



Adolescents' Sense of Community and Involvement in Playground Activities: Panacea to Ameliorate Social Vices and Delinquencies

Oluwagbemiga Paul Agboola, Mohd Hisyam Rasidi and Ismail Said

Department of Landscape Architecture, Faculty of Built Environment, Universiti Teknologi Malaysia, 81310 Skudai, Johor Bahru, Malaysia.

Email: agbofavour41@yahoo.com (corresponding author)

History:

Received: 21 February 2017

Accepted: 13 March 2017

Available Online: 30 May 2017

Keywords:

Adolescence, Sense of community, Playground, Delinquency, Social vices, Well-being.

Corresponding Author Contact:

agbofavour41@yahoo.com

DOI:

10.11113/ijbes.v4.n2.179

ABSTRACT

Researchers have identified defects in the physical environments in which they interact and play, which has resulted in a decline the expected values initiated in both the social, physical and psychological developments. The role of playground in the development of adolescent's health, moral and social standard has attracted lower interest in the recent time. The adolescent sense of community relates to a positive experience in the community open space setting such as playground and social well-being with their peers in general. Over time, little efforts have been initiated by the researchers towards these phenomena. This current study fills the gap by examining the adolescents' sense of community through a quantitative survey via appraisal of the quality of community playground, emotional connection and effects of their participation in playground activities on ameliorating the delinquents' behavior and social vices. Completed survey questionnaires retrieved from a total number of 69 purposive respondents who are adolescents from three towns and analyzed through relative importance index (RII) via Likert scale. Results from the analysis indicated that adolescents' positive attitudinal changes and reduction in social vices and delinquent's behavior could be achieved through their involvements in quality and well-equipped playgrounds. Similarly, the significant role of sense of community in enhancing adolescent social participation in playground activities contributes to a major role in increasing their social well-being and togetherness. Thus, the study recommends appropriate future planning, design, and management of neighborhood playgrounds in Nigeria.

1. Introduction

Playground refers to a place of social interaction, communication, and expression that are often time accessed by adolescent from diverse backgrounds. According to Hakim (2003), it is a fractional part of open space performing various social and recreational functions. The first as a social place refer to where users play games or sporting in order to relate, interact and communicate with others. Second as an ecological place where fresh air could be breathed. The third as a recreational place where users have fun and enjoy themselves. Playgrounds in a neighborhood may influence positively on development and behavior of adolescents. Studies have shown how adolescent (aged 12 to 18 years) and their peers influences each other's' achievement, pro-social behaviour and academic advancements (Steinberg and Morris, 2001; Mounts and Steinberg, 1995; Wentzel and Caldwell, 1997). Influence on related behaviours such as drug and alcohol abuse, cigarette smoking and delinquency also form part of the associated problems (Urberg et al., 1997). Neighbourhood playgrounds in this study refers to green open space where adolescents participate in various outdoor recreational activities such as footballing, joggings, and relaxation. In order words, it avails the adolescent the opportunity to watch games or engaged in various recreational activities. Similarly, it is a place where they make contacts and interacts with the social environments and their character would be shaped.

Scholars literature of Urberg et al., (1997) established that a reduction in adolescents' use of alcohol and drugs, smoking and delinquency can also be achieved while involving in playground activities. McCord, (1993) viewed Juvenile delinquency as antisocial or criminal behavior by children or adolescents. The researcher opined that many youths who commit illegal acts such as drinking, smoking, and absenteeism have tendencies to remain as long-term delinquents, and more likely to commit more serious crimes in their later years (Scholte, 1992; McCord, 1993). Agboola (2011) and Garbarino et al. (1985) opined that juvenile delinquency in adolescents generated by the result of idleness and illegitimate opportunity. Hence, the environment must provide socially acceptable avenues for them to succeed and relates with peers. Consequently, Scott and Willits (1998) iterates that adolescent participation in series of leisure activities was a significant predictor of adult participation and concern, hence suggest appropriateness in provision of leisure opportunity in youth. The sense of community is viewed by Plas & Lewis, (1996) as a response to the social environmental characteristics of place, while at the same time, the aspect of its residents' perceptions has been connected to the physical features of the built environment. The 'sense' is described as the extent to which a person feels part of a readily available, supportive and dependable structure (Sarason 1974). Peoples' collective experiences formed the basis for the development of Sense of Community (Cicognani, Zani, and Albanesi, 2012). Most past studies

on a sense of community have centered on the experiences and the perception of adults, while few have dwelt on the sense of community of adolescents in Nigerian contexts. This was equally reinstated by Pretty et al., (1996, p365) while it was affirmed that little is known empirically on psychological sense of community in adolescents. Similarly, exploration of adolescents' developments by past studies suggests diverse benefits derived from taken part in community activities (Maton, 1990; Youniss, McLellan, and Yates, 1997). Therefore, this research work aimed at eliciting the interrelationship between the adolescents 'sense of community and the playground environment. The objective targets ways to ameliorates the social vices and delinquent behaviors in adolescents focusing the differences in adolescents' sense of community in three rural neighborhood in Nigeria. The results elicit adolescents' perception towards the neighbourhood playgrounds in their local communities in the wake of increasing social vices and delinquency tendencies in recent time.

2. Problem Statement and Research Gap

Development and expansion of neighbourhoods have led to a reduction in percentages of parks, playgrounds and other green structures which are important accessible areas for physical and social activities of adolescent and youths (Kaczynski et al., 2008). Nigeria as one of the developing nations in Africa had shown several characteristics of urbanization in recent past. Thus, existing playground across all Nigerian neighbourhood needed adequate attention by the government in terms of infrastructural provision cum a good quality. It has been revealed that most green areas and open spaces have been converted to other important land uses like housing, industry and commercial areas due to increased population and economic condition (Alabi, 2009). Hence, advocacy on knowledge supporting the provision, planning, management and design of such spaces could not be underrated. Therefore, focus needed to be shifted towards more empirical studies and evidence capable of enhancing the decision-making process by the practitioners, planners and policymakers (Jaes et al., 2009). This study extends further the research of Abdelkader and Bouslama (2014, p.8) by examining the factors and consequences of adolescents' behavior and attitudes in the context of Nigerian community.

3. Review of Literatures

3.1 Adolescent Sense of Community: Theoretical Underpinnings

Adolescence is the process of maturation where a child progresses from childhood to adulthood (Coleman and Hendry 1990). SOC has emerged over time as a significant community-related concept. The sense of community theory suggests that people feel more attracted to groups and settings in which they feel influential or powerful (Evans, 2007). The widely-accepted model of sense of community by McMillan & Chavis, (1986) substantiates its content in terms of affective, cognitive and behavioural components. The authors classified SOC into four categories namely membership, influence, integration and fulfillment of needs, and shared an emotional connection. In recent time, sense of community has been widely studied and happens to be the most studied psychological constructs toward a significant contribution to landscape and neighbourhood study (Francis, et. al., 2012; Tsai, 2014; Valle,2008; Wood, et al.,2010). Sarason started studying this concept dated back to 1974 and defined it as a sense of community as the feeling of belonging and be able to depend on a large community of partisans (Proesholdbell, Roosa, Nemeroff, 2006, p9).

The construct of SOC emanated from both a theoretical (Hill, 1996; McMillan & Chavis, 1986; Sarason, 1974) and an empirical perspective (Chipuer & Pretty, 1999; Perkins, et al, 1990). Similarly, it has been measured in geographical basis (Glynn, 1981; Nasar & Julian, 1995; Obst, Zinkiewicz & Smith, 2002) and at both the individual and community basis (Lounsbury, Loveland & Gibson, 2003). It has equally been linked theoretically and empirically to other community processes such as social capital (Perkins & Long, 2002), cohesion (Buckner, 1988; Wilkinson, 2007), and neighboring (Skjaeveland, Garling Maeland, 1996). The outgrowth of the SOC concept tallied with an increased interest in the influences of ecology, social environments and social determinants on human health (physical and psychological) and life-span development. SOC has, therefore, been identified as a key concept in community development programming and evaluation (Chavis & Wandersman, 1990; Perkins, et al., 1990; Plas & Lewis, 1996).

