship between the architectural environment and people's sense of safety (Wood et al., 2008; Omar, Omar, & Yusoff, 2016). In safe and densely populated areas, residents will be more likely to choose walking as the main means of transportation (Hong & Chen, 2014). Environmental risk factors such as road design to be a negative influence on pedestrian safety and these risk factors increase the possibility of death and injury (Clifton & Kreamer-Fults, 2007; LaScala, Johnson, & Gruenewald, 2001). Therefore, planners need to understand not only the interrelationship between these factors, but also assess the risk of building environment during the planning, implementation and evaluation process. People who live communities with good transportation and pedestrian access tend to construe their communities as being safe (Hong & Chen, 2014), thus demonstrating a potential indirect link between safety and the architectural environment (Loukaitou-Sideris, 2006; Wood et al., 2008).

The perceived change has to do with how humans receive information and stimulus from the physical environment through their five senses, and the mental process they go through to formulate evaluation, assessment, and interpretation based on past experience (Coeterier, 1987; Rapoport, 2016). Therefore, environmental transformation poses the most direct impact on perceived change. Based on the theory of evolution, it is human nature to feel attached to the environment (Riley, 1992). It is evident from the landscape assessment study that the types of the landscape may vary according to group preferences (Herzog, Herbert, Kaplan, & Crooks, 2000; Strumse, 1996; Yu, 1995). Changes in the landscape or natural environment as a result of human activities also trigger different preferences among different groups, and people grow attached to specific places for various reasons (Low & Altman, 1992; Toruńczyk - Ruiz & Lewicka, 2016).

Environmental changes are related to the changes in residents' place attachment. Among specific groups, such changes may affect people's sense of identity and generate strong place attachment. On the other hand, place attachment may also affect how people perceive changes in urban areas (Bonaiuto, Carrus, Martorella, & Bonnes, 2002; Matilainen, Pohja-Mykrä, Lähdesmäki, & Kurki, 2017). Therefore, before comprehending the influence of residents' attitudes and behavioral intentions, it is necessary to have a basic understanding of the relationship between characteristics of place changes and residents' attachment (von Wirth et al., 2016). Based on the above theory, it can be hypothesized that the planning and design of architectural environment have an impact on neighborhood security and it will affect residents' psychological state, thus affecting pedestrian behavior and attachment, as well as perception toward environmental changes. Therefore, this study hypothesizes that boundary amelioration has an impact on perceived change, neighborhood safety, and place attachment.

3.0 Methodology

Based on the literature review, the relationships among boundary space amelioration, perceived change, neighborhood safety, and place attachment could be identified. This study aims to explore the impact of BSA and the relationships among perceived change, neighborhood safety and place attachment. Figure 1 shows the research framework, and multiple regression analysis was used to analyze the interrelationship among the four constructs.

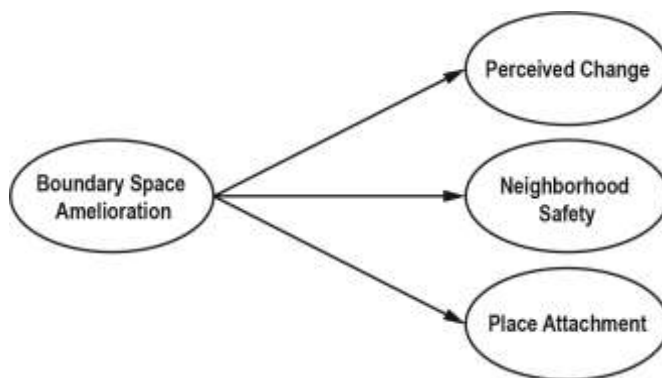


Figure 1: Study framework

3.1 Study site

This study aims to explore the influences of boundary space amelioration on the resident, and school campus in Taiwan is often surrounded by walls, which blocks its connection to communities and often creates security concerns. School campus has become the most popular target for BSA, which tries to turn it into a functional and aesthetic space. Limited by time and manpower, this study has chosen three campuses of BSA cases in the Eastern District of Tainan as study sites. The scale of these cases and the degree of amelioration vary. They are Chong-Syue, Sheng-Li, and Da-Tong elementary schools.

