ENHANCEMENT OF DESIGN AND PLANNING PROCESS FOR RESIDENTIAL AREA THROUGH 3D ARCHITECTURAL MODELLING PARTICIPATORY DESIGN

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ABSTRACT

Interactive participatory design in landscape design process in Malaysia is very momentous as its technique will support communities to bring about shape their residential. The paper is to examine the appropriate of interactive participatory technique namely as 3D Participatory Design that might enhance of neighbourhood design. Case study has been applied for this research strategy. A proposed site for staff quarters residential area in Universiti Putra Malaysia campus is selected. Direct observation has been used specifically to understand the continuing behaviour of the experts group and participants (local community), and the process and unfolding of the 3D participatory design exercise. The most contributions of this research are to accentuate the implementation of 3D Participatory Landscape Design in the urban landscape development process will help in achieving a sustainable community. The urban dwellers will become sensitive to their living environment and its technique recognised as a tool for achieving a better quality living for people.

Keywords: *(participatory design, 3D participatory design game, design and planning process, community participation)*

1. INTRODUCTION

This research addresses a number issues relating to existing public participation techniques incorporated in the design and planning process of landscape development in residential of Malaysia. For the last two decades, public participation in the planning process has been organised by the Town and Country Planning Department, Peninsular Malaysia and Kuala Lumpur City Hall (Kamalruddin 2000), according to the provisions of the Town and Regional Planning Act 1976 (Malaysia, Act 172), which said that public participation exercises were to be incorporated into the design and planning process. However, participatory design or public participation in landscape development in Malaysia is in its infant stage of development. Despite efforts made by scholars and practitioners, public participation in Malaysia remains a lot of issues, viewed by planners, landscape architects and scholars with varying degree of weaknesses and ineffectiveness (Yazid, 2011). This research describes impact of incorporating 3D architectural modelling in participatory landscape design of redevelopment staff residential area in the Universiti Putra Malaysia. Direct observation has been used as a triangulation with the interview results. The longitudinal research has confirmed the 3D architectural modelling participatory design would be accepted and implemented into urban residential landscape in order to solve some recent critical issues of public participation in urban landscape design and planning in Malaysia. The major contributions of the thesis are related to highlight the 3D architectural

modelling participatory design as appropriate participatory design technique to be incorporated into urban residential landscape development process in Malaysia as well as a tool for achieving a better quality living for people.

2. BACKGROUND

Since Malaysia has been targeting the Vision 2020 that is a fully developed country by the year 2020, has forced for Malaysia to seek a better and appropriate public participation technique for ensuring a well development of urban landscape development with integrating the public needs and decisions. Malaysia must be a nation that is fully developed along all the dimensions: economically, politically, socially, spiritually, psychologically and culturally. Malaysia must be fully developed in terms of national unity and social cohesion, especially in terms of social justice, political stability, and system of government, quality of life, social and spiritual values.

Current public participation exercises used several techniques such as public exhibition, slide presentation, public objection letter, and an official ceremony by politicians. However these approaches have raised many doubts and issues concerning their effectiveness, particularly among professionals. In addition, some members of the public were not satisfied either. The issue here centred mainly on the interpretation and evaluation of their views and opinions (Yazid, 2011). Public participation exercises did not represent either real public opinion or public need. Communication tended to be one-way, with a development brief being issued to the public but without requiring any feedback (Ahmad, 2005). The dominant culture towards public participation in design and planning process in Malaysia is perceived in terms of a public display, film or slide show and an opening ceremony talk from a politician, and as such it can be categorised as 'public relations' and non-participation friendly (Kamalruddin, 2009). Given this scenario, he expressed his dissatisfaction with the practice of public participation in planning and development in Malaysia, and started to look for a more effective alternative approach to park design and development within the planning process.

According to Siti Zakiah Mohamed, former deputy director of Kuala Lumpur City Hall, Landscape and urban cleanliness department "Kuala Lumpur City Hall is willing to enhance the framework of public participation that achieved to the level of consultation, which involves interaction between expert and public. I believe through that kind of public participation, we can provide a better neighbourhood parks for living".

Many practitioners, involved in development over the past three decades have expressed their ideas about participatory design, and believe the incorporation of participator design into the planning development process for a variety of reasons (Botes and Rensburg, 2000). The notion of public participation and participatory design in the design and planning process of many urban landscape developments is not new. Arnstein (1969), an urban redevelopment specialist, stated that public participation was particularly significant for the social imperatives. She designed a public participation typology in the form of a ladder (Botes and Rensburg, 2000). For 38 years Arnstein's ladder has been a touchtone for many professionals, practitioners and policy-makers promoting public participation in development processes.

