Emotional Regulation and Display in Classroom Victims and Bullies:
Characteristic Expressions of Affect, Coping Styles and
Relevant Contextual Factors

by

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Abstract

Recent research suggests that child victims of bullying may lack skills in emotional regulation, a process which facilitates coping behaviours to lessen the stress of negative emotions arising from failure, loss or trauma (Cicchetti, Ackerman, & Izard, 1995). The present study examined the emotional regulation and emotional display patterns of victims of bullying during classroom bullying episodes, and analyzed how these patterns related to contextual characteristics of the episode. Children in grades one through six were filmed during unstructured free play in the winter and spring of three consecutive school years. The AFFEX system (Izard, Dougherty, & Hembree, 1989) was used to code the emotional displays of victims and bullies, and the behavioural coping responses chosen by victims were coded according to a key of thirteen coping styles adapted from Eisenberg, Fabes, Murphy, Maszk, Smith, and Karbon (1995). Results of the study indicated that the coping styles observed in victims of bullying can be grouped into two distinct clusters: 1) problem-solving strategies (active and passive) that are associated with the de-escalation and resolution of bullying episodes; and 2) reactive aggressive strategies that tend to perpetuate and escalate the bullying interaction. Victims most frequently chose reactive aggressive coping styles: in essence, they reflected behaviourally the aggression directed towards them by bullies. Victims showed a similar contagion effect in their emotional displays; showing expressions of interest, joy, anger, contempt, sadness, and surprise in a frequency distribution that strikingly replicated bullies’ emotional displays. Results are discussed in the context of how maladaptive emotional regulation processes may underpin victims’ use of coping strategies that are effective in the short-term, but act as risk factors for future victimization. A multi-systemic model of victimization is proposed as a means of integrating the results of the present study with the emotional regulation and victimization literature.
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EMOTIONAL REGULATION AND DISPLAY IN CLASSROOM VICTIMS AND BULLIES: CHARACTERISTIC EXPRESSIONS OF AFFECT, COPING STYLES AND RELEVANT CONTEXTUAL FACTORS

"Emotion dysregulation is a common dimension of most categories of psychopathology and a defining feature of many" (Cole, Michel, & O'Donnell, 1994, p. 77).

The purpose of the present study was to examine the emotional management skills of child victims during classroom bullying interactions. Using naturalistic observations of child victims, bullies, and their peers at play, the present study investigated: 1) the nature of victims' emotional regulation skills (as evidenced by the coping strategies they chose when bullied); 2) the emotional facial displays victims and bullies used during bullying episodes; and 3) the relationships between victims' coping choices and the subsequent course of their interactions with bullies. The present study represents an important extension of the victimization literature, as to date, no other research has explicitly examined the role of emotional management skills in the development and maintenance of victimization. However, the body of evidence that has been gathered on victims suggests that deficits in emotional skills are likely characteristic of victims (Olweus, 1994; Perry, Willard, & Perry, 1990), and that these deficits contribute to the risk of adolescent and adult psychological dysfunction in victims (Neary & Joseph, 1994). The results of the present study provide data towards a preliminary understanding of the influences of emotional regulation and display in the developmental trajectories of child victims, and thus, lend themselves to the suggestion of possible emotion-based intervention approaches for use with victims of bullying.

The Emotion System

Perhaps no other phenomenon is more representative of the human psychological experience than emotion. It is likely because emotions represent one of the fundamental means for differentiating the processes of the human psyche from those of other animals,
that the discipline of psychology has concerned itself with the study of emotions since the time of Hippocrates (Cicchetti, Ackerman, & Izard, 1995). Historically, researchers have viewed emotions as subjective, intrapsychic feeling states that existed independent of cognition and behavior. As unique internal processes, emotions were thought to terminate with the individual; consequently, emotions were not seen to have an effect on the determination of external events (Campos, Campos, & Barrett, 1989). More recently, the influences of systems theory, ethology, and developmental psychopathology have moved researchers to consider the multiple components and roles of emotion in both intrapersonal and interpersonal relationships (Campos et al., 1989). For instance, an individual's autonomic arousal level, subjective feeling state, and cognitions are all potential influences on that individual's expressive displays and behavioural choices in a particular social context. Similarly, the emotion-based displays and behaviours emitted by an individual function to communicate their reactions and intent to those with whom they interact. Thus, the conceptualization of emotion in the psychological literature has shifted towards recognizing emotion as a dynamic system with important connections to other psychological processes.

As a system, emotion functions to establish, maintain, or disrupt the relations between an individual and their internal and external environments, when these relationships are of significance to the individual (Campos et al., 1989). These functions are carried out by the interaction of the three principal components of the emotion system, which together, motivate and organize behaviour: neural processes, expressive display, and subjective emotion experiences (Cicchetti et al., 1995). The neural processes involved in the emotion system are primarily autonomic, somatic, and psychoneuroendocrine nervous functions; for example heart rate variability and cortisol excretion (Dodge, 1989). Expressive display refers to discrete facial expressions, non-verbal behaviour, and overt behavioural responses which signal to others an individual's emotional state. Examples of expressive displays would include smiling, weeping,
averting one’s gaze in shame, and aggression. *Subjective emotional experiences* are the personal affective states of the individual, which are typically conceptualized and referred to as “feelings” (e.g., anger, joy, sadness, surprise, distress, etc.).