3.2 Population and Sampling

The sample population of this study is residents within the 200-meter radius of the school campus. Based on the census information from Tainan City Government and the stratified-quota sampling method, the sample size should be 369. The actual number of questionnaires distributed for each site was determined according to the percentage of the of each site against the combined population. A total of 431 questionnaires were collected and 392 are valid.

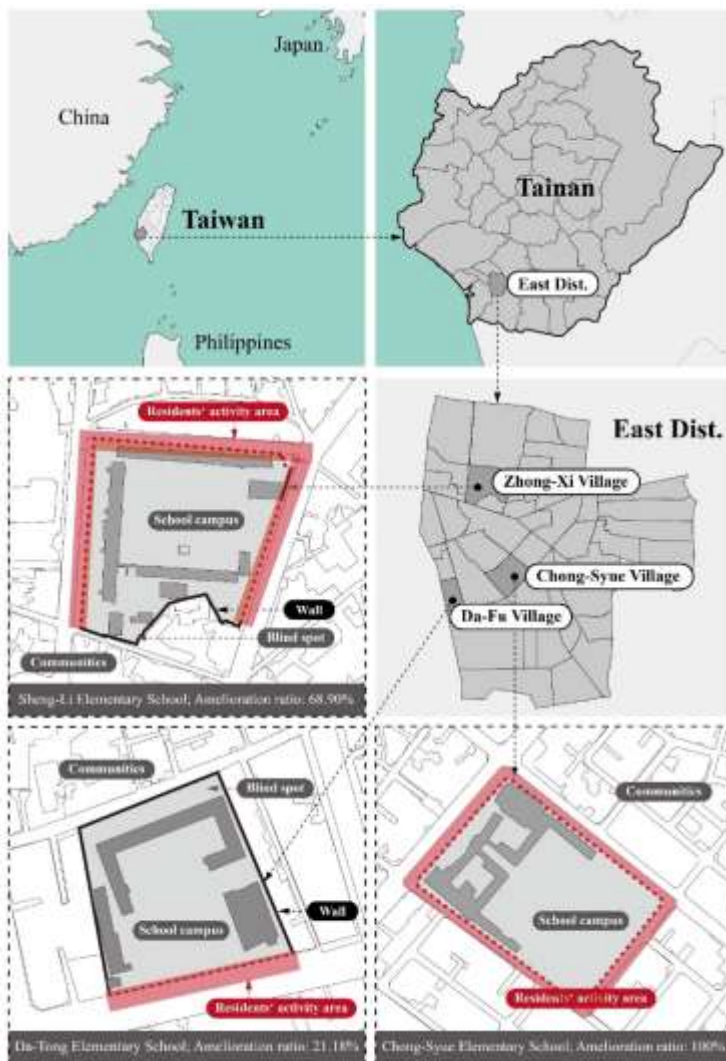


Fig. 2: Study sites

Table 1. The population of each study site

Elementary School	N	%	Questionnaire	Valid	Invalid
Sheng-Li elementary school	3,376	37.2%	155	138	17
Chong-Syue elementary school	3,766	41.5%	175	161	14

Da-Tong elementary school	1,935	21.3%	101	93	8
Total	9,077	100%	431	392	39

3.3 Measurement Scale

Based on the literature review, the study proposes two sub-dimensions as the scale for perceived change. The sub-dimensions include “positive development” and “environmental change” (von Wirth, Grêt-Regamey, Moser, & Stauffacher, 2016); the two sub-dimensions for neighborhood safety are “security against crime” and “traffic safety” (Saelens, Sallis, Black, & Chen, 2003); the sub-dimensions for place attachment are “place identity” and “place dependence” (Anton & Lawrence, 2016; Moore & Graefe, 1994).

