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## An Overview of Environmental Design Relationship with School Bullying and Future Crime

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### Abstract

This article presents an overview of how environmental design is related with school bullying and future crime. Through a discussion of findings from previous studies, gaps in criminology knowledge on the bully-design link and future crime will be highlighted. Bullying is a serious social problem that can affect and impact a student's future. The previous studies had indicated the link between bullying behaviour and future crime for the bully and the victim. In conclusion, this article will emphasise the need for future research in environmental design and bullying behaviour.

Keywords: Environmental design; School bullying; Criminality; Crime

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### 1.0 Introduction

Bullying is a growing problem that affects millions of students throughout the world. Bullying among students has been known to be a severe problem in schools for almost 30 years (Roland & Galloway, 2002). Bullying in schools reflects a part of the bigger problem of violence in society (Atlas & Pepler, 1998). Previous longitudinal studies have found a strong and consistent relationship between bullying and later criminality (Andershed, Kerr, & Stattin, 2001; Min, F. Catalano, P. Haggerty, & D. Abbott, 2011; Dan Olweus, 2011; Renda, Vassallo, & Edwards, 2011; Sourander et al., 2011). Bullying behaviour among students is a global phenomenon that not only occurs in Malaysian schools but also other countries such as Australia, Japan, England, and the United States. Past research has shown that at least 5 per cent of students in primary and secondary schools were bullied weekly or more often in North America, Australia, Japan, the Scandinavian countries and several other countries in Europe (Roland & Galloway, 2002). The United States Department of Justice and the National Association of School Psychologists (NASP) estimate that 160,000 children miss school each day out of fear (Newman-Carlson & Horne, 2004). In 2013, approximately 3 per cent of students aged between 12 and 18 years old reported being afraid of being attacked or harmed at school or on the way to and from school (Robers, Zhang, & Morgan, 2015). Bullying is linked to many adverse outcomes of various important aspects of life, including student achievement, physical health, mental health, and later life. Adolescents who are bullied suffer from the worst psychological effect that can be linked to suicidal thinking. The Olweus Prevention Program was designed to prevent bullying in elementary, middle and junior high schools and was a school-based program (Losey, 2009). The program was targeted primarily at bullies and students who were victimised by bullying behaviour. Thus, the objective of this article is to overview the bullying scenario in Malaysia and the link between bullying behaviour with future crime and environmental design. In achieving the

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objective, 65 articles on school bullying, future crime, and school environmental design were reviewed. Students who engage in bullying may be more likely to engage in criminality in the future. The environmental design may influence bullying behaviour in school and can be used as a prevention tool for the school bullying problem in Malaysia.

### 1.1 Scenario of Bullying in Malaysia

In 2014, criminal cases of bullying in Malaysia gained great attention from the Ministry of Education (MOE), the Social Welfare Department (SWD) and the Royal Malaysia Police (RMP) when a bullying crime video was uploaded onto the internet making it viral among Malaysians. In November 2014, an orphanage dormitory became the scene of bullying-related crimes when a primary student was brutally assaulted by several secondary school students (Astro Awani, 2014). The Director-General of Education, Datuk Seri Dr. Khair Mohamad Yusof, revealed that a total of 13,359 primary and secondary school students were involved in criminal misconduct from January to June 2014. From this total number, 1,314 students were investigated under bullying cases and 4,568 under serious crimes (Salleh, 2014). According to the Vice Chairman of the Malaysian Crime Prevention Foundation (MCPF), Tan Sri Lee Lam Thye, student involvement in criminal activities formed 0.9 per cent of the total crime index in the country (Utusan Online, 2016). The Ministry of Education stated that the number of students involved in disciplinary action was less than 2 per cent of the 5 million students in Malaysia (Astro Awani, 2015). Although only 2 per cent of students are involved in disciplinary actions, nevertheless, bullying remains as a crime that causes irreversible psychological and emotional effects, or worse, death to the victims. The consequences of bullying are dire. It could be physical health and psychological consequences such as low self-esteem, anxiety, depression, physical disorder and absenteeism (Rigby, K. 2003). Bullying has an effect not only on the victims but also on the entire school community and their families and has a tremendous financial and social cost to society (Y. Kemp-Graham & LaVelle, 2015). In order to decrease the crime rate, The National Key Results Area (NKRAs) under the Government Transformation Program (GTP) was implemented in 2010, and one of the seven NKRAs is Reducing Crime NKRA (CRI NKRA). It is one of the Government's efforts to decrease the crime rate as the crime was indicated to be the second largest area of concern for society after the economy.

