

# Using Bronfenbrenner's Process-Person-Context-Time Model to Conceptualize a School-Based Intervention to Help Prevent Adolescent Intimate Partner Violence

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**ABSTRACT:** Intimate Partner Violence (IPV) is a pervasive global issue affecting the health and well-being of adolescents. This study utilized Bronfenbrenner's PPCT theory to investigate the risk factors that contribute to IPV and to help develop a school-based intervention to prevent IPV among adolescents. A number of factors from different levels of the PPCT framework that may impact the efficacy of intervention development are explored. The PPCT model of Bronfenbrenner has the potential to unify IPV propositions in the existing literature into a coherent theoretical framework to interpret and analyze IPV phenomena, generalize various aspects of prevention addressing IPV issues, and guide practical intervention. Consideration is given to the four defining properties of the bioecological theory in proposing implications for school health practices pertaining to addressing IPV issues among adolescents through a school-based intervention.

**KEYWORDS:** Bronfenbrenner, PPCT, intimate partner violence, adolescents, intervention

## 1. Introduction

Intimate Partner Violence (IPV) as a major global issue affecting adolescents' health and well-being has been well documented (Decker et al. 2014; García-Moreno et al. 2013; Lewis and Fremouw 2001), which highlights the significance of preventing the occurrence of this phenomenon within this group. Globally, one particularly striking statistic is that about one in three ever-partnered females between the age of 15 to 19 have already been exposed to IPV, suggesting that this phenomenon is already prevalent among them (García-Moreno et al. 2013). Encountering IPV during adolescence is associated with worse academic performance, more inadequate personal and mental strengths, and the greater likelihood of perpetrating or suffering in later life (Cui, Ueno, Gordon, and Fincham 2013; Pittenger, Huit, & Hansen 2016). Adolescents who have history of being IPV perpetrators and victims are more prone to regard violence as a normal tactic to maintain a relationship, and this can spill over into marriage or cohabitation, in turn leading to inter-generational cycle of IPV episodes (Manchikanti Gómez 2011; Shakoor, Theobald, and Farrington 2022).

Since the 1990s, a rapid increase in the number of preventive interventions have been implemented within school settings to educate adolescents with regard to IPV-related issues (Jaffe, Sudermann, Reitzel, and Killip 1992; Krajewski, Rybarik, Dosch, and Gilmore 1996; Lavoie, Vézina, Piché, and Boivin, 1995). However, a limited range of theories as guiding or underlying frameworks to develop a school-based intervention preventing IPV can be revealed. Although several reviews of IPV theories were

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developed to explain the mechanism through which violence operates in intimate relationships i.e., feminist theory, attachment theory and power theory (Ali and Naylor 2013; Bell and Naugle 2008; Burelomova, Gulina, and Tikhomandritskaya 2018), they were limited to provide a comprehensive account of variables that may affect an intervention's efficacy. Many studies have employed Bronfenbrenner's multi-layered environmental framework to conceptualize contextual factors that can increase the probability of IPV abuse at various levels in a nested model i.e., micro-, meso-, exo- and macro-systems (Alaggia, Regehr, and Jenney 2012; Pokharel, Hegadoren, and Papatthanassoglou 2020), and the World Health Organization (WHO) adopted it in its widely cited report on violence and health (Krug, Mercy, Dahlberg, and Zwi 2002). However, Bronfenbrenner's theory was either partially presented or misused (Tudge, Mokrova, Hatfield, and Karnik 2009). Nearly none of the preventive studies can be identified using the evolved version of Bronfenbrenner's bioecological model, involving Process, Person, Context and Time (PPCT) (Bronfenbrenner 2005; Bronfenbrenner and Morris 2007) to the construction and implementation of a school-based intervention.

Therefore, instead of applying an earlier iteration of Bronfenbrenner's theory to conceptualize IPV episodes through a contextual lens of risk factors, this study integrated it with the other three crucial elements in the model, namely process, person, and time, which are frequently overlooked in many studies. The application of Bronfenbrenner's PPCT model could provide a powerful explanatory mechanism through which an adolescent act in IPV episodes and a cohesive framework to help review a wide range of developmental influences and functional correlates for preventing IPV issues that are evidenced in a multidisciplinary field of IPV research. Doing so, the focus of this study is to (i) extract influential factors that reinforce adolescents' IPV victimization and perpetration and (ii) variables associated with the effectiveness of developing IPV preventive interventions within school settings.