Although the emotion system is tripartite, its components are not independent of one another. While each component makes a distinct contribution to the system, the relationships between emotion-based neural processes, display, and feelings are reciprocal causal (Cicchetti et al., 1995). Coordinating and integrating the components of the emotion system is the process of *emotional regulation*, which includes the modulation of emotional display and internal feeling states, and the guidance of contextually appropriate cognitive processes and behavioural responses. As Cole et al. (1994) note, the emotional regulation process subsumes both the regulated and regulatory functions integral to the efficacy of the broader emotion system. For instance, situational demands often necessitate that the expression of emotion be controlled (or, regulated) to foster social relationships. However, emotion is also often needed to organize other psychological functions towards the achievement of goals (a *regulatory* role); for example, consider the influence of sadness as a motivational force in the process of an individual seeking comfort. In short, the emotional regulation process provides individuals with the capacity to effectively manage their emotion-based expression and cope adaptively with evocative situations (Casey & Schlosser, 1994; Eisenberg, Fabes, Murphy, Maszk, Smith, & Karbon, 1995). The centrality of the emotional regulation process to adaptive psychological functioning must be underscored; in essence, emotional regulation functions to “facilitate task-oriented behaviour in the face of distracting events and conditions, and avoid or weaken the stress of negative emotions from failure, loss or trauma” (Cicchetti et al., 1995, p.8). Thus, the emotional regulation process provides a foundation for health in both intrapersonal and interpersonal psychological experiences.
Emotional Regulation and Psychopathology

The notion that the emotion system plays an essential role in individual psychological well-being enjoys widespread support in the developmental literature. Casey and Schlosser (1994) note that, “theoretical work linking psychopathology to emotional process, and clinical observation of expressive behaviour suggest that emotion has an important role in psychopathology” (p.60). From a clinical diagnostic perspective, the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (1994) lists affect-related symptoms among the diagnostic criteria for such wide-ranging disorders as disruptive behaviour, anxiety, affective, eating, substance abuse and personality disorders: autism; and schizophrenia; highlighting the importance of dysfunction in the emotion system to accepted definitions of psychopathology. Furthermore, many clinical psychological interventions are designed explicitly to address issues in emotion system function, and include treatment goals such as heightened emotional awareness, insight into historical patterns of emotional responding, appropriate emotional expression, and modification of problematic emotion-based behaviour (Cole et al., 1994).

Yet, while the functioning of the broader emotion system has an undeniably important influence on psychological health, it is the specific process of emotional regulation that appears to play the most central role in the development of psychopathology. This is, perhaps, not surprising, given that stressful life situations are unavoidable for humans; hence, the capacity to modulate, tolerate, and cope with experiences that produce negative affect represents a developmental task essential to adaptive functioning (Kopp, 1989). Furthermore, emotional regulation is a higher-order process that requires the coordination and integration of responses between and across the neural, expressive, and feeling domains. Activation in one domain serves to modulate activation in one or more other domains, either through the augmentation, suppression, or transformation of a behavioural response (Dodge, 1989). The very complexity inherent in the emotional regulation process makes it vulnerable to breakdown in inter-domain communication,
which in turn, threatens adaptive functioning. As Cole, Michel, and O'Donnell (1994)

note, "under certain conditions, patterns of emotion regulation jeopardize or impair
functioning, and such patterns may support or become symptoms of psychopathology"
(p.74).

Difficulties in emotional regulation primarily manifest themselves in two ways, each
of which is associated with particular types of psychopathology. In emotional
dysregulation, cognitive and emotional responses are maladaptive to the situation, and
emotions and emotion-related behaviour are directed towards inappropriate goals (Cicchetti
et al., 1995). For example, a young woman may view pictures of fashion models in
magazines as esthetic ideals, and thus, view her own appearance with shame and self-
criticism (maladaptive emotional and cognitive responses). Subsequently, the woman's
negative affect and self-regard motivates her to progressively restrict her food intake in
pursuit of thinness (emotion-related behaviour directed towards an inappropriate goal).
Over time, this woman's pattern of emotional dysregulation would support the
development of an eating disorder (psychopathological outcome). More generally,
internalizing disorders and patterns of behavioural over-control are often conceptualized as
problems of emotional dysregulation.

In contrast, during regulation failure, there is a breakdown in the coordination of
communications between the different elements of the emotions system, and the individual
fails to inhibit dysfunctional behaviour (Cicchetti et al., 1995). For instance, a child with a
low tolerance for frustration may become angered at having to wait to take a turn playing
with a desired toy. Finding his feeling state of anger overwhelming, the child becomes
progressively more aroused and smashes a chair at the wall. Effectively, the boy's feeling
state domain has overridden the potential modulating capacities of the expression and neural
domains, resulting in antisocial behaviour. Similar patterns of behavioural under-control,
which are often found in externalizing disorders, are frequently characterized as problems
of regulation failure.
Emotional Regulation and Children's Social Competence