The significance of the role of the public and users, now 'becoming increasingly active, not simply through consumerist power', but went on to emphasise that the public should act "as agents who challenge the activities of the institutions and organisations which shape their lives" (Hillier, 2002). As a result it is accepted in principle that public participation by and in communities is an agenda with the potential for positive results (Arnstein, 1969). Moreover, Arnstein does not encourage the idea of public participation alone, but also emphasise the nature of public participation as a form of citizen power, which enables them both to achieve and share the amass benefits.

Arnstein's typology of A Ladder of Citizen Participation triggered a deliberate examination of the topic of public participation by many researchers. Jonathan and Alison (2006), who were in favour of her typology have revised, refined and extended it. Conversely, Tritter & McCallum (2005) criticised Arnstein's definition of public participation as one dimensional, focused on the public's power to act in a decision-making capacity. To put it another way, Tritter & McCallum stressed their view that public participation was multi-dimensional; public participation might be a governance mechanism, a feature of delivering services and a method of releasing and enhancing public capital. In this context, they also stressed that the purpose of public participation was not merely to engage with the decision-making process alone, but also to be concerned with how things were done, and with evaluation.

Arnstein (1960) demonstrated her typology of public participation as 'A Ladder of citizen Participation' in order to shape a theoretical framework for public participation. She suggested eight levels where each rung demonstrated a different degree of participation. Her idea distinguished the levels of both non-participation and effective participation.

Sherry Arnstein discussed the crucial issues between undertaking an empty ritual of public participation and having the actual power needed to influence the outcome. Therefore, her ladder of public participation was intended to offer a solution to this issue. She described non-participation, shown on the

bottom rungs of the ladder, as Manipulation and Therapy; these levels merely allowed the public to participate in planning but without authority.

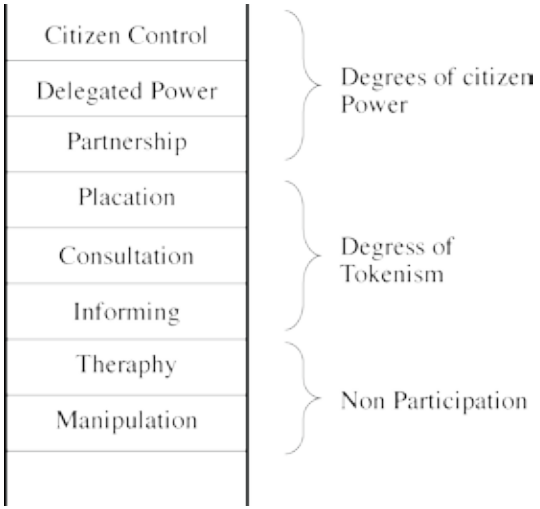

Figure 1: Arnstein's Eight Rungs on a Ladder of Public Participation

Decision makers were compelled merely to inform and educate. The rungs labelled Informing, Consultation and Placation are described as degrees of tokenism where the public are allowed to hear and be heard, and. Placation is simply a higher level of public participation in which the public is allowed to advice but does not have the power to make the decision. Meanwhile further up the ladder are levels of citizen power, which allow different degrees of decision-making. She says that the public are allowed to enter at the level of Partnership; the public are permitted to engage and negotiate with the authority and decision-makers. The highest levels of participation are recognised as Delegated Power and Citizen Control where the public acquire a major role in the decision-making process or even have full managerial power. One of the most obvious consequences of Arnstein's ladder is that the higher the level at which the public can participate, the greater public participation could be achieved.

Many researchers, town planners and landscape professionals frequently cite Arnstein's ladder of participation; many researchers have revised and redeveloped it to suit their particular context in relation to gaining effective public participation.

One of these is Wilcox (1994), who he amended, Arnstein's ladder to five levels: Information, Consultation, Deciding Together, Acting Together and Supporting Independent Community Interest. On the other hand, Wilcox stressed that effective and successful public participation is about style and approach. He disagreed with Arnstein's ideas that the higher the level of public participation, the more effective will be the achievements gained from that participation. He argued that different interests might be seeking different levels and different phases of public participation. These ideas led him to propose some techniques to bring about effective public participation, such as providing good leaflets, video and exhibitions during public participation sessions, commissioning a survey such as a questionnaire study or in-depth discussion group, appointing a liaison office, working through the voluntary sector, setting up a consultative committee, running a Planning for Real session and bringing in consultant experts in community participation.