Based on the violent crime statistical data from the Royal Malaysia Police (RMP) regarding violent crime cases involving children between the ages 7 to 18 years, the analysis of violent crimes between 2010 and Sept 2015 is shown in Figure 1 below. The six-year (2010- Sept 2015) archival analysis shows that a total of 2,946 violent crime cases involving children between the ages of 7 to 18 years were recorded throughout Malaysia.

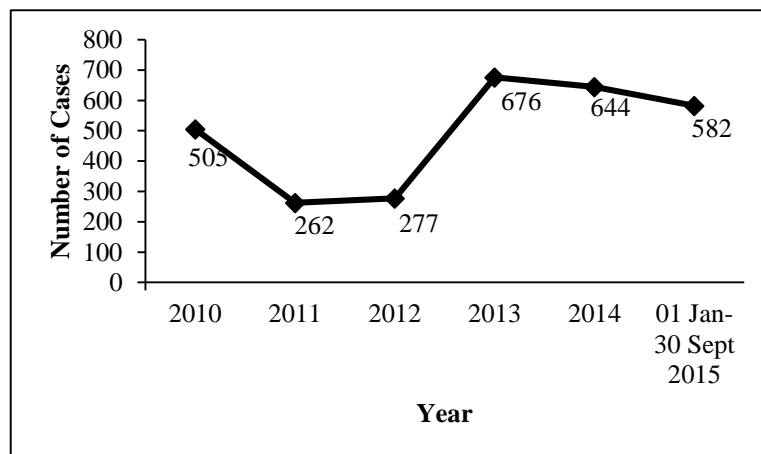


Fig. 1: Violent crime cases involving school students in Malaysia, 2010-Sept 2015 (Source: RMP, 2015)

The highest number of cases involving students was recorded in 2013 (676 cases) followed by 2014 (644 cases). The crime numbers decreased from 505 cases in 2010 to 262 cases in 2011 (a decline of 243 cases or 48.12 per cent). The recorded number of violent crime cases increased slightly from 2011 to 2013 (414 cases or 158.02 per cent) and steadily decreased in 2014 and 2015. However, it must be noted that some of the cases went unreported and the record for 2015 is only up to September. Thus, the number of crimes involving students in 2015 can be estimated to be much higher than recorded. An anti-bullying act has yet to be enacted in Malaysia. Bullying suspects are mostly charged under harassment under the Penal Code that acts as a general law on criminal offences in Malaysia.

### 2.0 Bullying Behavior

Bullying can be defined as negative actions that repeatedly occur over time directed against another student who has difficulty in defending himself or herself (D Olweus, n.d.; Wan Ismail et al., 2010). Negative actions refer to behaviour that is intended to inflict harm, injury, pain, or discomfort upon another individual (Atlas & Pepler, 1998). Meanwhile, Atlas & Pepler (1998) defined bullying as a form of social interaction in which there is an implied imbalance of power or strength in the interaction. The power imbalance in bullying may not be limited to physical size and may be presented in the tone of voice, the physical stance of the bully, or the number of children

taking part as bullies and the support of involved peers (Atlas & Pepler, 1998). Hence, bullying will take place when there is an imbalance of power between people with negative action and those who have difficulty to defend themselves.

The common form of bullying can be categorised into two types; direct and indirect (Yerger & Gehret, 2011). Direct bullying behaviours involve behaviours that are observable and that are usually expressed by physical and verbal means. Usually, direct bullying involves relatively open attacks on a victim and is "in front of your face" behaviours. The most violent forms of this bullying may lead to death. Indirect bullying is intended to hurt victims by damaging their self-esteem or social relationships, through behaviours such as exclusion from a group, rumour-mongering, and giving nasty looks (Dedousis-Wallace & Shute, 2009). There have been more cases of direct bullying than indirect physical bullying (Atlas & Pepler, 1998). Verbal bullying has been found to be the most widely performed type of bullying (Boulton, Trueman, & Flemington, 2002; Mohamad Salleh & Zainal, 2014; K Rigby, 2008) that can be done quietly and covertly where the children are able to avoid detection and punishment (Atlas & Pepler, 1998). A strong association between bullying and suicide has been indicated for indirect bullying compared to direct bullying (F. van der Wal, A. M. de Wit, & A. Hirasing, 2003). Boys and girls are equally likely to bully which means there are no gender differences in bullying (Atlas & Pepler, 1998). Meanwhile, in-class observation, victims of bullying were frequently boys rather than girls (Atlas & Pepler, 1998). Based on the research by Atlas and Pepler (1998), bullying happened as much as twice every hour in the class for short durations.