Difficulties in emotional regulation can emerge at a very early stage of child development. For instance, the passive, withdrawn, and angry behaviour insecurely attached infants show towards their caregivers in the Strange Situation paradigm has been discussed as representing dysfunctional emotional regulation (Thompson, 1990). Yet, despite the apparent significance of the link between emotional regulation and psychopathology, very little is known about the process by which children acquire emotional regulation skills. While Kopp (1989) has developed an excellent descriptive model of normative emotional regulation development, this model requires empirical validation through longitudinal research. Similarly, there has been little examination of the developmental trajectories that link childhood differences in emotional regulation with psychological risk and adult psychopathology. Because differences in emotional regulation abilities appear to offer relative risk or resiliency towards mental health, process-oriented research geared towards the identification of pathogenic interactions between emotional regulation patterns and environmental inputs is likely to make important contributions towards our understanding of developmental psychopathology. Furthermore, greater insight into the relationship between childhood emotional, social, and psychological adjustment is essential to the development of early identification-based mental health models and treatment programs.

As noted previously, the acquisition of emotional regulation skills represents a significant developmental task in terms of general psychological health. However, an individual's ability to regulate his/her emotions also has serious ramifications for his/her social functioning. Emotional regulation provides the underpinnings for behavioural self-regulation, which is most often assessed by an individual's ability to fulfill social conventions and roles - including expectations regarding situationally appropriate emotional responses and expression (Kopp, 1989). For instance, facial expressions may signal the future course of another person's behaviour, as well as indirectly provide information
about the environment (Bugental, Cortez, & Blue, 1992). Consequently, successful social interaction demands that children acquire the ability to skillfully interpret the affective displays of others. Children also must understand what types of emotional display are appropriate to a situation, how their own displays may influence the interaction, and the relative advantages of various displays and emotion-based behaviours (Hubbard & Coie, 1994). In sum, effective peer interaction relies on the production and inhibition of socially acceptable emotion-based behaviour, the successful management of negative and positive affect, and the interpretation of others' affective states.

In infancy and early childhood, children often rely heavily upon their caregivers as external sources of emotional and behavioural regulation. Through modeling and reinforcement, caregivers actively modulate children's emotional experiences and expression. As children approach school age, however, they spend less time in the company of their caregivers, and interactions with peers assume greater developmental significance. Because childhood social interactions are often emotionally laden, children must develop more complex, autonomous emotional skills to be socially successful. By the time children reach school age, their success with peers depends heavily on their ability to produce regulated behaviour in the absence of direct monitoring (Kopp, 1989). As such, the internalization of functional emotional regulation processes becomes central to the development of social competence. Furthermore, as children's social competence grows, their initial successes foster feelings of mastery over their environment, and this sense of mastery provides them with the motivation for seeking out further social interactions in which to develop their skills. Numerous recent studies have examined the role of emotional regulation in the development of children's social competence and affirmed its importance (e.g., Casey & Schlosser, 1994; Eisenberg et al., 1995; Eisenberg et al., 1997; Izard, Schultz, & Ackerman, 1996). Clearly, the effective acquisition and demonstration of emotional display and regulation skills are critical to children's social development.
Emotional Regulation: The Victimization Linkage

Since emotional regulation and display facilitate adaptive responses to provocative stimuli, observations of children's displays and behaviour in negative, conflictual or stressful situations should provide insights into the role of emotional processes in childhood social and psychological functioning. One such childhood conflict situation is the bullying interaction. According to Olweus (1994), "A person is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other persons" (p.413). Olweus further specifies that the term "negative actions" refers to the intentional infliction (or attempted infliction) of physical, emotional, or relational harm - in essence, negative actions are aggressive behaviour. Implicit in the bullying interaction is the imbalance of power between the bully and victim; the victim should have some relative difficulty in defending him or herself against the attack. The bullying interaction is a particularly representative example of the childhood conflict situation, inasmuch as bullying is a widely prevalent, cross-cultural phenomenon.

Approximately 10% to 20% of children participating in studies on bullying report having been victimized; approximately 3% to 10% report being severely bullied on a regular basis, and these proportions appear to remain stable over time (Bentley & Li, 1995; Boulton & Smith, 1994; Olweus, 1994; Perry, Kusel, & Perry, 1988). Some gender differences have been found in children's experiences of victimization: girls are more frequently the victims of verbal and social aggression, whereas boys are more frequently the victims of threats (severe verbal aggression) and physical aggression (Olweus, 1994; Sharp, 1991).

Chronically victimized children are frequently described as being younger, smaller, and physically weaker than their peers, and it is hypothesized that their relatively small stature and less advanced emotional development make them attractive targets to the bully seeking social dominance (Bentley & Li, 1995; Olweus, 1994; Perry et al., 1988; Perry, Perry, & Kennedy, 1992).
However, while attributes such as small size and physical weakness appear to characterize many victims, victims are, in fact, a relatively heterogeneous group. Researchers have consistently identified two major sub-groups of victims, each of which possesses a distinct profile in terms of their behavioural dynamic with the bully prior to, and during, bullying interactions. The first major victim sub-group is the *passive victim* sub-group. Passive victims are often described as low-conflict victims, because they are rarely observed engaging in aggressive behaviour. Rather, the passive victim is generally withdrawn, avoidant of conflict, and ineffectual at using persuasion or other conflict management tactics to end the bullying interaction. Passive victims tend to capitulate to their bullies, thus rewarding their aggressors. Passive victims have also been found to be prone to crying easily, lacking in humour and broader prosocial skills, anxious, physically weak, and peer-rejected; and in the long-term, suffer from depression, loneliness, low self-esteem, and a lack of self-confidence (Neary & Joseph, 1994; Olweus, 1994; Patterson, Littman, & Bricker, 1967; Perry et al., 1988; Perry et al., 1990; Perry et al., 1992).