3.4 Study method

3.4.1 Exploratory Factor Analysis

The purpose of using factor analysis is to simplify data. In this study, factors with the same characteristics as BSA, perceived change, neighborhood safety, and place attachment were extracted. During the analysis, the KMO sampling suitability test and Bartlett spherical test were conducted to determine whether the data is suitable for factor analysis. In addition, Cronbach's alpha is used to test the internal consistency of the latent dimensions (Hair, 2010).

3.4.2 Multiple Regression Analysis

Multiple regression analysis was conducted to explore the relationships between independent and dependent variables. Using the linear relationship between them, the prediction could be made to infer which independent variables affect the dependent variable. In this study, the multiple regression analysis is used to explore the relationships among BSA, perceived change, neighborhood safety, and place attachment.

4.0 Results and discussion

4.1 Factors of boundary space amelioration (BSA)

A01 to A29 are items included in BSA factors. First, reliability analysis is conducted, followed by factor analysis to consolidate and name the factors. Referencing past literature and the content under each factor, the six factors are named “directional system and public art”, “planting”, “outdoor furniture”, “sidewalk”, “lighting facilities” and “fence or hedge”.

Table 2. Boundary space amelioration factor analysis

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Directional system and public art (Factor 1)						

A18	The design of directional signs is good.	.748	.147	.164	.192	.332	.097
A17	The content of directional signs is easy to read.	.721	.148	.201	.172	.314	-.050
A19	The directional signs are functional.	.705	.226	.241	.175	.343	.097
A21	The public art is approachable.	.674	.298	.216	.201	-.044	.208
A22	The placement of public art is appropriate.	.664	.257	.265	.224	.009	.238
A20	Each public art is distinct.	.632	.283	.148	.164	.031	.371
A23	The electricity poles or power distribution boxes have been beautified.	.523	.210	.092	.060	.189	.258
Planting (Factor 2)							
A27	Plants make me feel relaxed.	.239	.811	.115	.209	.147	.148
A26	One can see the green environment during the walk.	.237	.784	.163	.180	.142	.146
A29	There is a variety of plants.	.158	.742	.194	.146	.227	.065
A25	The landscape design is unique.	.267	.737	.131	.164	.203	.229
A28	The plants are pleasing to the eye.	.214	.736	.110	.124	.171	.152
Outdoor furniture (Factor 3)							
A04	The outdoor furniture is functional.	.141	.152	.830	.084	.071	.185
A03	The outdoor furniture blends with the surrounding.	.194	.202	.790	.090	.167	.081
A01	The location of outdoor furniture is appropriate.	.149	.170	.771	.190	.091	.102
A05	The outdoor furniture promotes interaction.	.175	.130	.770	.151	.040	.120
A02	The amount of outdoor furniture is adequate.	.166	-.011	.703	.187	.123	.149
Sidewalk (Factor 4)							
A06	The sidewalk scale is appropriate.	.130	.210	.219	.756	.138	.153
A08	The sidewalks have good walkability.	.181	.203	.199	.755	.185	.196
A07	The sidewalks are barrier free.	.306	.174	.192	.700	.060	.073
A09	The pavement design is distinctive.	.279	.237	.179	.536	.218	.344
Lighting facilities (Factor 5)							
A14	The lighting facilities provide adequate lighting.	.160	.206	.123	.101	.818	.136
A15	The lighting is soft.	.205	.269	.149	.121	.794	.174
A16	The lighting facilities blend with the surrounding environment.	.272	.241	.134	.228	.723	.116
Fence or hedge (Factor 6)							
A12	The fence or hedge serves as a physical buffer.	.017	.064	.140	.123	.101	.688
A11	The fence or hedge is artistic.	.302	.230	.174	.127	.119	.675
A13	The fence or hedge are well designed.	.361	.211	.150	.159	.168	.650
A10	The fence or hedge is visually penetrable.	.203	.270	.329	.243	.094	.465

Number of Item	7	5	5	4	3	4
Eigenvalue	11.975	2.180	1.468	1.415	1.223	1.084
Cronbach's α	0.898	0.910	0.886	0.834	0.877	0.754
Explained Variation (%)	14.868	13.958	13.458	9.206	9.198	8.404
Total Explained Variation (%)	14.868	28.826	42.284	51.490	60.687	69.092

4.2 The total effect of BSA on perceived change, neighborhood safety, and place attachment

The results show that boundary amelioration has a significant effect on neighborhood safety, perceived change and place attachment, and all with a large effect size (Cohen, 1992). Ranging from large to small effect sizes are perception of environmental change, neighborhood safety and place attachment. Overall, planting has the greatest impact on perceived change, neighborhood safety and place attachment.