Such guidelines were postulated by Wilcox for nurturing effective public participation such as clarifying why is it necessary to involve other people, understanding our role in public participation, deciding where we stand and which level of participation is appropriate, preparing for participation, choosing public participation methods according to their appropriateness, developing support within our organisation as many public participation processes fail because organisations promoting the process cannot deliver when others respond and developing your skills as an enabler.

Incorporating public participation in planning and design is not a new concept. In fact as stated by Baum (2001), it has long been implemented in some communities as a way to avoid unfairness in development process decision making. The integration of public participation into planning and development processes involves interacting with social or community groups, resident within a defined geographical area, in initiatives to enhance their space or neighbourhood. This could involve economic, cultural or social issues (Okpala, 1982).

Healey (1992) highlighted that planning and design is not an isolated process just for practitioners and planners, but should respect all participants by giving them a voice, and by listening to their opinions in order to learn their values, images and identities. The author agrees with Hillier (2002:4) on the importance of planners and professionals dealing with local people when planning and designing public spaces: 'planning cannot achieve empirical reality through the work of planners alone'. Concurring with Hillier's statement, Albrechts and Denayer (2001:371) believe that if design and planning is to be taken seriously in the future, planners and related practitioners must adjust both their 'tool-kits' and mindsets to the changing

needs of communities and the challenges of democratic society. Problems and issues could be determined through public and local community collaboration in planning, design and development. Selman (2003) argued that the maintenance of valued development, such as landscape, often needs active public participation from local residents and communities to aid feedback, input and decision-making. He defined public participation in planning and development as the full engagement of the public or community in the design, planning and management process, thereby giving them a leadership role and a degree of ownership.

Meanwhile professionals such as landscape architects have been engaged in community-based landscape development projects for many years, and have adapted some methods and approaches regularly used by other professionals in order to promote public participation in landscape design (Roe and Rowe, 2000). According to this argument, it is apparent that there has been shift in the relationship between the landscape professional and the community (client); landscape professionals are now considering the needs of the community (client) and their own responsibility to do so. Public participation practice in planning and design is organised to incorporate public responses, perspectives, knowledge and skills into the development process in order to facilitate empowerment of the community (Guijt and Shah, 1999).

Roe and Rowe (2000) argued that public participation in landscape development projects in the UK is currently found chiefly in regeneration projects; landscape professionals have engaged in various ways in public participation activities, such as consultation, information dissemination and incorporating feedback into the decision making process. Though the issue is not clear-cut there are some significant indications that public participation has the potential to provide good input into landscape design, planning and development decisions. Conversely, Barlow (1995) argued that it was difficult for the public and community to influence decisions in zoning systems because the detailed agenda for discussion is both too large and already set by the planners and developers. As a result, perhaps current effective public participation in landscape practice in the UK is limited to small regeneration projects

Given the scenario of public participation in design and planning in Malaysia, it's imperative to look a better technique and approach. On the other hand, this research demonstrates the using of 3D architectural modelling as interactive approach and a practical technique. This involved the use of a 3D architectural modelling as an attraction in a local area, which the people in the local community could manipulate to decide what needed to be done in their surroundings. The 3D architectural modelling showed that groups of local people used it to tackle many issues relating to their areas such as housing, the parks, play areas, open space, green areas, traffic, community safety, vandalism and the living environment. In addition, 3D architectural modelling will generally helps people to make decisions about what needs to be developed in their neighbourhood (Yazid, 2011). As highlighted by Forester (2008) that the using 3D architectural modelling technique in design and planning as a great tool as 'we can see an evolving style of community planning that does a good deal more than celebrate local knowledge, for it integrates the search for local knowledge with community-building and capacity-building too'.

The Highland Council (2006) postulated he 3D architectural modelling as a potential tool in empowering the community. It believed that Planning for Real is unique in providing for informal discussion of ideas among the participants. Moreover it's a well-known and it is perceived as an eye catching and hands on process using the interactive 3D architectural modelling as a focal point for involving participants. The 3D model enables local people to put forward suggestions to 'show' how an area could be improved, allows them to identify their own priorities, and in the end involves participants in the development of an Action Plan and schematic Master Plan.

The significance of public participation in the planning and design process is that it not only enhances the place and the neighbourhood, but it also has a close relationship to community building, consensus building and sustainability. This research demonstrated that public participation, in order to achieve optimum significance, should be developed within a proper planning process with the object of creating a better quality environment for the community. In this context, it is strongly felt that the incorporation of public participation into the planning and design process could help build a community, a better neighbourhood area, and achieve a better quality of neighbourhood life.