SOC concept results from its ability to evaluate people's social action, as iterated by Sarason (1974) it relates to different pointers of life quality, such as satisfaction (Prezza and Costantini, 1998); perception of security (Perkins and Taylor, 1996), and social engagement (Chavis and Wandersman, 1990; Davidson and Cotter, 1989). This research adopted a social bonding theory which posits that individuals who do not engage or interact with prosocial individuals are likely to develop deviant behavior (Agnew, 1985, 1993). Similarly, Hirschi (1969) indicated that close bonds, values, interests, and trust must be present in order to have a close relationship with others. The relevance of SOC to adolescents have been identified by researcher such as Pretty, (2002), have shown to be a catalyst for civic participation (Chavis & Wandersman, 1990), and plays major role for positive social development (Connell, et al., 1995) and well-being (Pretty et al., 1996). The study of Abdelkader and Bouslama, (2014) conducted on adolescent's sense of community in Tunisia through a qualitative study using 12 semi-directive interviews with a community of smoking adolescents (5 boys and 7 girls aged between 13 and 20). The interview focuses on the relationship members have with the group and the feelings they feel about this community. In furtherance to the findings of these researchers that confirm the relevance of sense of community in adolescents.

3.2 Benefits of Adolescents' Involvements in Playground activities

A host of health benefits associated with adolescent access to playground. There is a substantial body of evidence demonstrating that adults' access to playgrounds has been associated with better perceived general health (de Vries, 2003; Maas, et al., 2006), reduced stress levels (Grahn, 2003; Nielsen, 2007), with reduced depression (Morita, et al., 2007) and more walking (Li, et al., 2005; Giles-Corti, 2005). Host of benefits are equally derived by the adolescents' participation in sport and recreational activities in the playground as shown in Figure 1. These include improvements in physical health, psychological, wellbeing, environmental and social development of adolescents. The benefits in this regards established the concern for open space sustainability as viewed by Agboola et al., (2015). The authors reinstated the significance of open space in terms of economic, environmental and social sustainability. Improved mental health enhances adolescents' self-esteem and self-image reduces stress, improves concentration and enhances memory and learning. Enhanced social outcomes associated with the encouragement of social interaction and development of social skills, improves social networks and social capital, increases community cohesion and pride, safer communities. Reduction in the costs of social intervention and plays a role in reducing

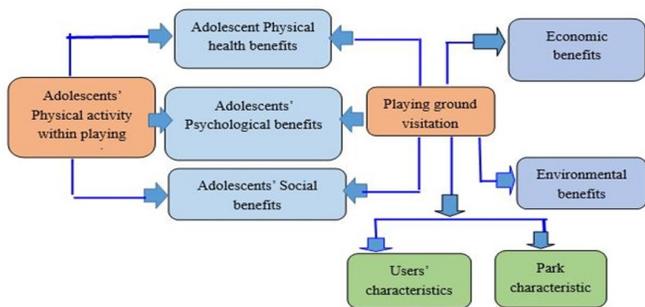


Figure 1: Playground benefits. Adapted from Bedimo-Rung et al., (2005)

adolescents' crime and social dysfunction (WA Department of Sport and Recreation, 2009). However, research in community psychology has established a sense of community is an important predictor of well-being (McNeill, Kreuter, & Subramanian, 2006).

3.3 Neighbourhood Playground

A host of factors is relevant in the design, planning, and management of neighbourhood playground. These includes the following. The first factor is the safety and easy movement through appropriate soft and hard landscape features. This contributes to users' physical comfort (Hester, 1975). The sense of security remains a contributing factor to users' psychological comfort (Marcus and Sarkissian, 1986). People preferred staying where they feel safe and secure. Also, free flow of traffic to the playground should be encouraged if free appropriate safety and comfort are to be achieved (Lennard and Lennard, 1987). In addition, pedestrian and vehicular movements which should be done appropriately in order to connect the users to the various location within the playground. It includes the barrier-free environment where pedestrian and vehicular driveways that should be sufficiently wide to accommodates users' activities. (Jacob, 1961; Marcus and Sarkissian, 1986). Appropriate social interaction on pedestrian ways is essential to healthy community streets life and sense of community. The second factor relies on the provision of leisure and comfort to the users. Adolescents should have equal participation in the various activities occurring on the playground. People are attracted to places that provide physical, psychological and social comforts, hence contributes to users' choice of playground. The third factor hinges on the provision of adequate facilities. The provision of purpose-built facilities enhances the attractiveness of a place, therefore, drinking pipe borne water, toilets,



Figure 2: Adolescents' participation in playground activities in the case study areas.

ramps, and benches are important (Whyte, 1980; Hester, 1975). The fourth factor intertwines with users' accessibility. The entry and exit to the playground should be free irrespective of the status and background of its users. It should be fit to both the physically fit or challenged adolescent users. This also caters for acceptable walking distance, central location, and visual access. Less than 5 minutes walking distance was suggested by Gehl (1987). Lennard and Lennard (1987) suggested playground should be centrally located and be accessible by all users. The visual access provides an opportunity for users to discover both the happenings and improves social interactions and the pair groups. The fifth factor associates with aesthetics. The attractive playground invites users to converge and enables long time staying together. It also increases the possibilities of meeting other users who have similar preferences. The presence of natural elements (trees, flowers, water bodies, and shrubs) influences users' preferences and sensational enjoyment (Skjaeveland and Garling, 1997; Sullivan et al., 2004; Lennard and Lennard, 1987). The sixth factor showcased maintenance. A well-maintained playground is appreciated by users (Marcus and Sarkissian, 1986).

4. Methodology

This research adopted a quantitative approach that appraises three neighbourhood playgrounds' form and quality. Figure 2 show the playground activities of the adolescents in the case study areas. The respondents' rating of the quality was based on "5" point Likert scale questionnaire and were adolescent aged 12 to 18 years, using purposive sampling method. The respondents' opinions degree was rated with the statements elicited through 1 being the lowest score ("Strongly disagree") to 5 ("strongly agree") and 3 (neutral). This enabled the researcher to understand respondents' perception on all the measurements items. The indicators and criteria for playground design and quality variables were adapted from Moore (1992) and Chen, (2006). The variables included the safety and easy movement, leisure, facilities, and accessibility conditions as shown in Table 1. Past studies on sense of community in adolescence have adopted adult scales (e.g., SCI; cf. Pretty, Andrews, & Collett, 1994; Pretty, et. al., 1996) or adhoc scales developed through content analysis of interviews (e.g., Chipuer, et al., 1999).

In view of this, the dimensions of adolescent sense of community in this study were explored through the adoption of a twelve tested measurement scale items of Abdelkader and Bouslama, (2014) as indicated in Table 2. This scale measure Sense of Community, taking into cognizance both adolescent involvements and activities in the local community as a geographical setting and their social relations within the playgrounds (Puddifoot, 1996). Needs fulfillment refers to the feeling or perception that needs are met through the cooperative behaviors of the group. Belonging to a community refers to collective experiences through peoples' connection and support. Influence relates to the fundamental human collective experience and feelings of membership (Peterson, Speer, & McMillan, 2008, p.62). The shared emotional connection according to McMillan and Chavis (1986, p.14) could be explained in terms of peoples' reactions to true community. Communication and interaction between peer's groups facilitate positive feelings and trust. This study examined its factors and consequences relating to adolescent's delinquency and social behavior/ attitudes vices as reflected in Table 3. The contents of the questionnaires sampled the opinion of the adolescent in regards to the level of their involvement and participation in the following: (i) level of their urge for sex, (ii) vandalism, (iii) arson, (iv) community violence, and (v) domestic violence.