### **2. Bronfenbrenner's PPCT Theoretical Model**

Bronfenbrenner's theory consisted of two distinct phases involved in the evolution from ecology to bioecology (Bronfenbrenner and Ceci 1994; Bronfenbrenner and Morris 1998; Tudge et al. 2009). In the 1970s, his ecological paradigm was initially articulated and culminated in his book *The Ecology of Human Development* (Bronfenbrenner 1979). Bronfenbrenner's ecological systems theory builds a new paradigm to help investigate the wide-ranging developmental influences an environment can have on an individual's development, thereby providing an operationally, theoretically and methodologically sound model in the domain of human development and across diverse disciplines. The model argues that the ecological environment is not static, but evolved over time, whereby, the developing individual plays an active role in a continuous adaption of a changing environment, whilst on the other hand, the environment changes in order to accommodate better the developing individual residing therein.

Bronfenbrenner's theory was in a state of continuous progression (Bronfenbrenner 2005; 2007; Ceci 2006; Tudge et al. 2009). In his later works, he started to stress the role of genetic endowment in the process of human development, as well as the core issue of understanding the mechanism through which the individual's genetic potential transformed into phenotypic functioning in the ecological environment (Bronfenbrenner and Ceci 1994; Bronfenbrenner and Morris 1998; 2007). To manifest the prominent part genetics played in the ecological systems theory, Bronfenbrenner extended his theory by naming it the 'bioecological theory of development'. In this newly named theory, Bronfenbrenner defined the degree of genotype differences,

realised in phenotype differences, as ‘heritability’, and the engine that drives an individual’s genotypes actualised in phenotypes as a ‘proximal process.’ A strong proximal process was believed to stimulate the genetic potentials (genotypes) to produce more positive developmental outcomes and buffer developmental dysfunctions (phenotypes). That is to say, enhancing the effectiveness of the proximal process can contribute to a higher level of heritability, actualise biological potentials and, in the meantime, produce a more advanced level of psychological growth and developmental functioning.

The proximal process is therefore regarded as the most distinctive characteristic of Bronfenbrenner’s theory, as it distinguishes his writings from previous ones, and henceforth, he referred to Process (proximal process), together with Person (the developing bio-psychological person), Context (micro-, meso-, exo-, and macrosystems) and Time (chronosystems) as the four defining properties of his bioecological model as well as the complex, dynamic and reciprocal interactions among them (Bronfenbrenner 2005; Bronfenbrenner and Ceci 1994; Bronfenbrenner and Morris 2007). For this review, the bioecological lens was adopted to synthesize the evidence base to explore factors influencing adolescents’ IPV victimization and perpetration and variables hindering or promoting the efficacy of a school-based IPV intervention. Additionally, this study encompasses a wide variety of literature and categorizes various influences into the four defining priorities of the PPCT model. The application of Bronfenbrenner’s PPCT model can ensure a sufficient understanding of IPV episodes, and a cohesive theoretical framework will be developed to conceptualize interventions preventing IPV within school settings.

### **3. The application of PPCT model to adolescent IPV**

#### ***3.1 Proximal Process***

Proximal process was described as the mechanism through which human development takes place (Bronfenbrenner 2005; Bronfenbrenner and Ceci 1994). To initiate the mechanism and keep it going requires four dynamic energies and forces, namely form, power, content and direction, which are introduced in the one central proposition within the bioecological theory below:

The form, power, content, and direction of the proximal processes effecting development vary systematically as a joint function of the characteristics of the developing person; of the environment—both immediate and more remote—in which the processes are taking place; the nature of the developmental outcomes under consideration; and the social continuities and changes occurring over time through the life course and the historical period during which the person has lived (Bronfenbrenner 2005; Bronfenbrenner and Morris 2007).

Translating this proposition into an example of a school-based intervention preventing IPV, setting the proximal process in motion and promoting intervention efficacy involves the joint functioning of four-pronged sources: form, power, content, and direction. This study refers form as adolescent students formed conception of IPV-related behaviors. Students, especially those at risk i.e. have experienced unhealthy or abusive relationships or witnessed it at home or among peers, may be unwilling to participate in such an intervention and it can be difficult for them to internalize disorders and adjust problems (Edwards Sylaska, and Neal 2015; Graham-Bermann, Miller-Graff, Howell, Grogan-Kaylor & Development 2015). Therefore, it is necessary to develop a good knowledge of participating students’ IPV-related thoughts and feelings (Lundgren and Amin 2015) i.e., are there any students who had witnessed, experienced or perpetrated IPV? Also, it’s of critical importance to recognize that those

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following a faith or religious belief may be uncomfortable learning about this topic (Maguele, Tlou, Taylor, and Khuzwayo 2020). More consideration should be given to ethnic minorities to construct appropriate content for them (Dunn, Oths, and Nursing 2004; Sabri et al. 2018). Additionally, gender variances in perceiving IPV issues should be built into such an intervention to avoid stereotyping, prejudice and discrimination against gender (Hickman, Jaycox, and Aronoff 2004; O'Leary and Slep 2012; Whitaker, Haileyesus, Swahn, and Saltzman 2007). Moreover, special attention should be paid to male students, since they may be prone to seeing IPV issues from a perpetrator and developing a counter reaction of being such an intervention, resulting in high rate of dropouts (De Koker, Mathews, Zuch, Bastien, and Mason-Jones 2014; Edwards et al. 2015). In contrast, females could become too cautious and worried about encountering abusers in their future intimate relationships after being part of IPV-related intervention (Fox, Hale, and Gadd 2014; Stanley, Ellis, Farrelly, Hollinghurst, and Downe 2015).