Figure 2: Significance of public participation in planning and design (Yazid, M.Y. 2008)

This study emphasises that each method of public participation has weaknesses; accordingly there is a need to choose an appropriate method. The

weaknesses of public participation may be in dealing with people's behaviour; it is difficult to satisfy all participants all of the time. An appropriate method of public participation should be considered depending on the type of development proposed before incorporating it into the planning and design process.

The principle aim of the research is to explore the possibility of the 3D architectural modelling to enhance participatory landscape design process of residential development.

In order to achieve the aim of the research, the following objectives were formulated:

i. To review and identify the issues and problems of existing public participation techniques in participatory landscape design process of residential development.
ii. To evaluate the impact of 3D architectural modelling technique towards the enhancement of residential development master plan.
iii. To recommend a practical framework on implementing 3D architectural modelling to enhance participatory landscape design process of residential development.

3. METHOD

This study begins with an attempt to define the issues of public participation in urban landscape development in Malaysia, especially as regards the development of residential area. A qualitative technique is the most an appropriate approach to be employed in this study for collecting, analysing and reporting data. As Meriam (1998) noted, qualitative research is appropriate for any research which is involve in and focused on phenomenology, symbolic interaction and post-positivism.

Therefore, this research is based on case study as a research strategy and uses the following techniques to elicit data:

i. Direct Observation

A case study is a research strategy that Yin (1995) refers to as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident and multiple sources are used".

As a case study in this research, a proposed site for staff quarters residential area in Universiti Putra Malaysia campus is selected. A research development strategy is used in the study to ensure that all related fields are thoroughly explored and systematically organised, and to help in the analysis of the data, recommendations and conclusions. Each stage takes one aspect of the investigation and analysis, and demonstrates the reasoning leading on to the next. The stages of development strategy are as follows:

Stage 1: Determine the issues and problems in participatory landscape design process in Malaysia.
Stage 2: Review the literature on public participation, and public participation in urban landscape development in Malaysia.
Stage 3: Field work study and data collection in Universiti Putra Malaysia Campus.
Stage 4: UPM staff quarters case study results and analysis
Stage 5: Findings and conclusion

In this case study direct observation has been used specifically to understand the ongoing behaviour of the experts group and participants (local community), and the process and unfolding of the 3D participatory design exercise. Taylor-Powell and Steele (1996) support this, emphasising that direct observation should be used to obtain information about various behaviours and about the process of the event.

In this study, direct observation was conducted during the open session of Green Village Design Day in Faculty of Design and Architecture, Universiti Putra Malaysia. The researchers had observed the cooperation and commitment of the expert group such as landscape architect, town planners and civil engineer from the early process of establishing 3D architectural modelling until the final outcome. The direct observation sample used the local community participants, the expert group, and the facilitators who handled the open session, the physical surroundings and the final outcome of programme. Direct observation has been conducted by seven observers where consisting of the author, assisted by six people from the steering group. The observers were given a code number (OB1, OB2, OB3, OB4, OB5, OB6 and OB7) for facilitating quotation purposes.

There were many stages to organising 3D architectural modelling in participatory landscape design in staff quarters residential development:

a. Initiation Stage

A steering group was formed, to assisting the author in organising the 3D architectural modelling for participatory landscape design exercise. The next step was gathering materials to build a three dimensional (3D) model of proposed UPM staff quarters housing, and materials such as polystyrene board, paper, glue, water colours and maker pens were purchased.

b. Make a 3D Model of UPM Staff Quarters Resident.

The process of making the 3-D model of the park was undertaken over about two weeks. This was a collective exercise by the steering group. The model was constructed to a scale of 1:100, deemed to be an appropriate scale allowing public participants to easily identify elements and for them to reallocate elements during the 3D participatory landscape design exercise.

Figure 3: The 3D Model of UPM Staff Quaters Residence

c. Choose Participant Groups

In this research, the participants are divided into two groups: expert and public. The expert group consists of landscape architects, architect and civil engineer who involve in the project since in early stage. The public group consists of UPM staff families whom consist of adults and teenagers from the local primary and secondary schools.

d. Training Session

This is as intensive preparation before conducting the 3D participatory landscape design exercise. Four hours training session with the steering group was held in the Faculty of Design and Architecture.

e. Open Session of 3D Participatory Landscape Design: 'Green Village Design Day'

The open session was held in the studio of Faculty of Design and Architecture, UPM. The session began by gathering around the 3D architectural modelling, followed by an introductory speech and briefing by a facilitator, who explained the objectives and the process of 3D participatory landscape design. Then, public participants individually placed suggestion cards on the 3D model. They were told to move and place the suggestion cards according to their own opinions and ideas. At the same time, expert participants did not take part in this, but were invited to watch and answer questions from the public.

f. Proposed the Master Plan for UPM Staff Quarters Residence.