In contrast, the second major sub-group of victims is represented by the *provocative victim*. Provocative victims are also described as high-conflict or aggressive victims, as they actively antagonize bullies and other children, and will attempt to counter-attack when bullied. Indeed, a small percentage of provocative victims can be described as bully/victims - children who both initiate, and are the recipients of, aggression (Olweus, 1994). In general, however, the provocative victim is an ineffectual aggressor. Thus, while the provocative victim will try to resist the overtures of bullies, they are rarely successful at doing so, and ultimately tend to lose the conflict (Olweus, 1994; Perry et al., 1988; Perry et al., 1990; Perry et al., 1992). Provocative victims have been observed to be argumentative, disruptive, prone to respond to teasing with anger, and persistent in attempting to enter peer groups where they were unwelcome (Pierce, 1990, as cited in Perry et al., 1992). Not surprisingly, provocative victims are frequently rejected by their peers, and among peer-rejected children, provocative victims have been found to be the
most disliked (Perry et al., 1988; Pierce, 1990, as cited in Perry et al., 1992). Like their passive counterparts, provocative victims are at risk for depression and low self-esteem (Neary & Joseph, 1994; Olson, 1992). However, the additional difficulties that provocative victims have with intense peer rejection and aggressive behaviour have led some researchers to project that provocative victims are also at risk for delinquency, externalizing disorders, and even psychosis (Perry et al., 1988).

For the victim of childhood bullying, coping with the bullying interaction requires the demonstration of a number of discrete skills that represent important emotion-based developmental tasks: frustration tolerance, engaging others, recognizing danger, coping with fear and anxiety, and defense of self and property in a socially appropriate manner (Cole et al., 1994). In their classic work, Stress, Appraisal, and Coping, Lazarus and Folkman (1984) emphasize that the management of negative emotions is essential to the production of effective coping responses, and they distinguish between two main types of coping: emotion-focused and problem-focused. Emotion-focused coping responses are primarily directed towards helping the individual control their emotional reaction to a problem situation. Examples of emotion-focused coping styles include avoidance, minimizing, and distancing, which all serve to remove the individual from an emotionally overwhelming situation (Lazarus & Folkman, 1984). In contrast, problem-focused coping styles are directed towards managing or altering the problem causing the individual's emotional distress. Examples of problem-focused coping approaches include the generation and testing of alternative solutions and the solicitation of intervention and/or support from others (Lazarus & Folkman, 1984). Both emotion and problem-focused coping styles can have adaptive value, and the ability to integrate and flexibly move back and forth between these two coping styles is associated with both effective coping in the short-term, and overall mental health in the longer term (Lazarus & Folkman, 1984).

Thus, to cope effectively with a bullying interaction, victims must be able to integrate situational information from a variety of sources, manage their emotional state,
and coordinate the use of different coping styles. Executing an adaptive and emotionally regulated response to the bullying requires the victim to appraise the contextual features of the interaction and plan a sequence of actions that serves to both modify the situation and minimize its associated deleterious short and long-term effects (Dodge, 1989; Kopp, 1989). In short, an adaptive victim response serves to stop the bullying, minimize immediate damage to the victim (physical, material, psychological, social), and discourage the bully from future victimization attempts. Should the victim lack skills in either emotional regulation or display, the aggressiveness or overall stress of the episode may escalate, and consequently, a precedent may be set for repeated future victimization.

Findings reported in the bullying/victimization literature suggest that this type of dysfunctional dynamic may occur between bullies and their victims. With respect to passive victims, a number of studies appear to offer descriptive evidence that both the coping styles of passive victims (evidence of their emotional regulation) as well as their emotional displays serve to reinforce bullies and perpetuate the cycle of victimization. For instance, Patterson, Littman, and Bricker (1967) found that frequently attacked preschoolers reinforced bullies by crying, acquiescing and failing to fight back. Olweus (1994) reported that passive victims “signal to others that they are insecure and worthless individuals who will not retaliate if they are attacked or insulted . . . they are characterized by an anxious or submissive reaction pattern” (p.1179). He further noted that passive victims were typically anxious, quiet children, who reacted to attack by withdrawal and crying. Similarly, Schwartz (1993) found that low rates of assertive behaviours (e.g., persuasion, conversational initiatives) and high rates of non-assertive behaviours (e.g., submission to peer demands) during play interaction with peers were significantly predictive of the development of chronic victimization in early school-aged children. Lastly, Bugental, Cortez, and Blue (1992) found that withdrawn, anxious children showed deficiencies in cognitive processing subsequent to exposure to a fear-evoking stimulus. They hypothesized that once cues are present to support the activation of a social threat
schema, these children may show deficits in their ability to acquire new information that facilitates adaptation to the situation. In effect, the emotion-cognition interaction breaks down, producing a collapse of the inter-domain coordination functions of the emotional regulation process.