Table 1 Playground quality variables Source: Moore (1992); Chen (2006)

Variable	Codes	Items label
Safety and Easy movement	PGQ1	The playground is free from danger and threat of crime
Leisure/comfort	PGQ2	The playground is comfortable and permit relaxation and recreational activities
Adequacy of Facilities	PGQ3	The playground is well-equipped with required facilities and amenities.
Accessibility/ proximity	PGQ4	The playground is free from any barriers and accessible from all location within the neighbourhood.
Aesthetics	PGQ5	The playground is attractive and appealing to the users.
Maintenance	PGQ6	The playground is pollution free

Table 2 Measurement of Adolescent sense of community

Concept	Codes	Items label
Needs fulfillment	SC1	In this playground and community, I have enough initiatives as adolescent
Needs fulfillment	SC2	This group helps me fulfil my needs in the playground and the community
Belonging	SC3	This playground and the community gives me enough opportunities to do many different things.
Belonging	SC4	I belong to this group and it is easy to find information about things that interest people like me
Influence	SC5	This playground and the community gives me enough opportunities to meet and influence other boys and girls.
Influence	SC6	People in this group are good influences on each other.
Emotional connection	SC7	I have the impression I am connected to the group.
Emotional connection	SC8	I have good relationships with the others in the group
Trust	SC9	I feel safe in this playground and community.
Trust	SC10	I tend to defend this group.
Identification	SC11	I identify with the objectives and values of the community
Pleasure/ fun	SC12	This playground and community gives me pleasure/fun and joy.

Source: Abdelkader and Bouslama (2014) and Cicognani, Zani and Albanesi (2012).

5. Analysis

Parametric analysis of the survey questionnaires collected from a total number of sixty-nine respondents who are adolescents (ages 12-18 years) was carried out via descriptive and inferential statistics using weighted scores obtained. Relative Important Index (RII) was equally used to cross-compare the relative importance among the constructs perceived by the adolescents who are frequent users of the neighbourhood playground. The formula adopted for RII is in line with past studies of Lim and Alum (1995) and Agboola & Salawu (2015) as follows:

$$RII = \frac{\sum fx}{\sum f} \times \frac{1}{k}$$

Where:

- RII = Relative Importance Index
- $\sum fx$ = the total weight given to each attribute by the adolescent respondents
- $\sum f$ = the total number of respondents in the sample
- K = the highest weight on the Likert scale which is 5

Table 3 Measurement of changes in adolescent delinquents' behaviour and social vices (SBSV) through active participation in neighbourhood playground activities rated on "5" point Likert rating scale

Concept	Codes	Items label/ indicators
Urge for sex to have money (Atchison, Fraser, & Lowman, 1998)	SBSV1	Active participation in the neighbourhood playground activities has led to a reduction in my urge to having sex for money.
Vandalism: destroying any public or private property (Snyder & Sickmund, 1999).	SBSV2	Active participation in the neighbourhood playground activities has led to a reduction in my urge for destroying any public or private property.
Arson: deliberately setting fire to a building or a house (Pettitway, 1985)	SBSV3	Active participation in the neighbourhood playground activities has led to a reduction in my urge for arson.
Community violence: Such as criminal activity occurring in neighborhoods, schools, and streets (Osofsky, 1995).	SBSV4	Active participation in the neighbourhood playground activities has led to a reduction in my urge for Community violence.
Domestic violence: attempts at domination that occur between intimate partners. Examples of this type of violence are physical abuse, emotional abuse, verbal abuse, and threats (Centers for Disease Control and Prevention, 2003)	SBSV5	Active participation in the neighbourhood playground activities has led to a reduction in my urge to domestic violence.

6. Results

A total number of 69 adolescents' respondents among whom 28 (40.58 %) were from Ijebu-jesa neighbourhood, 21 (30.43 %) were from Iloko neighbourhood, and 20 (28.99%) of Ijeda neighbourhood is depicted in Table 4 and Figure 3. Similarly, 8 (28.57 %) of the total respondents from Ijebu-jesa were girls, while 20 (71.43 %) were boys. In addition, 7 (33.33%) and 14 (66.67%) were girls and boys respectively for Iloko and Ijeda township respondents. Lastly, the total number of 5 and 15 respondents who were girls and boys happened to

Table 4 Result of the Respondents' demographic characteristics from the three neighbourhoods

Neighbourhood	N	(%)	Girls	(%)	Boys	(%)
Ijebu-jesa	28	40.80	8	28.57	20	71.43
Iloko	21	30.43	7	33.33	14	66.67
Ijeda	20	28.99	5	25.00	15	75.00
Total	69	100	20	28.99	49	71.01

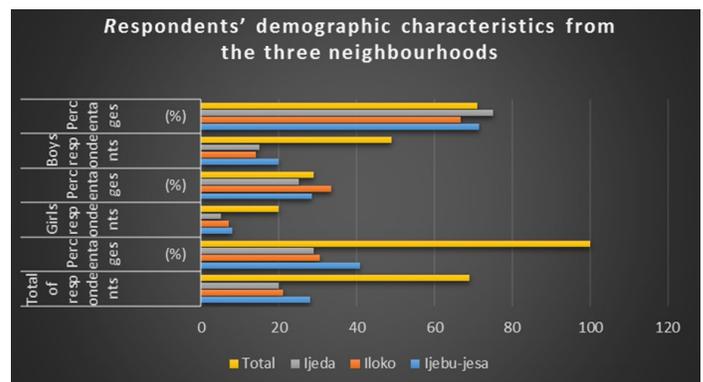


Figure 3: Graphical representation of the respondents' demographic characteristics from the three neighbourhoods.

be affiliated with Ijeda town which amounted to 25 % and 75 % of the total respondents.

7. Discussion

Table 5 indicates the results of the relative importance index of playground quality for the adolescent in Ijebu-jesa neighbourhood. It depicts that accessibility/proximity and safety/ easy movements ranked as 1st and 2nd by the adolescents respectively. Meanwhile, leisure/comfort, as well as the adequacy of facilities, were perceived and ranked 3rd and 4th. The similar rating was observed by the adolescents in Iloko neighbourhood (Table 6) except maintenance and adequacy of facilities that were ranked 4th and 5th respectively. On the other hand, the Ijeda adolescent rating in Table 7 showcased accessibility/proximity, and leisure/comfort and safety/easy movements were ranked 1st, 2nd, and 3rd respectively. Therefore, comparing the relative importance index of the playground quality for the adolescent in the three neighbourhoods (Table 8 and Figure 4) show that accessibility/proximity, safety and easy movement and leisure/comfort ranked 1st, 2nd, and 3rd respectively. Adequacy, of facilities, maintenance and aesthetics ranked 4th, 5th, and 6th respectively. This result indicates that for playground to possess good quality it should be easily accessible via various public transport and also possess equitable access to all users as supported by past studies in the developed country (Thompson, 2008; Hunter New England Population Health, 2007; Grow et al.,2008). It indicates that provision of attractive open spaces in neighborhood level

for children and adolescents should be given adequate attention by designers and architects as corroborated by Hamdan, Yusof, & Marzukhi, (2014) and Nasution & Zahrah, (2014).

The safety and easy movements ranked 2nd indicate that the playground is perceived to be safe through improvements by the provision of lighting, and maintenance in order to reach the appropriate benchmark as suggested by Sunjara, (2008). The lower ranked of the adequacy of facilities, maintenance and aesthetics indicate that more efforts are needed to improve the present status of playground in the three neighbourhoods as suggested by Cohen et al., (2006); Everson et al., (2007). The researchers supported the that for adolescent and children alike, access to playground facilities such as basketball, hoops, and running tracks could improve their physical activities and enhance their quality of life. According to Sunjara, (2008) design of playground with adequate amenities such as landscaping, park furniture (seats, fountains, lighting etc) gives a pleasant and welcoming environment. Similarly, the appropriate design could protect and enhances the environmental, cultural and heritage value of the area (Thompson, 2008).