Power refers to the importance attributed by relevant stakeholders to the development of a curriculum preventing IPV among adolescents. Teachers are more willing to devote time and effort undertaking an intervention if the school has an engaging and encouraging environment for IPV prevention (Whitaker, Murphy, Eckhardt, Hodges, and Cowart 2013). Also, teachers were deemed to be more familiar with students' learning capacities and interests, therefore possessing better knowledge of what intervention content would be required (Wilson et al., 2019). Support given by parents to schools to deliver the subject to their children, was seen as essential for the successful construction of interventions. Professionals' active involvement in relevant health and prevention services were purported to provide schools with sources, materials and experience (Stanley et al. 2015; Whitaker et al. 2013).

Content is understood in this study as the variability of students' learning capabilities and their prior knowledge of IPV. When developing an intervention, teachers should have a good understanding of what students have learned previously regarding IPV, and then plug any gaps to ensure a smooth transition from lower- to higher-level learning. Also, having a good understanding of students' applicable knowledge and suitable learning capabilities to take part in the intervention should be considered a contributor to the success of developing an intervention with efficacy (Stanley et al. 2015; Whitaker et al. 2013).

Direction is about the aims of having such an intervention i.e., change attitude, promote awareness, increase knowledge and mitigate incidences. A substantial number of studies reported supporting evidence for school-based programs do appear to enhance young people's cognitive skills in dealing with IPV issues (i.e., increased knowledge, promoted awareness, and altered attitudes) (Cornelius and Resseguie 2007; De Koker et al. 2014; Whitaker et al. 2013). Further, a number of programs reported less perpetration of physical violence, e.g Safe Dates and Fourth R. Also, Shifting Boundaries reported less IPV perpetration and victimization (De Koker et al. 2014). However, there is mixed evidence regarding the efficacy of transforming internal cognitive outcomes to external behavioral outcomes (Edwards et al. 2015; Lundgren and Amin 2015).

Furthermore, change within the process is not a one-off event but repeats throughout an individual's life. Finally, the effects of the proximal process, as the engine to stimulate IPV prevention, should be considered as a whole within the PPCT model, involving the biopsychological traits of a person, and interacting with the immediate or remote context over an extended time.

### **3.2 Person**

Individuals' bio-psychological characteristics were effective predictors of IPV tendency but were absent in many studies (Ehrensaft 2008). Bronfenbrenner sees the bio-psychological characteristics of individuals as significant factors in shaping the way they perceive and experience the environment. Three types of personal traits constructing an individual's life developmental trajectory were labeled, namely demands, resources and forces. Demand characteristics are personal stimuli recognizable from a physical appearance e.g., age, gender and appearance, based on which it is possible to promote or impede social interactions, due to an immediately formed expectation (Bronfenbrenner and Morris 1998; 2007). A number of studies have discussed age variable associations with IPV, as adolescents, are regarded as being at an alarmingly dangerous stage of life in terms of experiencing IPV but are also the most prospective fruitful targets for preventive programs (Cornelius and Resseguie 2007; Humphrey and White 2000; Ybarra and Thompson 2018). When it comes to gender, a vast majority of global studies overwhelmingly focus on female victimization and male perpetration (Decker et al. 2014; Humphrey and White 2000). However, in comparison, a review found out that females and males are equally capable of perpetrating IPV, and females are slightly more likely than males to resort to violence in an intimate relationship (Capaldi, Knoble, Shortt, and Kim 2012). Therefore, when developing an intervention preventing IPV among adolescents, it is of critical importance to avoid gender bias towards males, since both males and females could be the one to abuse or be abused (Hickman et al. 2004; Whitaker et al. 2007).

Different from demand characteristics, resource characteristics are not physically seen but are more relevant to mental and emotional resources that can affect an individual's entire life (Bronfenbrenner & Morris 2007; Tudge et al. 2009). As for IPV, a number of studies mentioned in the literature herein revealed that individuals who observed or suffered IPV-related abuse in childhood were highly associated with sequential risks of victimization and perpetration within adolescence (Cornelius & Resseguie 2007; Pittenger et al. 2016), and adulthood and observed a higher rate of re-experiencing IPV at between 20 and 39% (Pittenger et al. 2016). Therefore, protecting students from being re-victimized and re-perpetrators should be set up within a school's safeguarding or pastoral system, as well as within a supportive environment, to nurture students' sense of belongingness and connectedness and help them seek help or report issues if they are in or have experienced an IPV situation.