Similar evidence is available to suggest the presence of emotional regulation problems in the provocative victim. In a recent observational study of the development of peer rejection and victimization, Olson (1992) found that children who were at risk for victimization often initiated aggressive exchanges with peers or responded in an aversive manner to peer social overtures. Over time, the responses of these children led to their rejection by peers. As negative peer reputation and transactions became entrenched, peers began provoking aggressive reactions from the rejected children; thus creating aggressive (provocative) victims. Thus, the inability of provocative victims to demonstrate prosocial skills in the early stages of peer relationships, and their proactive use of aggression in peer interactions, served as both catalysts and maintenance factors for their ensuing victimization. In effect, provocative victims appear to have difficulty inhibiting antisocial behaviour and producing appropriate social exchanges even when their interactions do not involve conflict; and the lack of breadth and inflexibility in their social responses is highly suggestive of emotional regulation deficits (Cole et al., 1994). The exaggerated emotional displays of distress and frustration that have been observed among provocative victims also suggest that provocative victims may have difficulty emitting situationally functional emotional displays (Perry et al., 1992). Indeed, Perry, Willard, and Perry (1990) reported that bullies expected greater signs of suffering from aggressive victims, and that these expectations of suffering motivated bullies to attack.

Thus, victims appear to choose submissive and aggressive coping strategies and emotional displays that reinforce the expectations of bullies, rather than assertive behaviours that may be more adaptive inasmuch as they appear to be less associated with victimization (Schwartz, 1993). Indeed, Perry, Willard, and Perry (1990) reported that
aggressors expected greater tangible reward, greater victim suffering and less retaliation when attacking frequently victimized versus non-victimized children. Noting the stability of victimization over time, they suggested that "the developmental continuity in the reactions of victimized children may contribute to their being abused by aggressive peers" (p. 1321).

However, while the coping strategies and displays of both passive and provocative victims may contribute to their repeated victimization, provocative victims may be more situationally at risk. Because passive victims acquiesce to their bullies' demands, they would, presumably, spend less time engaged in conflict and/or aggression. In contrast, provocative victims appear to prolong and escalate bullying interactions (Perry et al., 1992), and as such, are perhaps more likely to be engaged in physically and psychologically damaging exchanges. At present, however, such hypotheses remain untested, and the relationship between different victim emotional regulation patterns and the outcomes of bullying interactions is unknown.

A similar gap exists in the literature regarding gender differences in the emotional regulation patterns of victims. Given that boys and girls frequently experience different types of victimization (Olweus, 1994; Sharp, 1991), they may also respond to bullying using different coping styles or emotional displays. Furthermore, Hatfield, Cacioppo, and Rapson (1994) suggest that females may be more adept at interpreting emotional displays than males, and this may also differentially influence the ways that males and females respond to bullying. However, while there may be important gender differences in the emotional management styles of victims of bullying, the overall dearth of literature regarding gender differences in victimization means that this issue has yet to be studied.

In summary, the observational evidence gathered on victims' behaviour during bullying interactions suggests that victims of bullying may lack skills in emotional regulation and display. Whether these deficits vary in relation to gender and the short-term courses and outcomes of bullying interactions remains untested. These deficits most
certainly have long-term consequences, however - even beyond repeated victimization. Withdrawn, anxious, and aggressive children who choose dysfunctional coping strategies are likely to be rejected by their peers (Eisenberg, Fabes, Carlo, & Karbon, 1992; Hubbard & Coie, 1994; Olson, 1992). Furthermore, victims of bullying are more likely than their non-victimized peers to suffer from depression and low self-esteem (Neary & Joseph, 1994; Olweus, 1994). Lazarus and Folkman (1984) also note that over time, rigidity in coping styles - such as the patterns described above that have been observed in victims - often leads to psychological dysfunction, such as depression. Such evidence supports the concept of an emotional regulation - social functioning - psychological functioning developmental pathway. Yet, to date, no literature specifically addresses the question of emotional regulation and display in victims of bullying. The present study addresses this gap by examining the emotional regulation and display patterns of victims of bullying, as well as the relationship of these patterns to gender and the situational characteristics of bullying episodes. As such, this research acts as an initial step towards the identification of emotion-related childhood developmental trajectories, and offers insights into potential emotion-based intervention strategies for victims of bullying.
Objectives

The primary goals of the proposed study are to examine the emotional regulation and display patterns in victims of bullying during classroom bullying episodes, and how these patterns relate to contextual characteristics of the episode. Specific objectives are as follows:

Objective One: Emotional Display

To examine and compare the nature of emotional displays emitted by child bullies and their victims during the course of observed naturalistic classroom bullying episodes.

1.1) Are particular types of emotional displays characteristic of victims of bullying?

1.2) Are particular types of emotional displays characteristic of bullies?

1.3) Is there a relationship between the emotional displays of victims and bullies?

1.4) Is there a relationship between the emotional displays of victims and the resolution of the bullying interaction?

Objective Two: Emotional Regulation

To observe and identify the nature of emotional regulation, as evidenced by behavioural coping styles, in child victims of bullying during the course of observed naturalistic classroom bullying episodes.

2.1) Are particular coping styles characteristic of victims of bullying?

2.2) Is there a relationship between the coping styles of victims and the resolution of the bullying interaction?