Table 9, 10, and 11 indicates the results that confirm the relevance of adolescent sense of community in Ijebu-jesa, Iloko, and Ijebu-jesa neighborhoods. Adolescent in Ijebu-jesa neighbourhood are emotionally connected to the playground and community. Their perception on items SC8 was ranked 1st, meaning they have good relationships with each other while taking part in the playground and

Table 5 Relative Importance Index of Playground quality for Adolescents in Ijebu-jesa Neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Safety and Easy movement	PGQ1	2	22	0	2	2	28	104	3.71	0.74	2nd
Leisure/comfort	PGQ2	3	20	0	2	2	28	101	3.60	0.72	3rd
Adequacy of Facilities	PGQ3	4	1	1	18	4	28	67	2.39	0.48	4th
Accessibility/ proximity	PGQ4	25	1	0	1	1	28	132	4.71	0.94	1st
Aesthetics	PGQ5	1	1	0	24	2	28	59	2.10	0.42	5th
Maintenance	PGQ6	0	1	0	26	1	28	57	2.03	0.40	6th

Table 6 Relative Importance Index of Playground quality for Adolescents in Iloko Neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Safety and Easy movement	PGQ1	4	15	0	1	1	21	83	3.95	0.79	2nd
Leisure/comfort	PGQ2	3	14	0	2	2	21	75	3.57	0.71	3rd
Adequacy of Facilities	PGQ3	1	3	1	13	3	21	49	2.33	0.47	5th
Accessibility/ proximity	PGQ4	18	1	1	0	1	21	98	4.66	0.93	1st
Aesthetics	PGQ5	1	2	2	12	4	21	47	2.23	0.45	6th
Maintenance	PGQ6	4	2	0	11	4	21	54	2.57	0.51	4th

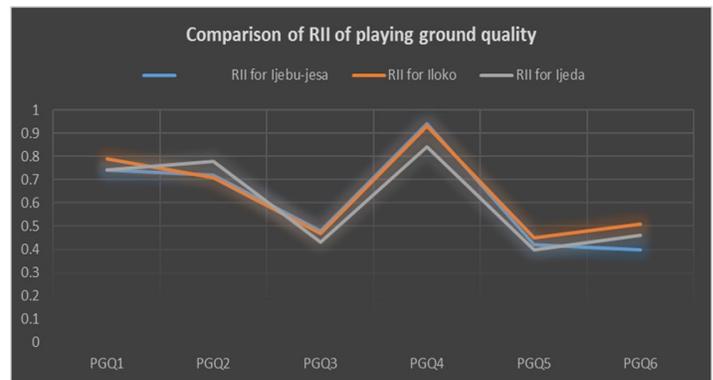
Table 7 Relative Importance Index of Playground quality for Adolescents in Ijeda Neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Safety and Easy movement	PGQ1	2	14	0	2	4	20	74	3.70	0.74	3rd
Leisure/comfort	PGQ2	5	11	2	1	1	20	78	3.90	0.78	2nd
Adequacy of Facilities	PGQ3	0	2	1	15	2	20	43	2.15	0.43	5th
Accessibility/ proximity	PGQ4	12	4	1	2	1	20	84	4.20	0.84	1st
Aesthetics	PGQ5	0	1	2	13	4	20	40	2.00	0.40	6th
Maintenance	PGQ6	1	2	0	16	1	20	46	2.30	0.46	4th

Table 8 Comparison of the Relative Importance Index of Playground quality for Adolescents in the three neighbourhoods (Ijebu-jesa, Iloko, and Ijeda)

Variables	Codes	RII for Ijebu-jesa	RII for Iloko	RII for Ijeda	Weighted Average	Rank
Safety and Easy movement	PGQ1	0.74	0.79	0.74	0.76	2nd
Leisure/comfort	PGQ2	0.72	0.71	0.78	0.74	3rd
Adequacy of Facilities	PGQ3	0.48	0.47	0.43	0.46	4th
Accessibility/proximity	PGQ4	0.94	0.93	0.84	0.90	1st
Aesthetics	PGQ5	0.42	0.45	0.40	0.42	6th
Maintenance	PGQ6	0.40	0.51	0.46	0.45	5th

Figure 4 Graphical representation of comparison of the Relative Importance Index of Playground quality for Adolescents In the three neighbourhoods (Ijebu-jesa, Iloko and Ijeda)



community activities (Table 9). Also, the adolescents opined that the playground activities and the community give enough opportunities to do many different things was ranked 2nd, while they have the impression that they were connected to the group (SC7) as ranked 3rd item (Table 10). In Iloko neighbourhood, adolescent ranked the influence of playground and community (SC5) 1st indicating the affordance of meeting and influencing other members of the group (Table 11). Meanwhile, SC6, SC7, SC11, and SC12 were ranked 2nd in all. These indicate that influence, emotional connection, identification and pleasure/fun are derived from the playground and the community. Adolescent are identified with their peers and groups through playground activities and a pleasant playground environment with fun and pleasure. In Ijeda neighbourhood, an item of influence (SC6),

emotional connection (SC7), and influence (SC5) ranked 1st, 2nd, and 3rd accordingly. Table 12 and Figure 5 revealed the comparison of relative importance index of an adolescent sense of community in the three neighbourhoods. Overall, the weighted average index shows that emotional connection (SC7) ranked as the topmost item, while influence (SC5 and SC6 ranked 2nd. The 3rd item ranked in the hierarchy is the emotional connection (SC8) and needs fulfillment (SC1). These results confirm the relevance of sense of community in adolescents. It helped in better understanding of adolescents and the way the sense of community perceived. Succinctly, adolescent's emotional connection, influence, and needs fulfillments are pointers to a sense of community in an adolescent. This affirmed by the past study

Table 9 Result of Adolescent sense of community in Ijebu-jesa neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Needs fulfilment	SC1	20	4	0	2	2	28	122	4.36	0.87	4th
Needs fulfilment	SC2	18	2	2	3	3	28	113	4.03	0.81	7th
Belonging	SC3	22	3	0	2	1	28	127	4.53	0.91	2nd
Belonging	SC4	17	4	2	2	3	28	114	4.07	0.81	6th
Influence	SC5	19	5	0	2	2	28	121	4.18	0.86	5th
Influence	SC6	18	6	0	2	2	28	120	4.28	0.85	6th
Emotional connection	SC7	21	2	2	2	1	28	124	4.43	0.89	3rd
Emotional connection	SC8	24	1	1	1	1	28	130	4.64	0.93	1st
Trust	SC9	22	1	2	1	2	28	124	4.42	0.86	5th
Trust	SC10	22	3	0	2	1	28	127	4.54	0.91	2nd
Identification	SC11	19	4	2	2	1	28	122	4.36	0.87	4th
Pleasure/ fun	SC12	18	6	1	2	1	28	120	4.29	0.86	5th

Table 10 Result of Adolescent sense of community in Iloko neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Needs fulfilment	SC1	16	3	0	1	1	21	95	4.52	0.90	3rd
Needs fulfilment	SC2	15	2	0	2	2	21	89	4.23	0.85	5th
Belonging	SC3	13	4	0	2	2	21	87	4.14	0.83	6th
Belonging	SC4	16	1	2	1	1	21	89	4.23	0.85	6th
Influence	SC5	19	0	0	2	0	21	99	4.71	0.94	1st
Influence	SC6	18	1	0	1	1	21	97	4.62	0.92	2nd
Emotional connection	SC7	17	2	0	2	0	21	97	4.62	0.92	2nd
Emotional connection	SC8	15	3	1	1	1	21	93	4.43	0.89	4th
Trust	SC9	14	4	2	1	0	21	94	4.48	0.90	3rd
Trust	SC10	15	1	0	3	2	21	87	4.14	0.83	6th
Identification	SC11	17	2	0	2	0	21	97	4.62	0.92	2nd
Pleasure/ fun	SC12	18	1	0	1	1	21	97	4.62	0.92	2nd

Table 11 Result of Adolescent sense of community in Ijeda neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Needs fulfillment	SC1	16	3	0	1	0	20	94	4.70	0.94	3rd
Needs fulfillment	SC2	15	2	0	2	1	20	88	4.40	0.88	7th
Belonging	SC3	12	4	0	2	2	20	82	4.10	0.82	9th
Belonging	SC4	16	1	1	1	1	20	90	4.50	0.90	5th
Influence	SC5	18	0	0	2	0	20	94	4.70	0.94	3rd
Influence	SC6	18	1	0	1	0	20	96	4.80	0.96	1st
Emotional connection	SC7	17	2	0	1	0	20	95	4.75	0.95	2 nd
Emotional connection	SC8	14	3	1	1	1	20	88	4.40	0.88	7th
Trust	SC9	13	4	2	1	0	20	89	4.45	0.89	6th
Trust	SC10	15	1	0	2	2	20	85	4.25	0.85	8th
Identification	SC11	16	2	0	2	0	20	90	4.50	0.90	5th
Pleasure/ fun	SC12	17	1	0	1	1	20	92	4.60	0.92	4th