Force characteristics refer to individuals' dispositional variances in terms of motivation, persistence and temptation, which can be categorized into generative or disruptive manners. Individuals with generative force characteristics are more likely to initiate proximal processes when completing complex tasks, deferring immediate gratification and sustaining long-term goals (Bronfenbrenner and Morris 1998). On the contrary, individuals with disruptive force characteristics tend to fail in emotional and behavioral management. This theoretical hypothesis is consistent with relevant findings identified in literature (Espelage 2014; Spencer 2006), which suggest that individuals with personal traits and genetic potentials, such as hedonistic tendencies, aggressive or volatile personalities and depression or suicide susceptibilities accordingly have a significantly higher risk of engaging in deviant activities such as substance abuse and sexual behavior disorders, thereby leading to a higher possibility of IPV victimization and perpetration (Cleveland, Herrera, and Stuewig 2003; Jewkes 2002; Silverman et al. 2006). These necessitate an IPV-related intervention teaching adolescents safe and healthy relationship skills i.e social-emotion learning, self-regulation and conflict-management skills.

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The above three types of biopsychological characteristics are not static – they are inherent in the developing person and change biologically over time (Bronfenbrenner & Morris 1998). Biological changes alter the nature of the role the developing individual plays in the environment. These changes can be relatively passive, for example the environment may react differently to individuals, due to changing demands characteristics such as growing older, or they can be more active according to the developing individual's resource characteristics such as ability, experience, knowledge and skills, which are linked to their capability when actively engaging in the environment. Alternatively, they can be most active in such a way that their force characteristics set in motion the desire or drive to create new features that alter the surrounding environment (Bronfenbrenner & Morris 1998; 2007). Therefore, when applying the person as one of the defining properties of Bronfenbrenner's PPCT theory to facilitate well-being and mitigate the risk of IPV, it is of crucial importance to consider the nature of the developing individual's biopsychological features, e.g. demand, resource and force, together with their various changing patterns and interrelationships in shaping the environment.

### **3.3 Context**

Schools are important settings for interventions aimed at adolescence, but connections with broader avenues are needed (Whitaker et al. 2013). The context in Bronfenbrenner's early works has been widely applied to explore IPV risky factors from different levels of environment (Alaggia et al. 2012; Krug et al. 2002; Little & Kaufman Kantor 2002). The contextual model involves four interrelated systems, namely microsystems, mesosystems, exosystems and macrosystems (Bronfenbrenner 1979; Bronfenbrenner and Ceci 1994), each of which is now discussed in turn.

Microsystems represent the surroundings with which the developing individual immediately and directly interacts (Bronfenbrenner 1979; Bronfenbrenner and Ceci 1994). These are generally in face-to-face settings and are made up of individuals' personal and biological characteristics, relationships, roles and activities within the environment. As outlined previously, three types of bio-psychological features of the person shape the ways in which individuals communicate with or react to the observed environment and experience or perpetrate IPV in an intimate relationship. Further, microsystems involve persons, objects and symbols that can have a direct impact on shaping a developing individual's personal and biological characteristics, especially those with which individual has enduring and stable forms of interactions (Bronfenbrenner & Ceci 1994). For example, families, social groups and media approaches that adolescents constantly exposure to (Ehrensaft 2008; Lourenço, Fornari, Santos, and Fonseca 2019; Lundgren and Amin 2015).

Mesosystems contain links, relationships and activities within two or more microsystems, in which the developing individual interacts directly and participates actively (Bronfenbrenner 1979). Settings containing the developing individual in mesosystem are dynamic, they link together and transact with each other and individuals residing in them move from setting to setting (Bronfenbrenner 1979). Applying mesosystems-related theory to IPV research, studies stress that schools' engagement in fostering collaboration across microsystems to develop effective intervention (Ehrensaft 2008). Schools' involvement in IPV primary preventive programs can be developed in such a way as to not only mitigate the risk of IPV among students participating in the program, but also promote awareness within a network of settings surrounding them (Arriaga and Foshee 2004; Cornelius and Resseguie 2007). For example, research illustrates that assisting students to develop a positive and healthy

perspective on IPV situations can alter the way they see and deal with such issues occurring in their peer groups, families or neighborhoods (Espelage 2014; Pittenger et al. 2016). Additionally, students who have gained knowledge of IPV from school can have a positive impact on their own beliefs or attitudes regarding issues in their current or future intimate relationships (Little and Kaufman Kantor 2002). Hence, to prevent the potentially ingrained phenomenon of IPV in society, by delivering an intervention within school settings, can be considered a promising and fruitful endeavour.