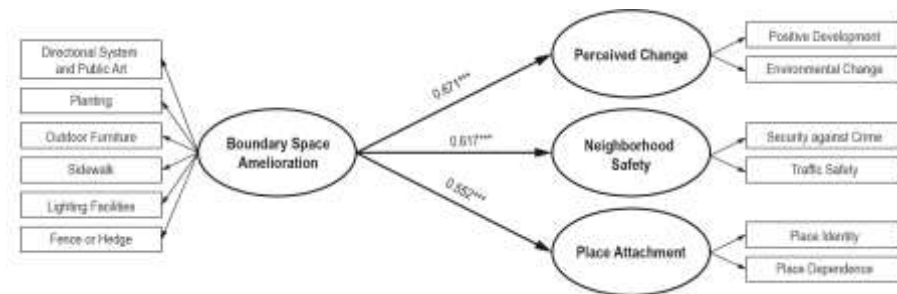


Fig. 3: The total effect of BSA on perceived change, neighborhood safety, and place attachment

4.3 The relationship between BSA elements and perceived change

This study further explores the effect size of BSA factors on each dimension. The results are shown in Table 3. Among the BSA factors affecting perceived change, “planting”, “outdoor furniture”, “directional system and public art”, “fence or hedge” and “lighting facilities” pose significant effects. Among them, “planting” is the most influential. The effect of planting reaches a medium size (0.36), and the effect size of other factors are small (0.1~0.16).

There are two factors in perceived change: positive development and environmental change. In the effect of BSA factors on positive development, only “planting”, “outdoor furniture”, “directional system and public art” and “fence or hedge” have significant effects. Among the factors, “planting” is the most influential (0.39). Therefore, the most effective way to enhance residents' perception of "positive development" is to strengthen planting.

In the effect of BSA factors on environmental change, only “planting”, “directional system and public art”, “outdoor furniture” and “lighting facilities” have a significant effect on positive development. Among them, “planting” has the most significant influence (0.27). To factors of perceived change, fence or hedge contributes to positive development, and lighting facilities

affect environmental change. To the perception of environmental, sidewalk improvement is the only item that does not affect residents' perception.

Table 3. Perceived change affected by BSA factors, in which perceived change and its' factors regressed separately by six boundary amelioration factors.

Dependent variable	Independent variable	Standardized Coefficients	Sig.	VIF
	BSA elements	Beta		
Perceived change	Planting	.355	.000	1.954
	Outdoor furniture	.161	.000	1.511
	Directional system and public art	.129	.024	2.337
	Fence or hedge	.106	.037	1.880
	Lighting facilities	.099	.037	1.640
	adjusted R ² = 0.463			P=0.037
Factors of perceived change				
Positive development	Planting	.389	.000	1.815
	Outdoor furniture	.157	.001	1.505
	Directional system and public art	.133	.019	2.175
	Fence or hedge	.114	.030	1.874
	adjusted R ² = 0.427			P=0.030
Environmental change	Planting	.267	.000	1.860
	Directional system and public art	.154	.013	2.123
	Outdoor furniture	.151	.003	1.426
	Lighting facilities	.109	.046	1.634
adjusted R ² = 0.297			P=0.046	

The BSA factors have positive effects on perceived change. Planting is an important influence on visual preference and an important perceived factor, which is consistent with previous studies (Ode, Fry, Tveit, Messenger, & Miller, 2009; Purcell & Lamb, 1998). In directional system and public art, as well as fence or hedge, well-designed artworks can inspire people and influence their perception (Denes, 1993). Therefore, artistic fences or artworks created with collaborate efforts from students improve people's perception of change.