## 2.1 Factors Contributing to Bullying

Factors associated with bullying among young adolescents are sociodemographic, psychological, (Wan Ismail, Nik Jaafar, Sidi, Midin, & Shah, 2014), social environmental factors (Bowes et al., 2009; Roland & Galloway, 2002; Stevens, Bourdeaudhuij, & Oost, 2002; Vidourek, King, & Merianos, 2016), and physical environmental factors (Johnson, 2009; Wilcox, Augustine, & Clayton, 2006). The majority of bullies are adolescent males who come from a lower socioeconomic standing (Wan Ismail et al., 2014) that indicated more exposure to community violence (J. Osofsky, 1997). It was observed that social environmental factors, such as peers, the school (Bowes et al., 2009; Vidourek et al., 2016), the classroom (Roland & Galloway, 2002), the neighborhood (Bowes et al., 2009) and home environment (Bowes et al., 2009; Stevens et al., 2002), contributed to the risk of bullying behavior at school. School size was associated with being the victim of bullying as teachers may be less aware of children's social behaviours and have difficulties in supervising children out of lesson time (Bowes et al., 2009). Meanwhile, schools that contradictorily impose rules against bullying accept student bullying and has low levels of adult supervision have higher rates of bullying (Vidourek et al., 2016). Hostile interaction in the neighbourhood showed children the examples of bullying behaviours that they can imitate among their peers (Bowes et al., 2009). Family background plays a vital role in influencing bullying behaviour as the early approach is received from the family. Students involved in bullying were more likely to have been exposed to low-income family management and antisocial peers (Min et al., 2011; Roland & Galloway, 2002). Family conditions may be related to social conditions in class and may thus have an indirect impact on bullying (Roland & Galloway, 2002). The use of violence and extreme action as a method to discipline the children by parents, guardians, and teachers can indirectly promote violent acts among children (Bowes et al., 2009; Stevens et al., 2002). However, findings from Roland and Galloway (2002) indicated that there is no significant connection between the family condition and bullying other students. Their results may have varied from the other researchers because the data was collected when the schools were about to finish the school year and the respondents were excited about the end of school. The violent acts that are often aired on television and films influence children and adolescents to behave violently in imitation (Verlinden et al., 2014; Wan Ismail et al., 2014). Exposure to violence can have significant effects on children's development (J. D. Osofsky, 1999). Roland & Galloway (2002) argue that differences in social condition at school and classroom level could be attributed to parallel differences in the home conditions of the students. Bullying behaviour is also attributable to the individual's personality style (D. P. Farrington & Tfofi, 2011; Mohamad Salleh & Zainal, 2014). A student's personality such as ego, irritability, revenge, and fun can influence the behaviour of bullies (Mohamad Salleh & Zainal, 2014). Wilcox et al. (2006) conducted an entire study on the school environment and its relationship with school crime. Wilcox et al. (2006) focused on school design, noting that improved territoriality indicated school ownership, and improved surveillance led to a better perception of safety in school.

## 2.2 Consequences of Bullying

The effects related to student bullying are numerous in terms of individual, interpersonal and social adjustment issues (Rigby, K. 2003). The bullying may have an impact on the learning process for bullies, victims and peers (Atlas & Pepler, 1998) while the effect on the victims is mostly associated with poor academic performance (Nakamoto & Schwartz, 2010). This type of violence may result in various physical, psychological, and social adjustment, as well as academic challenges, leading to distress on the overall well-being (Rigby, K. 2003) and quality of life of these victimised adolescents (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2014). Psychological distress is considered a serious problem among the victims which include high levels of anxiety, depression, (Hawker & Boulton, 2000; Nakamoto & Schwartz, 2010; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Rigby, K., 2003) and suicidal thinking (Rigby, K., 2003; Sourander et al., 2011). Students who were frequently bullied were significantly more likely than others to experience trauma (Carney, 2008) and high levels of depression which can lead to suicidal ideation or may commit suicide (Carney, 2008; Klomek, Sourander, & Gould, 2010; Rigby, K., 2003). Cross-sectional findings and a few longitudinal findings indicate that there is an increased risk of suicidal ideation and suicide attempts associated with bullying behaviour (F. van der Wal et al., 2003; Kim, Leventhal, Koh, & Boyce, 2009; Klomek et al., 2010). Victims of bullying tend to fear to be at the school and display avoidance behaviour (Barrett, Jennings, & Lynch, 2012; Noaks & Noaks, 2000; Vidourek et al., 2016) due to feeling unsafe in school (Hughes, Gaines, & Pryor, 2014; Safran, 2008). Numerous studies

have indicated that being bullied is positively associated with being frequently absent and having the lower academic achievement (Barrett et al., 2012; Gastic, 2008; Goldammer, 2011; Hughes et al., 2014; Noaks & Noaks, 2000; Vidourek et al., 2016).