Exosystems consist of interactions taking place between two or more systems, at least one with which the developing individual has no direct connection, for example a parent's relationship with a child's school, or a child's relationship with a parent's workplace (Bronfenbrenner 1979; Bronfenbrenner and Ceci 1994; Bronfenbrenner and Morris 1998). At this level, a number of studies note that the community environment can be linked to a higher level of IPV perpetration and hinder the process of recovery from victimization (Capaldi et al. 2012; Espelage 2014; Pittenger et al. 2016). As evidenced in studies, community poverty and rurality can lead to weak community cohesiveness and low willingness to interact with neighborhoods, which discourages bystander intervention and help-seeking attempts by individuals (Capaldi et al. 2012; Krug et al. 2002). Similarly, school communities located within an impoverished environment can also diminish how students feel connected to schools and lower their confidence to seek support from teachers or peers when suffering IPV (Arriaga and Foshee 2004; Capaldi et al. 2012; Post, Klevens, Maxwell, Shelley, and Ingram 2010).

Macrosystems present the cultural structures that permeate micro-, meso- and exosystems, with reference to the developing individual's beliefs, worldview and customs (Bronfenbrenner and Ceci 1994). At the macrosystems level, social norms related to gender inequality and stereotypes are considered deep-rooted risk factors for an individual learning about IPV behaviors (Heise 2011; Krug et al. 2002). Since social norms and beliefs are the shared expectations of a particular group of people regarding how individuals should behave, if a particular country promulgates ideological factors such as male honor, female obedience and tolerance of violence as a way to resolve conflicts, individuals from the group are more likely to suffer IPV (Krug et al. 2002). According to the WHO multi-country study (Heise, 2011), women who supported wife-beating accordingly increased the odds of IPV incident in 13 out of 15 countries. In addition, over 35 population-based studies from Asia, Africa, Latin America and the Middle East demonstrated that condoning IPV among both women and men is regarded as a strong predictive factor in preventing IPV perpetration. Moreover, A number of studies have adapted US dating violence preventive programmes to other national settings, such as the adoption of the Safe Dates project to the context of Francophone Switzerland (Hamby, Nix, De Puy, and Monnier 2012) and the delivery of Coaching Boys into Men to India (Miller et al. 2012). However, modifications should be considered when trying to fit a programme into another community or society, such as the usage of key terminologies, the cultural acceptability of violence and gender norms (Hamby et al. 2012; Meiksin et al. 2020; Stanley et al. 2015).

### **3.4 Time**

Time is an equally important structural component in the system since all the other elements change in terms of the passage of time, including the individual's development at each stage throughout life within the ecological environment (Bronfenbrenner 2005; Ehrensaft 2008). Although the early versions of Bronfenbrenner's model did not have time as an essential concept, he incorporated a specific reference to it in the notion of a "chronosystem" (Bronfenbrenner 2005; Bronfenbrenner and Morris 2007). As for time

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and change, IPV studies point to the potential of individuals who have experienced IPV in adolescence suffering adverse outcomes in later life such as post-traumatic disorders, lower self-esteem, substance abuse and academic failure (Cornelius and Resseguie 2007; Cui et al. 2013). Moreover, experiencing initial IPV perpetration or victimization at an early stage of life suggests that individuals will most likely endure IPV again in adulthood (Cui et al. 2013). IPV in adolescence is closely associated with the phenomenon in married relationships, which can lead to domestic violence such as parent-child aggression and child belligerence (Humphrey & White, 2000). Therefore, if IPV preventive work could be delivered to teenaged students who are in the early stages of an intimate relationship, it could be effective in reducing violent issues in current or future relationships. Another way time may get involved in IPV preventive research is that the length of intervention can be a key influential variable of efficacy. For example, it's argued that interventions carried out over a longer duration across more than one session with sufficient followed-up increased the effectiveness of the intervention (Edwards et al. 2015; Lundgren and Amin 2015; Whitaker et al. 2013). However, some reported that intervention effect can attenuate and vanish at longitudinal follow-up (De La Rue, Polanin, Espelage and Pigott 2014; Stanley et al. 2015).

### **4. Discussion**

Although Bronfenbrenner's theory has been in existence for half century, many studies in the field of IPV prevention have adapted ecological theory exclusively to contextual-based analysis and discounted the proximal process of an individual's development and person-context interrelatedness (Tudge et al. 2009). Instead of applying a partial version of the ecological model to explore IPV issues solely through a nested environmental context, the other three elements: the primary driving force of the human development-proximal process, the biopsychosocial characteristics of the person and changes over extended time, in Bronfenbrenner's PPCT model are considered herein. Additionally, and somewhat different from existing theoretical theories in IPV research, which have failed to integrate different perspectives from multiple stakeholders or address either context or proximal accounts within one model, Bronfenbrenner's PPCT model complies with the demand to blend the various views from multidisciplinary into one comprehensive framework. Since Bronfenbrenner's PPCT model has the potential to unify IPV propositions in the existing literature into one coherent theoretical framework to guide practical intervention, it is advocated and adopted by this research, in order to interpret and analyse IPV phenomena and generalize various aspects of an educational intervention addressing IPV issues.