Objective Three: Gender Differences

To investigate gender differences in emotional regulation and display in victims of bullying.

3.1) Are there gender differences in the emotional displays of victims of bullying?
3.2) Are there gender differences in the coping styles of victims of bullying?

**Objective Four: Contextual Relationships**

To study the relationship between contextual variables in the observed classroom bullying episodes and the emotional displays and coping styles of victims of bullying.

4.1) Are specific emotional displays and / or coping styles associated with the duration of the bullying episode?

4.2) Are specific emotional displays and / or coping styles associated with the severity of aggression present in the bullying episode?

4.3) Are particular emotional displays and / or coping styles associated with the degree of escalation in the bullying episode?

4.4) Are certain emotional displays and / or coping styles associated with the nature of the resolution of the bullying episode?

4.5) How do other contextual variables (e.g., power differential between bully and victim, presence of peers, bully characteristics, etc.) vary with the emotional display and regulation of the victim?
Method

The present study was an extension of ongoing research evaluating the effectiveness of an anti-bullying program in two Toronto-area elementary schools. Over the course of the anti-bullying study, more than 240 hours of playground interaction and 120 hours of classroom interaction were videotaped. For the purposes of the original study, these videotapes were analyzed, and bullying episodes were identified. Each episode was coded according to contextual characteristics and global ratings measures. Appendix A contains a copy of the Contextual Coding Manual and the Global Ratings Questionnaire. The current study used these rich observational data to examine emotional display and regulation in the victims of classroom bullying episodes. Playground episodes were not included in the scope of the present study, as they provided insufficient data to code affective displays reliably. Furthermore, while the playground is most frequently the location of bullying interactions, many bullying interactions take place in the classroom, and the classroom data provided ample, valid observations of bully and victim dynamics.

Participants

Participants in the anti-bullying study were children in grades one through six at two Toronto-area elementary schools. Parents of subjects gave informed consent and children agreed to participate prior to the commencement of the study. Self, peer, and teacher nominations of bully/victim status were obtained for all children participating in the anti-bullying study. Measures were individually and classroom administered for children in the primary and junior grades, respectively. From the original sample, one hundred twenty children were selected as a videotaped sub-sample according to the following procedure.

Subject self-nominations were obtained via a Bully/Victim Questionnaire adapted from Olweus (1989), which shows moderate to strong (.40 to .70) correlations with peer and teacher reports of bullying and victimization (Olweus, 1994). Subject responses to “How often have you bullied since the beginning of the school year?” and “How often have
you bullied in the last five days?" were summed to determine self-nominations for bully status. Similarly, subject responses to "How often have you been bullied since the beginning of the school year?", How often have you been bullied in the last five days?". "How often does it happen that other kids won’t let join in what they’re doing?" and “How often do you spend recess alone?” were summed to measure victim status. Summed scores on both measures were then standardized within class and gender. Standard scores of 0.75 or higher (which maximized both sample size and discriminant validity of bully, victim and bully / victim status) were taken as self-nominations of bully, victim or bully / victim (both scores at 0.75 or greater) status. Delineation of the sample at scores 0.75 or greater identified children whose status scores were at the 67th percentile and above.

Peer nominations of bully / victim status were obtained using a class play format of the Modified Peer Nomination Inventory (MPNI) (Masten, Morison, & Pellegrini, 1985; Perry, Kusel, & Perry, 1988). The MPNI shows high internal reliability with reported alpha levels ranging from .81 to .96, as well as strong test-retest reliability and moderately strong correlations with other measures of bully / victim status (Masten, Morison, & Pellegrini, 1985; Perry, Kusel, & Perry, 1988). Subjects were asked to imagine that their class was putting on a play, and accordingly, nominate peers that they felt could best play a part, based upon specific behavioural descriptions. Seven aggression and seven victimization descriptions were provided, along with several distracter items. Summed scores on the aggression and victimization measures were standardized within class and gender. Standard scores of 0.75 or higher were taken as peer nominations of bully, victim or bully / victim (both scores at 0.75 or greater) status.

Teacher nominations were obtained through the use of a nomination form which asked teachers to identify which children in the class fit behavioural descriptions of bullies and victims. Children nominated in both categories were classified as bully / victims. Children who received at least two concurring nominations of bully, victim, or bully / victim status were selected for the videotaped sub-sample. In total, the videotaped
sub-sample was comprised of 60 female and 60 male subjects, with a mean age of 10.1 years and standard deviation of 1.7 years. As such, the sub-sample was comprised of children who were primarily in junior grades. The interactions of target children and (where relevant) others they interacted with, were coded for the purposes of this study.

**Measures**

*AFFEX System of Emotional Display*

The AFFEX system (Izard, Dougherty, & Hembree, 1989) was used to code the onset, duration, and types of emotional display of the victims and bullies in each bullying episode. The AFFEX system consists of ten types of emotional expressions, as well as combinations of any two or more types, including: interest, joy, surprise, sadness, anger, disgust, contempt, fear, shyness, and pain.