### **2.3 Bullying Prevention**

The school-based intervention program by Olweus (1978) was the first bullying intervention and reduction program to be evaluated by systematic research. After two years of intervention in the school, classroom environment, and through the students, teachers and parents, the frequency of bullying problems in schools decreased by approximately 50 per cent (D Olweus, n.d.). Improving the social learning environment (SLE) factor by monitoring student behaviour outside the classroom, the interaction between the teachers and collaboration between the school's stakeholders are important steps to reduce bullying in school (Kyriakides, Creemers, Papastilianou, & Papadatou-pastou, 2014). Apart from monitoring student behaviour outside the classroom, schools also can organise activities during recess which can calm students' aggressiveness and increase students' feelings of safety, happiness, and liking of school (Swearer, Espelage, & Napolitano, 2009). These methods can influence high-quality peer communication and togetherness with one another that can be defined as a responsive school environment.

### **3.0 The Relationship Between Bullying Behavior and Future Crime**

Being witness to or being involved in direct contact with school victimisation may be related to a youth's criminal activity in the future (J. D. Osofsky, 1999). Previous longitudinal studies have found a strong and consistent relationship between bullying and later criminality (Andershed et al., 2001; Min et al., 2011; Dan Olweus, 2011; Renda et al., 2011; Sourander et al., 2011). Adolescents who bully others have been found to be at heightened risk of engaging in later anti-social and criminal behaviour (D. Farrington, 1993; Sourander et al., 2007) and in fact are more likely to engage in concurrent criminal activity during adolescence (Jiang, Walsh, & K. Augimeri, 2011; Nixon, 2015). The probability for bullies to engage in crime is much higher than non-bullies. The bullies reported significantly higher incidence rates (3.39 per 100 person-years) compared with the non-bullies (1.17 per 100 person-years) (Jiang et al., 2011). D. P. Farrington and Ttofi (2011) reported that 40.8 per cent of 71 bullies were convicted of crimes between the ages of 15 and 20, compared with 24.8 per cent of 331 non-bullies. Andershed et al. (2001) argued that bullying is a reflection of an individuals' characteristic ways of interacting with others. Findings from Andershed et al. (2001) indicated that bullying behaviour in schools is related strongly to violent behaviour and loitering on the streets among boys and girls. Thus, it may be expected that an adolescent who bullies in school is considerably more violent on the streets. The linkage between childhood bullying behaviour and future offending is strong after the age of 12 (Jiang et al., 2011). 24 from 260 bullies had at least one official criminal conviction before the age of 18 (Jiang et al., 2011). Renda et al. (2011) found that bullying at age 13-14 years has a significantly stronger association with anti-social behaviour at ages 19-20 than at ages 23-24. Supported findings by Dan Olweus (2011) indicated that from the total of 278 bullies considered, 55 per cent of them had been convicted of one or more crimes and as much as 36 per cent had been convicted of at least three crimes in the eight-year period from ages 16 to 24. However, Sourander et al. (2011) found that bullying at age eight is also a strong predictor of adult criminality among males, but does not predict adult criminality among females. Min et al. (2011) concluded that childhood bullying is significantly associated with violence, heavy drinking, and marijuana use at age 21. Renda et al. (2011) suggested that bullying in adolescence may be a marker of risk for a continuing pattern of anti-social behaviour, particularly among boys. However, a study by D. P. Farrington & Ttofi (2011) presented evidence for bullying at age 14 as a predictor for violent convictions between ages 15-20, self-reported violence at ages 15-18, low job status at age 18, drug use at ages 27-32, and an unsuccessful life at age 48.