Table 12 Comparison of the Relative Importance Index of Adolescent sense of community in the three neighbourhoods (Ijebu-jesa, Iloko and Ijeda)

Variables	Codes	RII for Ijebu-jesa	RII for Iloko	RII for Ijeda	Weighted Average	Rank
Needs fulfillment	SC1	0.87	0.90	0.94	0.90	3rd
Needs fulfillment	SC2	0.81	0.85	0.88	0.85	6th
Belonging	SC3	0.91	0.83	0.82	0.85	6th
Belonging	SC4	0.81	0.85	0.90	0.85	6th
Influence	SC5	0.86	0.94	0.94	0.91	2nd
Influence	SC6	0.85	0.92	0.96	0.91	2nd
Emotional connection	SC7	0.89	0.92	0.95	0.92	1st
Emotional connection	SC8	0.93	0.89	0.88	0.90	3rd
Trust	SC9	0.86	0.90	0.89	0.88	4th
Trust	SC10	0.91	0.83	0.85	0.86	5th
Identifica-tion	SC11	0.87	0.92	0.90	0.89	4th
Pleasure/ fun	SC12	0.86	0.92	0.92	0.90	3rd

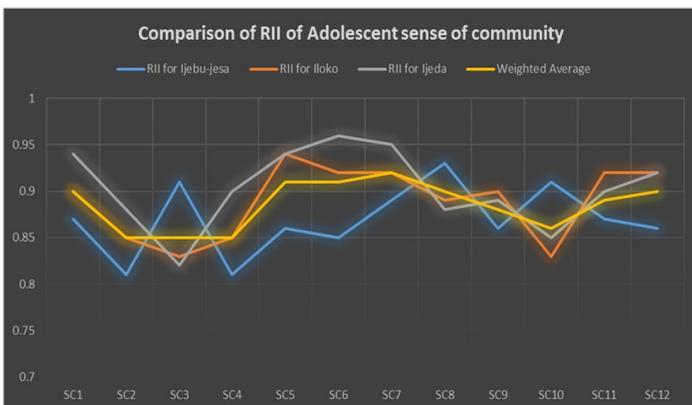


Figure 5 Graphical representation of the comparison of the Relative Importance Index of Adolescent sense of community in the three neighbourhoods (Ijebu-jesa, Iloko and Ijeda)

emotional experience that reinforces their links with the environment.

The result of changes in adolescent developments' behavior and social vices in Ijebu-jesa, Iloko, and Ijeda playgrounds were presented in Table 13, 14, and 15, while the comparison was depicted in Table 16 and Figure 6. It was revealed in Table 13 that adolescent active participation in Ijebu-jesa playground activities has led to a reduction in their urge for community violence (SBSV4) by ranked 1st, while the similar reduction was witnessed in their urge for domestic violence (SBSV5) by ranked as 2nd. However, reduction in urge for destroying and public or private properties (SBSV2), and reduction in the urge for arson (SBSV3) ranked 3rd, 4th, and 5th accordingly. For adolescent activities in Iloko playground, as recorded in Table 14, SBSV4, SBSV1, SBSV2, and SBSV3 ranked 1st, 2nd, 3rd, and 4th respectively. Table 15 itemized the outcome of adolescent participation in playground activities in Ijeda neighbourhood in sequential order. Hence, SBSV5, SBSV1, SBSV2 ranked 1st, 2nd, and 3rd, while SBSV4 and SBSV3 were ranked together as 4th accordingly. The result of the comparison of the changes in adolescent delinquent's behavior and social vices (SBSV) through their active participation in the neighbourhood playgrounds' activities in the three neighbourhood was presented in Table 16 and Figure 6. The weighted average of SBSV4, SBSV1, and SBSV2 ranked 1st, 2nd, and 3rd respectively, while SBSV5 and SBSV3 ranked 4th and 5th respectively. It has been established that adolescent exposure to community violence could have a negative impact on various aspects of youth's development and adaptive functioning (Attar and Guerra 1994; Fitzpatrick and Boldizar 1993; Jenkins and Bell 1994; Martinez and Richters 1993). This notion is supported by Brooks-Gun et al., (1993; 1997) as the major roles played by neighbourhood environment towards shaping adolescent development. In view of this, the result of this study reinstated that adolescent active participation in playground activities could lead to a reduction in my urge for Community violence.

8. Conclusion and Recommendation

A comparative study of different types of senses of communities in Nigerian adolescents has been established. This research work has captured adolescents' feelings and experiences within three playground as the community as well. Playground maintenance and care in terms of aesthetics appearances could promote adolescent's' visitation and physical activity. Lack of accessibility due to distance could be resolved by locating facilities and program areas near neighbourhood centers and where they are visible and easily accessible (Giles-Corti and Donovan, 2002; Gobster, 2001). Creating successful playground spaces, that meet the needs of adolescent and the communities in which they reside would articulate their needs and aspirations. Hence, a successful

Table 13 Result of changes in adolescent delinquents' behavior and social vices(SBSV) through active participation in neighbourhood playgrounds' activities in Ijebu -jesa neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly disagree)					
Active participation in the neighbourhood playground activities has led to reduction in my urge to having sex for money	Sbsv1	19	3	1	3	2	28	118	4.21	0.84	4th
Active participation in the neighbourhood playground activities has led to a reduction in my urge for destroying any public or private property.	Sbsv2	20	3	1	2	2	28	121	4.32	0.86	3rd
Active participation in the neighbourhood playground activities has led to reduction in my urge for arson	Sbsv3	18	4	1	1	4	28	115	4.10	0.82	5th
Active participation in the neighbourhood playground activities has led to a reduction in my urge for community violence.	Sbsv4	24	2	0	1	1	28	131	4.68	0.94	1st
Active participation in the neighbourhood playground activities has led to a reduction in my urge to domestic violence.	Sbsv5	24	1	0	2	1	28	129	4.61	0.92	2nd

Table 14 Result of changes in adolescent delinquents' behavior and social vices(SBSV) through active participation in neighbourhood playgrounds' activities in Iloko neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Active participation in the neighbourhood playground activities has led to reduction in my urge to having sex for money	SBSV1	16	3	0	1	1	21	104	3.71	0.99	2nd
Active participation in the neighbourhood playground activities has led to a reduction in my urge for destroying any public or private property.	SBSV2	18	1	0	1	1	21	101	3.60	0.96	3rd
Active participation in the neighbourhood playground activities has led to reduction in my urge for arson	SBSV3	17	2	0	1	0	21	67	2.39	0.64	4th
Active participation in the neighbourhood playground activities has led to a reduction in my urge for Community violence.	SBSV4	16	3	0	1	1	21	132	4.71	1.26	1st
Active participation in the neighbourhood playground activities has led to a reduction in my urge to domestic violence.	SBSV5	19	1	0	0	1	21	59	2.10	0.56	5th

community engagement process will help ameliorates social vices and delinquent behaviour.

Social interactions can be managed through regulations on the users and types of equipment such as motorized or nonmotorized. Administrative decisions to support adolescent physical activity such as changes in hours of operation, programming, pricing, and marketing of opportunities and the law enforcement's surveillance to curb criminal activities should be put in place. Policy decisions that could make the centers more accessible and attractive may save to increase the adolescents' physical activity levels. This is in line with the previous study of Gordon-Larsen et al., (2000) who posits that adolescents who are used to playgrounds were more physically active than those who did not use such center. Researchers could collaborate with policymakers to develop policy guidelines that would reflect new playgrounds

standards to promotes adolescents active living. Also, researchers could work with the developers to incorporates design features in playgrounds in residential and commercial properties to supports adolescents active living. Particular emphasis has focused on adolescences' sense of community showcasing their positive experiences with peers in the different neighbourhood playground settings.