Coders using AFFEX are required to achieve a minimum of 80% agreement with master training code on four consecutive episodes prior to research application. Average coder reliability is 92% for the final training segment. The validity of AFFEX has been demonstrated through studies of intersystem reliability with the Facial Expression Scoring Manual (FESM) and the Maximally Discriminative Facial Movement Coding System (Max): objective, cross-culturally validated, anatomically-based systems for the coding of facial behaviour and affect expressions. AFFEX, FESM and Max are all based upon the same differential emotions theory and developmental research. Intersystem reliability between AFFEX, Max and FESM ranges from 74% to 88%, with a mean of 80% (Izard et al., 1989). A copy of the AFFEX Coding Manual is provided in Appendix B.

*Emotional Regulation Coping Style Codes*

As a process, emotional regulation facilitates an individual’s adaptive response to provocative stimuli. Thus, behavioural evidence of an individual’s emotional regulation processes can be observed in their chosen coping styles during negative situations. For the purposes of this study, the chosen behavioural coping responses of victims in each aggressive episode were coded according to a key adapted from Eisenberg et al. (1995)
which describes a range of different coping behaviours. These coping styles include: instrumental coping (constructive action, problem-solving); instrumental support (talks with others to find solution); instrumental intervention (asks others to help solve problem); emotional intervention (cries for help); emotional support (talks with others to elicit support); physical aggression; verbal aggression; venting (emotional outburst); cognitive restructuring (looks at the situation in a more positive way); avoidance; ignores / distraction; and denial.

Eisenberg et al. (1995) report scale reliability ranging from alpha=.66 to alpha=.88 or greater when calculated for three different rating groups across three time periods. Kliewer (1991) reports average Kappa values from .74 to 1.00 across six raters for a modified version of the same scale. The Emotional Regulation Coding Manual is provided in Appendix C.

*Contextual Relationships Codes*

A number of contextual and episodic variables relevant to the objectives of this study were coded by two coders to a level of 80% inter-rater reliability for the purposes of the original anti-bullying study. These variables include: episode duration, severity of aggression, state (classroom location of the episode), differential height, differential weight; etc. A complete list of the variables coded for each episode is provided in the Contextual Coding Manual and the Global Ratings Questionnaire in Appendix A.

*Procedure*

*Observation*

Observational data were collected over six time periods, in the winter and spring of three consecutive school years. Filming was performed by trained research assistants over the course of three weeks. Video cameras and microphone receivers were placed strategically in the classroom and on the playground to allow for maximum filming angle with minimal camera movement. Target children wore a waist pouch containing a wireless FM transmitter which picked up the speech of both the target child and those around him or
her. Each target child was filmed during unstructured free play for approximately 10 minutes of each observation period. In order to decrease the salience of the transmitter, all other children in the target child's classroom were asked to wear a placebo pouch which was outwardly identical to the transmitter pouch, but instead contained a wooden block. Children who wore the placebo pouches gave their consent to the procedure. Approximately 3% of the children refused to wear the placebo pouches during the data collection periods.

Coding

Coders for this study were two female students in psychology; one graduate and one undergraduate. Coders trained together until they reached 80% agreement, and then coded independently. Decision rules regarding the coding were developed during the training period, documented, and followed rigorously. In situations of discrepant ratings, the coders discussed the rating until they reached a mutually agreed upon final decision. Issues specific to each type of coding are noted below.

AFFEX System of Emotional Display.

The onset and offset of all discrete facial expressions displayed by the bully and the victim were coded throughout the duration of each episode. Of the total aggressive classroom episodes, 148 were deemed suitable for AFFEX coding, and 20% of these episodes were randomly chosen and double-coded by independent coders. In many cases, however, either the victim or bully was obscured during segments of the taped episodes (e.g., the victim would be in view but the bully would have his/her back to the camera). Thus, while observers were able to reliably code the discrete AFFEX expressions of the individual victims and/or bullies in their respective sequences, they were unable to reliably ascertain the full sequential dynamic interplay of AFFEX exchanges between bullies and victims. As such, observers were unable to determine the degree to which each AFFEX display appeared to influence the subsequent interactions of the bully and victim during the episode. Thus, it was not possible for the observers to reliably code the escalation and
resolution effects of each AFFEX display. Inter-rater reliability for the AFFEX system is calculated using the AFFEX standard method, which takes into account both the types of AFFEX displays coded as well as their duration. The AFFEX standard method is described in the AFFEX Coding Manual in Appendix B. Inter-rater reliabilities for the AFFEX displays of bullies and victims ranged from .71 to 1.00. Inter-rater reliability figures for the AFFEX displays are presented in Table 1.

*Emotional Regulation Coping Styles.*

During the course of coding, observers felt that it was necessary to add a thirteenth code, "acquiescence / compliance," to the coping style coding key. In numerous circumstances, victims appeared to simply comply with the demands made of them by the bully, and this style of coping behaviour did not appear to be adequately described within the original coping coding scheme. As such, the category was added, and all previously coded episodes were screened and recoded, where appropriate.

For each coping style observed, coders used 5-point scales to rate the degree to which the coping style appeared to: 1) escalate/de-escalate; and 2) perpetuate/resolve the episode. Escalation and resolution coding definitions and scales are presented in the Emotional Regulation Coding Manual in Appendix C.