### **4.0 The Relationship Between Environmental Design and Bullying Behavior**

The basis of environmental design is the interaction among the physical, social, environmental, individual, and community factors (Sakip, Johari, & Salleh, 2012). According to Poyner (1983), human movement and behaviour are critically affected by the design and layout of the physical environment. Architectural design and layout of buildings, street networks and so on can significantly influence how people interact, use, and move in their environment (Reynald, 2014). Crimes are believed to be related to the physical environment (Liebermann & Kruger, 2004). The opportunities that exist in an environment encourage a criminal to act on a targeted victim (Liebermann & Kruger, 2004). In deciding whether or not to commit an act of crime, the environmental element is one of the factors considered by criminals (Anastasia & John, 2007). Criminal behaviour is driven by their environment, whether physical or social aspect (Sakip & Abdullah, 2008). A study by Shamsuddin et al. (2012) had indicated a relationship between the outdoor physical environment of the school and the students' social behaviour. However, the limitation of this research is not evaluating the negative social behaviour related to a school's environment. A study of school violence in the Gangseo district, Seoul was conducted to determine crime spots on the way home from school for middle-school students (Lee, Ryu, & Ha, 2012). Through a cognitive map analysis, Lee, Ryu, and Ha (2012) argued that the students feel fear mostly for reasons related to human factors rather than to space factors; among the human factors, 'peers' represented the most common reason. The most common locations for student victimization are at the playground (Fite et al., 2013; Dan Olweus, 1993; Stephenson & Smith, 1989), classroom (Atlas & Pepler, 1998; Rapp-paglicci, Dulmus, Sowers, & Theriot, 2004), and hallways (Astor, Meyer, & Behre, 1999; Stephenson & Smith, 1989; Vidourek et al., 2016). Certain 'hot spots' indicated to be unowned spaces were the sites of more crime events and induced greater fear among students (Astor et al., 1999). The presence of a sense of ownership of these locations has the potential to drastically decrease the prevalence of victimisation in schools (Astor et al., 1999). These studies show that victimisation is most likely to occur when the adults are limited in their ability to monitor. The school structure may play an important part in giving a chance for individual children to be involved in bullying behaviour (Atlas & Pepler, 1998). Craig et al. (2000)

reported that victimisation is most likely to occur in less structured environments. Studies showed that lower rates of school victimisation were associated with school safety interventions that are focused on improving the physical environment of the school (Johnson, 2009). Johnson (2009) concluded that the physical environment appears to offer intervention opportunities to reduce school victimisation.

## 5.0 Discussion

School bullying is a serious problem experienced by all schools that could have an impact on students' physical and psychological well-being. School bullying can be categorised into two types, which are direct bullying and indirect bullying. Direct bullying is an action that happens face to face between the bully and the victim. Meanwhile, indirect bullying is an action that discriminates another student by spreading rumours that will damage the victim's social relationships. Even though physical injuries caused by direct bullying is seen to be the worst impact on the victims, the psychological impact caused by indirect bullying should not be ignored. Students who suffer indirect bullying will experience psychological stress which includes high levels of anxiety, depression and suicidal thoughts. A male student is more likely to bully other students compared to a female student. The factors that contribute to school bullying are socio-demographic, psychological, social environmental and physical environmental factors. The majority of bullies come from a lower socioeconomic group that indicated more exposure to community violence and hostile interaction. An individual's personality such as ego, irritability, revenge, and fun can influence the behaviour of bullies. Social environmental factors such as peers, school, classroom, neighbourhood and home environment contribute to the risk of bullying behaviour at school. A low-income family management prone to using violence and extreme action as disciplinary methods can indirectly promote violent acts among children. Under these circumstances, children tend to believe that action against others is a way for them to solve problems. The victims of bullies tend to be fearful at school and have an avoidance behaviour. They are likely to be absent from school and have low academic achievement. Thus, they would have low job status in the future. Students who were involved in bullying at age eight either as the perpetrators or as victims are at heightened risk of engaging in later anti-social and criminal behaviour. In fact, they are more likely to engage in concurrent criminal activity during adolescence. The adolescent who bullies in school is considerably more violent on the streets. Steps taken in bullying prevention today are mostly derived from the Olweus Bullying Prevention Program that emphasised on school, classroom environment, students, teachers and parents. However, cases of bullying still occur. Bullying may be preventable through environmental design. The most common locations for bullying are at the playground, classroom, and school hallways. Bullies tend to choose places that have narrow spaces, are invisible to other people and indicated to be unowned spaces. The presence of a sense of ownership in that place could reduce the opportunities for offending by discouraging illegitimate users (Cozens, Saville, & Hillier, 2005; Perkins, Meeks, & Taylor, 1992). Thus, the environmental design could influence the bullying behaviour since most of the cases occurred at hidden places without good surveillance and unused space that provided opportunities for bullying. For future research, the researcher recommends a further study on how environmental design influences bullying behaviour and whether environmental design can be used as a prevention tool for the problem of school bullying.

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