This study has been able to give important contributions to the adolescents' positive development, social identity and relationship with other peers in the community playground. Design the playground as typical open space network acts as an integral part of the neighbourhood structure and should be a safe and attractive environment that should be well distributed throughout a neighbourhood. Facilities in these spaces should cater for various

Table 15 Result of changes in adolescent delinquents' behavior and social vices(SBSV) through active participation in neighbourhood playgrounds' activities in Ijeda neighbourhood

Variables	Codes	Frequencies of response					Σf	Σfx	Mean	RII	Rank
		5 (Strongly Agree)	4 (Agree)	3 (Neutral)	2 (Disagree)	1 (Strongly Disagree)					
Active participation in the neighbourhood playground activities has led to reduction in my urge to having sex for money	SBSV1	15	2	0	2	1	20	104	3.71	1.04	2nd
Active participation in the neighbourhood playground activities has led to a reduction in my urge for destroying any public or private property.	SBSV2	17	1	0	1	1	20	101	3.60	1.01	3rd
Active participation in the neighbourhood playground activities has led to reduction in my urge for arson	SBSV3	16	2	0	1	0	20	67	2.39	0.67	5th
Active participation in the neighbourhood playground activities has led to a reduction in my urge for Community violence.	SBSV4	15	1	0	2	2	20	132	4.71	0.94	4th
Active participation in the neighbourhood playground activities has led to a reduction in my urge to domestic violence.	SBSV5	18	1	0	0	1	20	59	2.10	1.32	1st

Table 16 Comparison of changes in adolescent delinquents' behavior and social vices(SBSV) through active participation in neighbourhood playgrounds' activities in the three neighbourhoods (Ijebu-jesa, Iloko, and Ijeda townships)

Variables	Codes	RII for Ijebu-jesa	RII for Iloko	RII for Ijeda	Weighted Average	Rank
Active participation in the neighbourhood playground activities has led to reduction in my urge for having sex for money	SBSV1	0.84	0.99	1.04	0.96	2nd
Active participation in the neighbourhood playground activities has led to a reduction in my urge for destroying any public or private property.	SBSV2	0.86	0.96	1.01	0.94	3rd
Active participation in the neighbourhood playground activities has led to reduction in my urge for arson	SBSV3	0.82	0.64	0.67	0.71	5th
Active participation in the neighbourhood playground activities has led to a reduction in my urge for Community violence.	SBSV4	0.94	1.26	0.94	1.05	1st
Active participation in the neighbourhood playground activities has led to a reduction in my urge to domestic violence.	SBSV5	0.92	0.56	1.32	0.93	4th

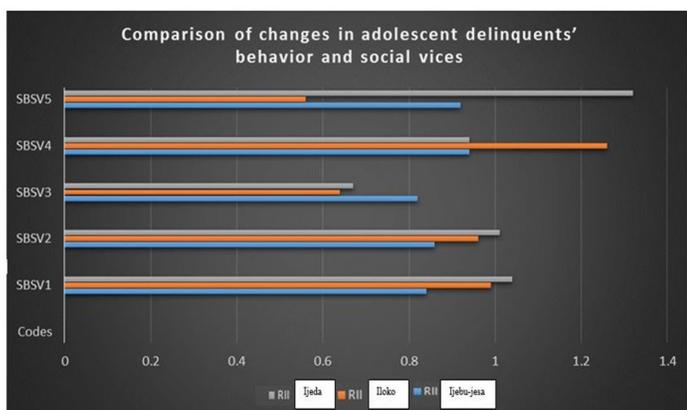


Figure 6 Graphical representation of the comparison of changes in adolescent delinquents' behavior and social vices(SBSV) through active participation in neighbourhood playgrounds' activities in the three neighbourhoods (Ijebu-jesa, Iloko, and Ijeda townships)

achieved. However, this research work suggests an improvement in the planning and design of park with a view to encouraging youth participation and subsequent reduction in social vices among the pairs. It is suggested that the provision of an adequate recreational space for an adolescent to participate actively could reduce adolescents' social vices, restiveness, and delinquency. It is, therefore, recommending that existing park should be given an adequate phase lift to meet the yearning and aspirations of the youth. Therefore, designers, planners, and developers could adopt the findings of this study into designing a successful playground in Nigeria rural neighbourhood.

Acknowledgements:

The authors acknowledge the research assistants' efforts during the data collection.

References

Abdelkader S. and Bouslama N. (2014). Adolescents Sense of Community: A New Measurement Scale. Journal of Marketing Research & Case Studies, Article ID 255150, DOI: 10.5171/2014.255150.

sporting and recreation needs of the adolescents in the community. Thus, its design, planning, and management should portray good accessibility, aesthetics, physical and psychological comfort capable of encouraging its users. The resultant positive effect on reduction of social vices among the youth could be