The final ideas for the design of the proposed Master Plan for UPM Staff Quarters Resident emerged from the meetings of the expert group, who then worked to develop the ideas into a master plan.

4. FINDINGS

Level of Interest and Cooperation: Beginning of the 3D Participatory Landscape Design (the first 30 minutes)

Respondents' level of interest and cooperation during the beginning of the open session were observed, their facial expressions and body language were monitored as was the interaction between them and with the activities at the beginning of the session. The first stage of the 3D participatory landscape design open session involved several activities; for instance, the participants gathered around the 3D model and were given an introduction by the facilitators, which explained the objectives and the processes of the session. This took around 30 minutes.

All the observers (OB1, OB2, OB3, OB4, OB5, OB6 and OB7) agreed that the majority of local community respondents showed initial interest and cooperation. In addition, the majority of the respondents were observed to show excitement, interest and cooperation through their facial expressions and activities.

Likewise, all observers (OB1, OB2, OB3, OB4, OB5, OB6, OB7) agreed that the expert group also showed interest and cooperation at the beginning of the event. According to OB2, OB4, OB5 and OB6, the experts gathered around the 3-D model of park together with the local community participants; they

were given the responsibility of observing the participants and were prepared to answer any questions from them about the proposed UPM Staff Quarters Residence.

These observed results show that the local community participants exhibited good initial levels of interest and cooperation. The author believes this was encouraged by their first impressions of 3D participatory landscape design technique. Direct observation indicated that the 3D architectural modelling was the most important factor in capturing the participants' interest. The author also believes that the facilitators' role in the session was very important in creating a stimulating environment.

Level of Interest and Cooperation: Middle of the 3D Participatory Landscape Design Open Session (30 minutes)

Figure 4: Participants gather around the 3D architectural modelling park model

Respondents' level of interest and cooperation during the middle session of 3D Participatory Landscape Design was also observed. This stage involved each participant placing suggestion cards onto the 3D architectural modelling indicating what each wanted to see happen and where; examples include playgrounds, open spaces for community, jogging tracks, bridge and other elements. At this time, the expert group was watching the participants and answering questions but did not take part in placing suggestion cards. This stage also allowed the participants to discuss the results and rearrange the cards until collectively in agreement with the results. This stage ran for about 30 minutes.

Interestingly, the majority of the observers (OB1, OB2, OB3, OB5, and OB6) pointed out that all participants showed high levels of cooperation and interest in the middle of the 3D Participatory Landscape Design open session. OB2, OB3 and OB6 found that the majority concentrating on the task of replacing the suggestion cards on the 3D model, but that the teenagers group (comprising primary and secondary school students) was particularly concentrated and interested. It was observed that some of the adult resident group slightly lost their concentration during this stage, although OB4 and OB5 noted that the participants were curious throughout both the discussion of the results and the rearranging of the suggestion cards until collectively happy.

According to OB2 and OB6, during this stage the participants were observed actively questioning the expert group, and also noted that the experts answered questions thoroughly. All the observers pointed out the energetic facilitator cooperation during this stage, in helping the 3D Participatory Landscape Design participants.

Figure 5: The 3D architectural modelling of UPM Staff Quarters Residence as a main tool in the 3D Participatory Landscape Design Technique

Interestingly, the results of the direct observation indicate that the participants, the experts group and the facilitators were all actively involved in the Planning for Real open session and showed high levels of cooperation and interest,

even though a minority of adult residents slightly lost their concentration. One possible explanation of this high level of interest is that the participants were involved in actively demonstrating their ideas through the suggestion cards on the 3D model rather than passively listening to the explanatory talk from the facilitators as at the beginning of the session. The results also revealed that the teenagers group (primary and secondary school students) were more active, interested and cooperative at this stage. Indeed this group was the most active and interested among the participants.