#### ***4.1 Implications for School Health on Preventing IPV Issues***

Bronfenbrenner's PPCT theory argues that interactions between the individuals and their surrounding environment are not unidirectional but run in both directions. That is to say, in order to examine the intervention's effects on addressing IPV issues, factors from both sides should be considered. To do so, the four defining properties of the PPCT model should be fully applied to obtain a comprehensive understanding of IPV phenomenon and its prevention at schools, which are presented in table 1 below.



Table 1. Implications for intervention development

PPCT Model	Implications for intervention development
Process	<p>Considering four dynamic forces, including:</p> <p>Form: having a good knowledge of students' formed perceptions towards IPV-related acts</p> <p>Content: the variability of student's learning capabilities and the extent of their previously learnt IPV knowledge</p> <p>Power: the importance level attributed by stakeholders to develop such an intervention</p> <p>Direction: the aims of having such a curriculum</p>
Person	<p>Exploring three bio-psychological characteristics of the students, including:</p> <p>Demand: developing the curriculum content suitable to the specific age range of the group and considering gender issues sensitively</p> <p>Resource: students' IPV related experiences</p> <p>Force: students' motivations and persistency in learning</p>
Context	<p>Analyzing various factors from four levels of context, including</p> <p>Microsystems: families, peers and the other social groups that students have an enduring interaction with, and also media approaches i.e videos and dating platforms etc. that they constantly exposure to</p> <p>Mesosystems: schools' engagement in fostering collaboration across microsystems in IPV-related prevention development</p> <p>Exosystems: have a good knowledge of the community environment that the school located</p> <p>Macrosystems: the feasibility and practicability of adopting programs to another national context, considering factors i.e. language, beliefs, culture and gender norms</p>
Time	Thinking about the length of an intervention, the frequency of delivering it and the duration of follow-up

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### References

- Alaggia, R., Regehr, C., and Jenney, A. 2012. “Risky business: An ecological analysis of intimate partner violence disclosure.” *Research on Social Work Practice* 22(3): 301-312.
- Ali, P. A., and Naylor, P. B. 2013. “Intimate partner violence: A narrative review of the feminist, social and ecological explanations for its causation.” *Aggression Violent Behavior* 18(6): 611-619.
- Arriaga, X. B., and Foshee, V. A. 2004. “Adolescent dating violence: Do adolescents follow in their friends', or their parents', footsteps?” *Journal of Interpersonal Violence* 19(2): 162-184.
- Bell, K. M., and Naugle, A. E. 2008. “Intimate partner violence theoretical considerations: Moving towards a contextual framework.” *Clinical Psychology Review* 28(7): 1096-1107.
- Bronfenbrenner, U. 1979. *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Bronfenbrenner, U. 2005. *Making human beings human: Bioecological perspectives on human development*. Sage Publications.