- Agboola, O. P., Zango M.S. & Zakka S. M. (2015): Towards Sustainability of Open Space's Planning and Management in Nigeria: Roles of Science and Technology. *Jurnal Teknologi*. 27 (14). 51-56. DOI: 10.11113/jt. v77.6446.
- Agboola O.P. (2011). Enhancing Juvenile Reformation through Architectural Intervention. *Journal of Faculty of Management Sciences, Osun State College of Technology, Esa-Oke, Osun State*. Maiden edition. 98-103
- Agboola O. P. & Salawu R. A. (2015). Examining the Role of Architects Vis-A-Vis Quantity Surveyors in The Building Industry at South West, Nigeria. *International Journal of Research in Social Sciences*. Vol. 04, No.9. 79- 89. <http://www.ijsk.org/ijrss>.
- Agnew, R. (1985). A revised strain theory of delinquency. *Social Forces*, 64, 151-167. DOI: <https://doi.org/10.1093/sf/64.1.151>.
- Agnew, R. (1993). Representing Space, Space, Scale and Culture in Social Science: In *Place/ Culture/Representation* (J. Duncan and D. Ley eds). London. Routledge.
- Attar, B. K., & Guerra, N. G. (1994). The Effects of Cumulative Violence Exposure on Children Living in Urban Neighborhoods. Paper presented at the meeting of the American Psychological Society Convention, Washington, D.C.
- Bedimo-Rung AL, Mowen AJ, Cohen DA. (2005). The Significance of Parks to Physical Activity and Public Health: A Conceptual Model. *Am J Prev Med*. 28 (2 Suppl 2):159-68. DOI: 10.1016/j.amepre.2004.10.024.
- Brooks-Gunn, Jeanne, Greg J. Duncan, Pamela Kato Klebanov, and Naomi Sealand. (1993). "Do Neighborhoods Influence Child and Adolescent Development?" *American Journal of Sociology* 99:353-95. DOI: 10.1086/230268.
- Brooks-Gunn, Jeanne, Greg J. Duncan, and J. Lawrence Aber, eds. (1997). *Neighborhood Poverty*, Vols. 1 and 2. New York: Russell Sage.
- Buckner, J. C. (1988). The development of an instrument to measure neighborhood cohesion. *American Journal of Community Psychology*, 16(6), 771-791. DOI: 10.1007/BF00930892.
- Centers for Disease Control and Prevention (2003). <http://www.cdc.gov>. (accessed 3rd January 2017).
- Chavis, D. M., & Wandersman, A. (1990). Sense of community in the urban environment: A catalyst for participation and community development. *American Journal of Community Psychology*, 18,55-81. DOI 10.1007/978-1-4419-8646-7_14.
- Chen D. (2006). *Shared Outdoor Spaces and Community Life: Assessing the Relationship Between Design and Social Interaction*. Master thesis. University of Guelph. 1-66
- Chipuer, H.M., Pretty, G.H., Delorey, E., Miller, M., Powers, T., Rumstein, O. (1999). The Neighbourhood Youth Inventory: development and validation. *Journal of Community & Applied Social Psychology*, 9, 355-368. DOI: 10.1002/jcop.20173.
- Cicognani E., Zani, B and Albanesi C. (2012). Sense of community in adolescence. *Global Journal of Community Psychology Practice*. Vol.3 (4). Pp 119-125. <http://www.gjcpp.org/>.
- Cohen, D., Ashwood, J., Scott, M., Overton, O., Evenson, R., Staten, L., Porter, D., Mckenzie, T. and Catellier, D., (2006). Public Parks and Physical Activity Among Adolescent Girls. *Pediatrics*, Vol.118 (5) Pp.1381-1389. DOI: 10.1542/peds.2006-1226.
- Coleman John C. & Hendry Leo B. (1990). *The Nature of Adolescence*. Routledge, ISBN 0415014859, 9780415014854
- Connell, J.P., Halpern-Felsher, B.L., Clifford, E., & Crichlow, W. (1995). *Hanging in there: Behavioral, Psychological, And Contextual Factors Affecting Whether African-American Adolescents Stay In High School*. *Journal of Adolescent Research*, 10~11, 41-63
- Davidson, W. B., & Cotter, P. R. (1989). Sense of Community and Political Participation. *Journal of Community Psychology*, 17, 119-125.
- De Vries, S., Verheij, R., Groenewegen, P., and Spreeuwenberg, P., (2003). 'Natural Environments - Healthy Environments? An Exploratory Analysis of the Relationship Between Greenspace and Health,' *Environment and Planning*. Vol.35 pp.1717-31
- Evans S.D. (2007). Youth Sense of Community: Voice and Power in Community Contexts. *Journal of Community Psychology*, Vol. 35, No. 6, 693 -709.
- Everson, K. R., Scott, M. M., Cohen, D. A. and Voorhees, C. C., (2007). Girls' Perception of Neighborhood Factors on Physical Activity, Sedentary Behavior, and BMI. *Obesity*, 15, 430-445.
- Francis, J., Giles-corti, B., Wood, L., & Knuiman, M. (2012). Creating Sense of Community: The Role of Public Space. *Journal of Environmental Psychology*, 32 (4), 401-409. doi: 10.1016/j.jenvp.2012.07.002.
- Fitzpatrick, K. M., & Boldizar, J. P. (1993). The prevalence of depression among low-income African American youth. *Journal of Consulting and Clinical Psychology*, 61, 528-531.
- Garbarino, James, Robert H. Abramowitz, and C. Elliot Asp. (1985). *Adolescent Development: An Ecological Perspective*. Columbus, Ohio: Merrill.
- Gehl, J. (1987) *Life between Buildings* (New York: Van Nostrand Reinhold).
- Giles-Corti, B., Broomhall, M., Knuiman, M., Collins, C., Douglas, K., Ng, K., Lange, A. and Donovan, R., (2005). 'Increasing Walking - How Important is Distance to Attractiveness and Size of Public Open Space?' *American Journal of Preventive Medicine*, 28, pp.169-76.
- Giles-Corti B., & Donovan R.J. (2002). The Relative Influences of Individual, Social Environmental and Physical Environmental Correlates to Working. *Journal of Social Science & Medicine* 54. 1793-1812.
- Glynn, T. J. (1981). Psychological Sense of Community: Measurement and Application. *Human Relations*, 34, 780-818.
- Gobster P.H. (2001). Neighbourhood - Open Space Relationships in Metropolitan Planning: A look across four scales of concern, *Local Environment: The International Journal of Justice and Sustainability*, 6:2, 199-212.
- Gordon-Larsen P., McMurray R.C.& Popkin B.M. (2000): Environmental and Socio-Demographic Determinants of Adolescents Physical Activity and Inactivity. *The National Longitudinal Study of Adolescent Health*. *Journal of Pediatrics*. Vol. 13, Issue 3. Pp 301-306.
- Grahn, P. and Stigsdotter, U., (2003). 'Landscape Planning and Stress,' *Urban Forestry Urban Greening* Vol.2, pp.1-18.
- Grow, H., Saelens, B., Kerr, J., Durant, N., Norman, G. and Sallis, J., (2008). 'Where are Youth Active? Roles of Proximity, Active Transport, and Built Environment', *Journal of Medicine & Science in Sports and Exercise*, Vol 40. Viewed 3 March 2009, www.acsm-msse.org
- Hakim, C. (2003). *Models of the Family in Modern Societies: Ideals and Realities*. Aldershot: Ashgate.
- Hamdan, H., Yusof, F., & Marzukhi, M. A. (2014). Social Capital and Quality of Life in Urban Neighborhoods High-Density Housing. *Procedia - Social and Behavioral Sciences*, 153, 169-179.