4.4 The relationship between BSA factors and neighborhood safety

In the effect of BSA factors on neighborhood safety, "planting", "lighting facilities", "sidewalk", "outdoor furniture" and "fence or hedge" pose significant effects. Among them, "planting" is the most significant.

There are two factors in neighborhood safety: security against crime and traffic safety. In

the effect of BSA factors on security against crime, only "fence or hedge", "directional system and public art" and "planting" have significant effects. The most influential is "fence or hedge". Prior to the BSA project, the fence and hedge create blind spots that became breeding ground for crimes. After the projects, the blind spots are eliminated, hence improving the sense of security against crime.

In the effect on traffic safety, only "planting", "lighting facilities", "sidewalk" and "outdoor furniture" have significant effects. The most influential is "planting". It is important to note that lighting facilities do not help improve security against crime. Instead, this factor is helpful for traffic safety.

Table 4. Neighborhood safety affected by BSA factors, in which neighborhood safety and its' factors regressed separately by six BSA factors.

Dependent variable	Independent variable BSA elements	Standardized Coefficients Beta	Sig.	VIF
Neighborhood safety	Planting	.215	.000	1.883
	Lighting facilities	.171	.001	1.575
	Sidewalk	.149	.008	1.978
	Outdoor furniture	.135	.006	1.522
	Fence or hedge	.121	.028	1.861
	adjusted R ² = 0.374			P=0.028
Factors of neighborhood safety				
Security against crime	Fence or hedge	.208	.000	1.764
	Directional system and public art	.195	.002	2.030
	Planting	.173	.004	1.805
	adjusted R ² = 0.238			P=0.004
Traffic safety	Planting	.231	.000	1.766
	Lighting facilities	.207	.000	1.562
	Sidewalk	.169	.002	1.814
	Outdoor furniture	.160	.001	1.436
adjusted R ² = 0.361			P=0.001	

On the impact of B factors on neighborhood safety, when planting, lighting facilities, sidewalk, outdoor furniture, and other design elements are well planned, they positively affect the safety of a neighborhood and enhances traffic safety. In terms of planting, it has been verified that roadside vegetation has a positive psychological impact on drivers. It reduces their pressure and frustration when driving and reduces their driving speed as well as the risk of collision (Van Treese II, Koeser, Fitzpatrick, Olexa, & Allen, 2017; Wolf, 2003). Lighting facilities will increase the visibility for both pedestrians and drivers and improve traffic safety.

The design and maintenance of pedestrian walkways and outdoor furniture also affect pedestrian safety (Clifton and Kremer-Fults, 2007). Fence or hedge, which defines the boundary, can protect the personal and property safety. The fence and hedge are lowered after the BSA project, which minimizes the blind spots, increase visibility, which greatly improves security against crime.

4.5 The relationship between BSA factors and place attachment

In the effect of BSA factors on place attachment, only "planting", "fence or hedge" and "outdoor furniture" have significant effects on place attachment. Among them, the most influential is "planting" (0.39). The other three design factors have no influence on place attachment.

There are two factors in place attachment: place identity and place dependence. The ranking of the effects of design factors on the two place attachment factors is the same. The most significant is planting. Therefore, the most effective way to increase place attachment is to improve the design of planting.

Table 5. Place attachment affected by BSA factors, in which place attachment and its' factors regressed separately by six BSA factors.

Dependent variable	Independent variable BSA elements	Standardized Coefficients Beta	Sig.	VIF
Place attachment	Planting	.394	.000	1.515
	Fence or hedge	.155	.004	1.669
	Outdoor furniture	.125	.012	1.405
	adjusted R ² = 0.463		P=0.037	
Factors of place attachment				
Place identity	Planting	.388	.000	1.515
	Fence or hedge	.131	.018	1.669
	Outdoor furniture	.120	.018	1.405
	adjusted R ² = 0.290		P=0.018	
Place dependence	Planting	.372	.000	1.515
	Fence or hedge	.166	.002	1.669
	Outdoor furniture	.122	.015	1.405
	adjusted R ² = 0.304		P=0.015	

BSA factors also have a positive effect on place attachment. Residents are highly attached to the natural environment (Korpela, Ylén, Tyrväinen & Silvennoinen, 2009; Muslim, 2016). Many environmental attributes are also critical for place attachment, while natural environment and social communication are more prominent (Kaltenborn & Williams, 2002), so planting, which could be considered part of the natural environment, and outdoor furniture,

which encourages social interaction, have an effect on place attachment. The higher the place attachment is for the local residents, the more they like the local landscape (Kaltenborn & Bjerke, 2002).