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- Bronfenbrenner, U., and Ceci, S. J. 1994. "Nature-nuture reconceptualized in developmental perspective: A bioecological model." *Psychological Review* 101(4): 568.
- Bronfenbrenner, U., and Morris, P. A. 1998. The ecology of developmental processes.
- Bronfenbrenner, U., and Morris, P. A. 2007. "The bioecological model of human development." *Handbook of Child Psychology, Vol. 1*. <https://doi.org/10.1002/9780470147658.chpsy0114>.
- Burelomova, A. S., Gulina, M. A., and Tikhomandritskaya, O. A. 2018. "Intimate partner violence: An overview of the existing theories, conceptual frameworks, and definitions." *Psychology in Russia: State of the Art* 11(3): 128-144.
- Capaldi, D. M., Knoble, N. B., Shortt, J. W., and Kim, H. K. 2012. "A systematic review of risk factors for intimate partner violence." *Partner Abuse* 3(2): 231-280.
- Ceci, S. J. 2006. Urie Bronfenbrenner (1917-2005). *American Psychologist* 61(2): 173-174.
- Cleveland, H. H., Herrera, V. M., and Stuewig, J. 2003. "Abusive males and abused females in adolescent relationships: Risk factor similarity and dissimilarity and the role of relationship seriousness." *Journal of Family Violence* 18(6): 325-339.
- Cornelius, T. L., and Resseguie, N. 2007. "Primary and secondary prevention programs for dating violence: A review of the literature." *Aggression Violent Behavior* 12(3): 364-375.
- Cui, M., Ueno, K., Gordon, M., and Fincham, F. D. 2013. "The continuation of intimate partner violence from adolescence to young adulthood." *Journal of Marriage Family* 75(2): 300-313.
- De Koker, P., Mathews, C., Zuch, M., Bastien, S., and Mason-Jones, A. 2014. "A systematic review of interventions for preventing adolescent intimate partner violence." *J Adolesc Heal* [Internet]. Elsevier Ltd; 54(1): 3-13.
- De La Rue, L., Polanin, J. R., Espelage, D. L., and Pigott, T. D. 2014. "School-based interventions to reduce dating and sexual violence: A systematic review." *Campbell Systematic Reviews* 10(1): 1-110.
- Decker, M. R., Peitzmeier, S., Olumide, A., Acharya, R., Ojengbede, O., Covarrubias, L., . . . Brahmbhatt, H. 2014. "Prevalence and health impact of intimate partner violence and non-partner sexual violence among female adolescents aged 15-19 years in vulnerable urban environments: a multi-country study." *Journal of Adolescent Health* 55(6): S58-S67.
- Dunn, L. L., Oths, K. S. 2004. "Prenatal predictors of intimate partner abuse." *J Obstet Gynecol Neonatal Nurs* 33(1): 54-63.
- Edwards, K. M., Sylaska, K. M., and Neal, A. M. 2015. "Intimate partner violence among sexual minority populations: A critical review of the literature and agenda for future research." *Psychology of Violence* 5(2): 112-121.
- Ehrensaft, M. K. 2008. "Intimate partner violence: Persistence of myths and implications for intervention." *Children and Youth Services Review* 30(3): 276-286.
- Espelage, D. L. 2014. "Ecological theory: Preventing youth bullying, aggression, and victimization." *Theory into Practice* 53(4): 257-264.
- Fox, C. L., Hale, R., and Gadd, D. 2014. "Domestic abuse prevention education: listening to the views of young people." *Sex Education* 14(1): 28-41.
- García-Moreno, C., Pallitto, C., Devries, K., Stöckl, H., Watts, C., and Abrahams, N. 2013. Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. World Health Organization.
- Graham-Bermann, S. A., Miller-Graff, L. E., Howell, K. H., and Grogan-Kaylor, A. 2015. "An efficacy trial of an intervention program for children exposed to intimate partner violence." *Child Psychiatry and Human Development* 46(6): 928-939.
- Hamby, S., Nix, K., De Puy, J., and Monnier, S. 2012. "Adapting dating violence prevention to francophone Switzerland: a story of intra-western cultural differences." *Violence Victims* 27(1): 33-42.
- Heise, L. 2011. What works to prevent partner violence? An evidence overview. Retrieved from London:
- Hickman, L. J., Jaycox, L. H., and Aronoff, J. 2004. "Dating violence among adolescents: Prevalence, gender distribution, and prevention program effectiveness." *Trauma, Violence, Abuse* 5(2): 123-142.
- Humphrey, J. A., and White, J. W. 2000. "Women's vulnerability to sexual assault from adolescence to young adulthood." *Journal of Adolescent Health* 27(6): 419-424.
- Jaffe, P. G., Sudermann, M., Reitzel, D., and Killip, S. M. 1992. "An evaluation of a secondary school primary prevention program on violence in intimate relationships." *Violence Victims* 7(2):129-146.
- Jewkes, R. 2002. "Intimate partner violence: causes and prevention." *The Lancet* 359(9315): 1423-1429.
- Krajewski, S. S., Rybarik, M. F., Dosch, M. F., and Gilmore, G. D. 1996. "Results of a curriculum intervention with seventh graders regarding violence in relationships." *Journal of Family Violence* 11(2): 93-112.
- Krug, E. G., Mercy, J. A., Dahlberg, L. L., and Zwi, A. B. 2002. "The world report on violence and health." *The Lancet* 360(9339): 1083-1088.
- Lavoie, F., Vézina, L., Piché, C., and Boivin, M. 1995. "Evaluation of a prevention program for violence in teen dating relationships." *Journal of Interpersonal Violence* 10(4): 516-524.