Level of Interest and Cooperation: Ending of the 3D Participatory Landscape Design Open Session (90 minutes)

Figure 6 :Participants individually place the suggestions cards onto the 3D architectural modelling

This stage involved the participants collectively recording the results on priority cards, setting out each suggestion and its location prioritising by placing them on boards, identifying who should take action, and discussing the next steps. This stage ran for about 90 minutes.

It may be suggested that the gradual observed decrease in the interest and cooperation of some adult group participants, as pointed out by OB2 and OB3, was due to tiredness after participating for about two and half hours. Therefore, the author suggests the necessity of breaking for refreshment in order to combat tiredness.

However, the majority of the observers (OB1, OB2, OB3, OB5 and OB6) claimed that the expert group and teenagers looked energetic and interested even though there were fewer questions from the participants at this stage. At this point it was involved in observing the participants. Likewise, it was noted by OB1, OB2, OB4, OB5 and OB6 that the facilitators were actively involved and showing their interest in the participants throughout this stage.

Unexpectedly, but interestingly, direct observation revealed the great interest shown by the expert group and the facilitators. Since the author was involved as one of the observers, it was necessary for the expert group to concentrate on watching and answering questions from participants. On the other hand, it was unexpected, but interesting that the expert group retained its level of cooperation until the end of the 3D Participatory Landscape Design open session, even after two and half hours.

Figure 7 : Participants look energetic and interested till the end of 3D participatory landscape design technique

The author strongly believes the type of activities in each session of 3D

Participatory Landscape Design is important in relation to the level of interest generated. In particular the activities in the middle stage, such as the individual placing of suggestions cards onto the 3D architectural modelling indicating what they wanted to see happen and where, was the most important in relation to interest levels. Hence, it is interesting to note that the teenagers group (secondary and primary students) were observed having more concentration and interest when engaged in this activity

5. DISCUSSION

Through this study, the precise issues and problems of existing public participation in the landscape development at residential area process have been thoroughly explored. It may be suggested that the issues of existing public participation is critical to the success of urban landscape and park development at a time when Malaysia is undergoing on its vision to achieve the ideas of the 'Vision 2020'. Consequently, the author believes that this research is significant to the Malaysian context in order to search for a better alternative for encouraging public participation.

The author strongly believes in the need to explore alternative public participation techniques in order to ensure that the developed of the Vision 2020 will progress successfully without any conflict with public and community. Furthermore, without a proper and effective technique of public participation, urban landscape and park development especially in community areas such as neighbourhood parks will not be sustained and thus, fail to fulfil the needs of the public and users. It will also prolong the existing issues and problems of participation in urban landscape development in Malaysia.

In Malaysia, the spirit of 'gotong royong' involves doing things together and helping each other in an overall concept of goodwill. This concept has also been labelled as Corporate Citizen. It is interesting to highlight that this concept is usually practised within small communities in rural areas or villages and has been embraced and reflected by the Chinese and Indians in their own respective communities. Thus, it was anticipated that the 3D Participatory Landscape Design approach would be acceptable to Malays, Chinese and Indians. Moreover, as Malays constitute the biggest ethnic group in Malaysia, and most of them are Muslim, it is not a surprise that they can accept this method as this concept of public participation is reinforced in the teaching of Islam.

As highlighted by Forester (2008), Gibson's ideas on 3D Participatory Landscape Design involved an evolving style of community planning in which it was beneficial to integrate local community knowledge into community-building and capacity-building. He also suggested that to achieve an efficient 3D Participatory Landscape Design in the landscape design process, it would be advisable for the professionals to refer back to the participants with any outcome (landscape conceptual plan with the modified 3-D) to explain the suggestions and opinions agreed by the local council. During the session of 3D Participatory Landscape Design, he also advised against forcing the participants to give their comments about the place; instead he recommended trying to persuade the participants to explore how their interests and skills might be used to improve their parks.

The author believes that most of the landscape and park development in Malaysia will have to abide by the gazetted National Landscape Guidelines. The Department and the local authority are mandated to ensure that any landscape and park development adheres to these Guidelines. It is also suggested that the existing Guidelines need to be revised and public participation needs to be highlighted as part of the urban landscape and park development process. Consequently, the author strongly believes that this is a good strategy for addressing the contradictory views of landscape consultants who are against the incorporation of 3D Participatory Landscape Design into urban landscape and park development in Malaysia.

The implementation of 3D Participatory Landscape Design in the urban landscape development process will help in achieving a sustainable community. Hence, the community will become sensitive to their environment and prompt a contribution to a better quality of life. Consequently, the impact of the 3D Participatory Landscape Design will create a place where the community is encouraged to live fully both now and in the future.

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