4.6 Scope of impact for the six BSA factors

The six design factors of the BSA impact the sub-dimensions of the residents' perceptions differently. Among the factors, planting is the strongest and most influential, followed by outdoor furniture, and then by fence or hedge (Table 5). Designers and planners should utilize the three design factors to enhance the effects of environmental amelioration. In addition, directional system and public arts contribute specifically toward the perception of changing, such as positive development and environmental change.

Table 6. Scope of impact of the six design elements on boundary space amelioration

	Perceived change		Neighborhood safety		Place attachment	
	Positive development	Environmental change	Security against crime	Traffic safety	Place identity	Place dependence
Directional system and public arts	○	○	○			
Planting	◎	○	○	○	◎	◎
Outdoor furniture	○	○		○	○	○
Sidewalk				○		
Lighting facilities		○		○		
Fence or hedge	○		○		○	○

○ : with a significant impact

◎ : effect size of the impact greater than 3.0 (medium)

4.7 Limitation

This study is a cross-sectional investigation, in which the directions of causal inferences are based on literature and theories. Due to financial limitations, only three elementary schools in Tainan were chosen as the study sites for this study. The sample size satisfies the statistical analyses. The result of factor analysis is based on sampling, and different sample site will lead to different result. This study took Taiwan as a study site, the factor of BSA will be different from those in other countries.

5.0 Conclusion

The results of this study show that the boundary space amelioration has a significant impact on perceived change, neighborhood safety and place attachment for community residents, and all with large effect size. Upon further study on the effects of various spatial modification factors on the three dimensions, it is revealed that "planting" has the greatest impact on the three dimensions, especially on place attachment (0.39), followed by perception of environmental change (0.36). Except for security against crime, planting has the greatest

impact on the other five environmental design factors.

Among the elements, planting is the strongest and most influential, followed by outdoor furniture, and then by fence or hedge. Designers and planners should take full advantage of these three design elements to amplify the effect of environmental amelioration. To enhance residents' perception of "positive development", the most effective way is to enhance the planting. Directional systems and public arts especially contribute to the perception of change. Fence or hedge, directional systems, and public arts, and planting are three design factors that have a significant impact on security against crime. To strengthen place attachment, an effective approach is to strengthen planting and vegetation. This study may help designers and planners achieve the desired effects.

Based on the results of the study, it is suggested that special attention be paid to planting and vegetation. Green and beautifying may serve as the guiding principle. The choice of plants should be diversified to beautify the streets. Attention should also be paid to the smell and color of plants, which can relax people. Shrubs serve as demarcation as well as a buffer; trees provide shades, purify the air and absorb noise, which mitigates the negative impacts on the environment. Overall, planting helps people trust the environment, change their perception, and enhance their place attachment. Improvements on fence or hedge provide spatial barrier while increasing people's sense of eliminating blind spots. Such changes are mostly well received, thereby enhancing emotional attachment. The artistic value and interactive nature of outdoor furniture, as well as directional system and public art, can influence people's perceived change and their behaviors.

Planners need to reach out and communicate with the residents in order to construct a recreational corner in the city, revitalize vacant properties, improve the streetscape and bring schools closer to the community. Planners need to interact with the local residents in order to understand how they feel and design the campus boundary space that meets their needs. If security around the campus can be improved, and place attachment can be enhanced, local residents' assessment may be utilized toward bringing school campus closer to the community, where the resources may be shared to build a friendly community.

Acknowledgments

This research was funded by a grant from the Ministry of Science and Technology Taiwan with the project number: MOST-105-2511-S-006-014

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