- Hester, R. T. (1975). *Neighbourhood Space*. Pennsylvania: Dowden, Hutchinson & Ross, Inc.
- Hill, J. L. (1996). Psychological Sense of Community: Suggestions for Future Research. *Journal of Community Psychology*, 24(4), 431-438.
- Hirschi, Travis. (1969). *Causes of Delinquency*. Berkeley, CA: University of California Press.
- Hunter New England Population Health, (2007). *Building Liveable Communities in the Lower Hunter Region*.
- Jacobs, J. (1961) *The Death and Life of Great American Cities* (New York: Vintage Books)
- James, P., Tzoulas, K., Adams, M. D., Barber, A., Box, J., Breuste, J., Elmquist, T., Frith, M., Gordon, C., Greening, K. L., Handley, J., Haworth, S., Kazmierczak, A. E., Johnston, M., Korpela, K., Moretti, M., Niemelä, J., Pauleit, S., Roe, M. H., Sadler, J. P. & Ward Thompson, C. (2009) Towards an integrated understanding of green space in the European built environment, *Urban Forestry & Urban Greening*, 8, pp. 65–75
- Jenkins, E. J., & Bell, C. G. (1994). Post-Traumatic Stress Disorder and Violence Among Inner-City High School Students. In S. Friedman (Ed.), *Anxiety disorders in African Americans*. NY: Springer
- Kaczynski, A. T., Potwarka, L. R. & Saelens, B. E. (2008) Association of Park Size, Distance, And Features with Physical Activity in Neighborhood Parks, *American Journal of Public Health*, 98, pp. 1451–1456
- Lennard, S. H. C. & Lennard, H. L. (1987) *Livable Cities—People and Places: Social and Design Principles for the Future of the City*, Center for Urban Well-Being (New York: Southampton).
- Li, F. Z., Fisher, K. J., Brownson, R. C., (2005). 'Multilevel Modelling of Built Environment Characteristics Related to Neighbourhood Walking Activity in Older Adults'. *Journal of Epidemiology Community Health*, Vol.59 pp.558-64.
- Lim E.C, and Alum J. (1995): Construction Productivity: issues encountered by contractors in Singapore. *International Journal of Project Management*;13 (1):51–8.
- Lounsbury, J. W., J. M. Loveland, Gibson, L. W. (2003). An investigation of psychological sense of community in relation to big five personality traits. *Journal of Community Psychology*, 31 (5), 531-541.
- Maas, J., Verheij, R. A., Groenewegen, P., de Vries, S. and Spreeuwenberg, P., (2006). 'Green Space, Urbanity, and Health: How Strong is the Relation?' *Journal of Epidemiology Community Health*, Vol.60, .587-92.
- Marcus, C. C., & Sarkissian, W. (1986). *Housing as if People Mattered: Site Design Guidelines for Medium-Density Family Housing*. Berkeley: University of California Press
- Martinez, P., & Richters, J. E. (1993). The NIMH community violence project: II. Children's distress symptoms associated with violence exposure. *Psychiatry: Interpersonal and Biological Processes*, 56, 22–35.
- Maton, K.I. (1990). Meaningful involvement in instrumental activity and well-being: Studies of older adolescents and at risk urban teen-agers. *American Journal of Community Psychology*, 18~21. 297–320.
- McCord Joan (1993). Descriptions and Predictions: Three Problems for the Future of Criminological Research. *Journal of Research in Crime and Delinquency* 30 (4):412-425
- Moore, Robin C. (1992). *A place for all Guidelines, Planning, Designs, and Management for Outdoor Play Settings for Children*. 2nd Edition. California. MIG Communications.
- Mounts NS, and Steinberg L. 1995. An Ecological Analysis of Peer Influence on Adolescent Grade Point Average and Drug Use. *Dev. Psychol.* 31:915–22.
- Morita, E., Fukuda, S., Nagano, J., Hamajima, N., Yamamoto, H., Iwai, Y., Nakashima, T., Ohira, H, and Shirakawa, T., (2007). 'Psychological Effects of Forest Environments on Healthy Adults: Shinrin-Yoku (Forest-Air Bathing, Walking) as a Possible Method of Stress Reduction'. *Public Health*, Vol.121, pp.54-63
- McMillan, D. W. & Chavis, D. M. (1986). "Sense of Community: A Definition and Theory," *Journal of Community Psychology*, volume 14, January, (6-23)
- McNeill, L. H., Kreuter, M. W., & Subramanian, S. V. (2006). Social Environment and Physical Activity: A Review of Concepts and Evidence. *Social Science and Medicine*, 63, 1011-1022
- Nasar, J. L., & Julian, D. A. (1995). The psychological sense of community in the neighborhood. *Journal of the American Planning Association*, 61, 178-184
- Nasution, A. D., & Zahrah, W. (2014). Community Perception on Public Open Space and Quality of Life in Medan, Indonesia. *Procedia - Social and Behavioral Sciences*, 153, 585–594. doi: 10.1016/j.sbspro.2014.10.091.
- Nielsen, T. S., Hansen, K. B., (2007). 'Do Green Areas Affect Health? Results from a Danish Survey on the Use of Green Areas and Health Indicators'. *Health Place*. Vol.13, Pp.839-850. DOI: 0.1016/j.healthplace.2007.02.001.
- Obst P, Zinkiewicz L, Smith S. G. (2002). Sense of Community in Science Fiction Fandom, Part 2: Comparing Neighborhood and Interest Group Sense of Community. *Journal of Community Psychology*; 30:105–17. DOI: 10.1002/jcop.1052.
- Osofsky, J. D. (1995). The effects of exposure to violence on young children. *American Psychologist*, 50, 782–788. <http://dx.doi.org/10.1037/0003-066X.50.9.782>
- Perkins, D., Florin, P., Rich, R., Wandersman, A. & Chavis, D. (1990). Participation and the social and physical environment of residential blocks: Crime and community context. *American Journal of Community Psychology*, 18, 83-115
- Perkins, D. D., & Long, A. D. (2002). Neighbourhood sense of community and social capital: A multi-level analysis. In A. Fischer, C. Sonn & B. Bishop (Eds.), *Psychological sense of community: Research, applications and implications* (pp. 291-318). New York: Plenum Press.
- Peterson, N.A., Speer, P.W., & McMillan, D.W. (2008). Validation of a brief Sense of Community Scale: Confirmation of the principal theory of sense of community. *Journal of Community Psychology*, 36, 61 – 73
- Pettitway Leon E. (1985). Measures of opportunity and the calculation of the arson rate: The connection between operationalization and association. *Journal of Quantitative Criminology*. Volume 1, Issue 3, pp 241–268.
- Plas, J., & Lewis, S. (1996). Environmental Factors and Sense of Community in A Planned Town. *American Journal of Community Psychology*, 24, 109-143
- Pretty, G.M.H., Conroy, C., Dugay, J., Fowler, K. & Williams, D. (1996). Sense of Community and its relevance to adolescents of all ages. *Journal of Community & Applied Social Psychology*, 24 (4), 365-379
- Pretty, G.M.H., Andrews, L. & Collett, C. (1994). Exploring adolescents' Sense of Community and its relationships to loneliness. *Journal of Community & Applied Social Psychology*, 22, 346-357.
- Pretty, G.M.H. (2002). Young People's Development of The Community-Minded Self: Considering Community Identity, Community Attachment and Sense of Community. In A.T. Fisher, C.C. Sonn, & B.J. Bishop. Eds. *Psychological sense of community: Research, applications, and implications*. 183–2031 New York: Kluwer Academic. Plenum Publishers

- Prezza, M. & Costantini, S. (1998). Sense of Community and Life Satisfaction: Investigation in Three Territorial Contexts. *Journal of Community and Social Psychology*, 8, 181-194.
- Proescholdbell, R.J., Roosa, M. R., & Nemeroff, C. J. (2006). Component Measures of Psychological Sense of Community Among Gay Men. *Journal of Community Psychology*, 34 (1), 9-24.
- Puddifoot, J.E. (1996). Some initial considerations in the measurement of community identity. *Journal of Community Psychology*, 24 (4), 327-337
- Sarason, S.B. (1974). *The psychological sense of community: Prospects for a community psychology* 1st edition. San Francisco: Jossey-Bass.
- Scholte, E.M. (1992) Prevention and treatment of juvenile problem behaviour: A proposal for a socio-ecological approach. *Journal of Abnormal Child Psychology* 20:3, 247–262.
- Scott, David and Willits. Fern K. (1998). “Adolescent and Adult Leisure Patterns: A Reassessment.” *Journal of Leisure Research* 30:3, Third Quarter: 319-330.
- Skjaeveland, O., Garling, R., & Maeland, J. G. (1996). A multidimensional measure of neighboring. *American Journal of Community Psychology*, 24(3), 413-435.
- Skjaeveland, O. and Gärling, T. (1997) Effects of Interactional Space on Neighbouring. *Journal of Environmental Psychology*, 17, 181 – 198
- Snyder H.N. and Sickmund M. (1999). *Juvenile Offenders and Victims: 1999 National Report*. Office of Juvenile Justice and Delinquency Prevention. Pennsylvania. U.S.
- Steinberg L. and Morris A. S. (2001). Adolescents development. *Annu. Rev. Psychol.* 2001. 52:83–110. DOI: 10.1177/074355840325885
- Sullivan, W. C., Kuo, F., & Depooter, S. F. (2004). The Fruit of Urban Nature: Vital Neighbourhood Spaces. *Environment and Behavior*, 36 [5], 678-700.
- Sunarja, A., Wood, G. and Giles-Corti, B., (2008), A Factsheet on Healthy Public Open Space Design for Multi-Users and Multi-Uses, Perth, Western Australia: Centre For the Built Environment and Health, School of Population Health, The University of Western Australia. Viewed on 3 March 2009, www.populationhealth.uwa.edu.au
- Thompson, S., September (2008). ‘Design for Open Space Factsheet’, Your Development. Viewed on 11 February 2009, www.yourdevelopment.org.
- Tsai, T. A. (2014). Strategies of Building a Stronger Sense of Community for Sustainable Neighbourhoods: Comparing accessibility with Community Empowerment Programs. *Sustainability*, 6, 2766–2785.
- Urberg, K. A., Degirmencioglu, S. D., & Pilgrim, C. (1997). Close friend and group influence on adolescent cigarette smoking and alcohol use. *Developmental Psychology*.
- Valle, Esther (2008). Sense of Community: A Comparative Study of Two Design Methods New Urbanism and Participatory Design, *Focus*. Vol. 5: (1) Article 10.DOI: 10.15368/focus.2008v5n1.5.
- WA Department of Sport and Recreation, facts and stats – Benefits of Physical Activity, Government of Western Australia, Perth. Viewed on 26 February 2009, www.beactive.wa.gov.au
- Wentzel Kathryn R. and Caldwell Kathryn (1997). Friendships, Peer Acceptance, and Group Membership: Relations to Academic Achievement in Middle School. Vol. 68, No. 6. Pp. 1198-1209
- Whyte, W.H., (1980). *The Social Life of Small Urban Spaces*. Conservation Foundation, Washington, DC
- Wilkinson, D. (2007). The Multidimensional Nature of Social Cohesion: Psychological Sense of Community, Attraction, and Neighboring Am J Community Psychol. ;40(3-4):214-29.
- Wood, L., Frank, L. D., & Giles-corti, B. (2010). Social Science & Medicine Sense of Community and Its Relationship with Walking and Neighborhood Design Q. *Social Science & Medicine*, 70(9), 1381–1390. doi: 10.1016/j.socscimed.2010.01.021
- Youniss, J., McLellan, J.A., & Yates, M. (1997). What We Know About Engendering Civic Identity. *American Behavioral Scientist*, 40~5! 620–631.