- Lewis, S. F., and Fremouw, W. 2001. "Dating violence: A critical review of the literature." *Clinical Psychology Review* 21(1): 105-127.
- Little, L., & Kaufman Kantor, G. 2002. "Using ecological theory to understand intimate partner violence and child maltreatment." *Journal of Community Health Nursing* 19(3): 133-145.
- Lourenço, R. G., Fornari, L. F., Santos, DLAD, and Fonseca, RMGSD. 2019. "Community interventions related to intimate partner violence among adolescents: scope review." *Rev Bras Enferm* 72: 277-286.
- Lundgren, R., and Amin, A. J. 2015. "Addressing intimate partner violence and sexual violence among adolescents: emerging evidence of effectiveness." *Journal of Adolescent Health* 56(1): S42-S50.
- Maguele, M. S., Tlou, B., Taylor, M., and Khuzwayo, N. 2020. "Risk factors associated with high prevalence of intimate partner violence amongst school-going young women (aged 15–24years) in Maputo, Mozambique." *PLOS ONE* 15(12): e0243304.
- Manchikanti Gómez, A. (2011). "Testing the cycle of violence hypothesis: Child abuse and adolescent dating violence as predictors of intimate partner violence in young adulthood." *Youth society*, 43(1), 171-192.
- Meiksin, R., Campbell, R., Crichton, J., Morgan, G. S., Williams, P., Willmott, M., . . . Sweeting, H. (2020). "Implementing a whole-school relationships and sex education intervention to prevent dating and relationship violence: evidence from a pilot trial in English secondary schools." *Sex Education*, 20(6), 658-674.
- Miller, E., Tancredi, D. J., McCauley, H. L., Decker, M. R., Virata, M. C. D., Anderson, H. A., . . . Silverman, J. G. (2012). "Coaching boys into men": A cluster-randomized controlled trial of a dating violence prevention program." *Journal of adolescent health*, 51(5), 431-438.
- O'Leary, K. D., & Slep, A. M. S. (2012). "Prevention of partner violence by focusing on behaviors of both young males and females." *Prevention Science*, 13(4), 329-339.
- Pittenger, S. L., Huit, T. Z., & Hansen, D. J. (2016). "Applying ecological systems theory to sexual revictimization of youth: A review with implications for research and practice." *Aggression Violent Behavior*, 26, 35-45.
- Pokharel, B., Hegadoren, K., & Papathanassoglou, E. (2020). "Factors influencing silencing of women who experience intimate partner violence: An integrative review." *Aggression Violent Behavior*, 52, 101422.
- Post, L. A., Klevens, J., Maxwell, C. D., Shelley, G. A., & Ingram, E. J. J. o. I. V. (2010). "An examination of whether coordinated community responses affect intimate partner violence." 25(1), 75-93.
- Sabri, B., Nnawulezi, N., Njie-Carr, V. P., Messing, J., Ward-Lasher, A., Alvarez, C., . . . Problems, S. (2018). "Multilevel risk and protective factors for intimate partner violence among African, Asian, and Latina immigrant and refugee women: Perceptions of effective safety planning interventions." 10(4), 348-365.
- Shakoor, S., Theobald, D., & Farrington, D. P. (2022). "Intergenerational continuity of intimate partner violence perpetration: an investigation of possible mechanisms." *Journal of Interpersonal Violence*, 37(7-8), NP5208-NP5227.
- Silverman, J. G., Decker, M. R., Reed, E., Rothman, E. F., Hathaway, J. E., Raj, A., & Miller, E. (2006). "Social norms and beliefs regarding sexual risk and pregnancy involvement among adolescent males treated for dating violence perpetration." *Journal of Urban Health*, 83(4), 723-735.
- Spencer, M. B. (Ed.) (2006). *Phenomenology and ecological systems theory: Development of diverse groups*. US: John Wiley & Sons Inc.
- Stanley, N., Ellis, J., Farrelly, N., Hollinghurst, S., & Downe, S. (2015). "Preventing domestic abuse for children and young people: A review of school-based interventions." *Children and Youth Services Review*, 59, 120-131.
- Tudge, J. R., Mokrova, I., Hatfield, B. E., & Karnik, R. B. (2009). "Uses and misuses of Bronfenbrenner's bioecological theory of human development." *Journal of family theory review*, 1(4), 198-210. doi:<https://doi.org/10.1111/j.1756-2589.2009.00026.x>
- Whitaker, D. J., Haileyesus, T., Swahn, M., & Saltzman, L. S. (2007). "Differences in frequency of violence and reported injury between relationships with reciprocal and nonreciprocal intimate partner violence." *American journal of public health*, 97(5), 941-947.
- Whitaker, D. J., Murphy, C. M., Eckhardt, C. I., Hodges, A. E., & Cowart, M. J. P. a. (2013). "Effectiveness of primary prevention efforts for intimate partner violence." 4(2), 175-195.
- Wilson, K. L., Szucs, L. E., Shipley, M., Fehr, S. K., McNeill, E. B., & Wiley, D. C. (2019). "Identifying the inclusion of National Sexuality Education Standards utilizing a systematic analysis of teen dating violence prevention curriculum." *Journal of school health*, 89(2), 106-114.
- Ybarra, M. L., & Thompson, R. E. (2018). "Predicting the emergence of sexual violence in adolescence." *Prevention Science*, 19(4), 403-415.