For the purposes of this study, 308 of the total aggressive classroom episodes were deemed suitable for coping style coding (to note, these included those 148 that were AFFEX coded), and 20% of these episodes were randomly chosen and double-coded by independent coders. To improve the reliability of escalation and resolution ratings, all initial 5-point ratings were collapsed to ratings on a 3-point scale. Thus, ratings of '1' and '2' were recoded as '1'; ratings of '3' were recoded as '2'; and ratings of '4' and '5' were coded as '3'. Inter-rater reliability for coping styles and coping style effect on escalation and resolution ranged from .71 to 1.00 using percent agreement, and .68 to 1.00 using Cohen's Kappa. Inter-rater reliability figures for coping styles, coping style effect on escalation and coping style effect on resolution are presented in Table 2.
Table 1

*Inter-rater Reliabilities for AFFEX Emotional Display Types*

<table>
<thead>
<tr>
<th>AFFEX Display Type</th>
<th>Reliability Using AFFEX Standard Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>.86</td>
</tr>
<tr>
<td>Joy</td>
<td>.94</td>
</tr>
<tr>
<td>Surprise</td>
<td>.71</td>
</tr>
<tr>
<td>Sadness</td>
<td>.75</td>
</tr>
<tr>
<td>Anger</td>
<td>.88</td>
</tr>
<tr>
<td>Contempt</td>
<td>.86</td>
</tr>
<tr>
<td>Shame</td>
<td>1.00</td>
</tr>
<tr>
<td>Distress</td>
<td>1.00</td>
</tr>
<tr>
<td>Sadness/Anger</td>
<td>1.00</td>
</tr>
<tr>
<td>Surprise/Interest</td>
<td>1.00</td>
</tr>
<tr>
<td>Surprise/Anger</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note.* The Fear, Disgust, Anger/Joy, Surprise/Joy, Shame/Joy, Anger/Interest, Interest/Anger, and Interest/Joy AFFEX types were not included in reliability estimates as they were not observed in the double-coded sample of episodes.
Table 2
Percent Agreement and Cohen's Kappa by Coping Style

<table>
<thead>
<tr>
<th>Coping Style</th>
<th>Percent Agreement</th>
<th>Cohen's Kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalation Effect</td>
<td>0.82</td>
<td>0.68</td>
</tr>
<tr>
<td>Resolution Effect</td>
<td>0.83</td>
<td>0.72</td>
</tr>
<tr>
<td>Global Coping Style</td>
<td>0.95</td>
<td>0.94</td>
</tr>
<tr>
<td>Instrumental Coping</td>
<td>0.91</td>
<td>0.90</td>
</tr>
<tr>
<td>Instrumental Intervention</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Emotional Intervention</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Physical Aggression</td>
<td>0.95</td>
<td>0.95</td>
</tr>
<tr>
<td>Verbal Aggression</td>
<td>0.97</td>
<td>0.97</td>
</tr>
<tr>
<td>Venting</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Cognitive Restructuring</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Avoidance</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Ignores/Disfraction</td>
<td>0.96</td>
<td>0.96</td>
</tr>
<tr>
<td>Denial</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>Acquiescence/Compliance</td>
<td>0.90</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Note. The Instrumental Support and Emotional Support coping styles were not included in reliability estimates as they were not observed in the double-coded sample of episodes.
Contextual Relationships.

As noted previously, coding of the contextual variables and global ratings measures for each bullying episode was performed by two coders according to the definitions and procedures provided in Appendix A. Inter-rater reliability for the contextual variables and global ratings measures ranged from .84 to 1.00 using percent agreement. Inter-rater reliability figures for the contextual variables used in this study are presented in Table 3.

Table 3
Percent Agreement and Cohen's Kappa by Contextually Coded Variables

<table>
<thead>
<tr>
<th>Contextual Variable</th>
<th>Percent Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>1.00</td>
</tr>
<tr>
<td>State</td>
<td>1.00</td>
</tr>
<tr>
<td>Severity</td>
<td>.95</td>
</tr>
<tr>
<td>Height Differential</td>
<td>.94</td>
</tr>
<tr>
<td>Weight Differential</td>
<td>.95</td>
</tr>
<tr>
<td>Bully: Combination Aggression</td>
<td>.95</td>
</tr>
<tr>
<td>Bully: Direct Aggression</td>
<td>.92</td>
</tr>
<tr>
<td>Bully: Physical Aggression</td>
<td>.96</td>
</tr>
<tr>
<td>Bully: Proactive Aggression</td>
<td>.92</td>
</tr>
<tr>
<td>Bully: Reactive Aggression</td>
<td>.95</td>
</tr>
<tr>
<td>Bully: Social Aggression</td>
<td>.96</td>
</tr>
<tr>
<td>Bully: Verbal Aggression</td>
<td>.96</td>
</tr>
<tr>
<td>Peer Reinforcement</td>
<td>.84</td>
</tr>
</tbody>
</table>
Results

The results presented below are divided into four sections which reflect the four main objectives of the study. Where tests of statistical significance were conducted, two-tailed tests at alpha=.05 were used.

Emotional Display

In total, 148 episodes were coded for AFFEX display. The number of AFFEX changes observed per episode ranged from 1 to 26 among victims, and from 1 to 36 among bullies. Both bullies and victims displayed a mean of 5 AFFEX changes per episode, with standard deviations of 0.38 and 0.32, respectively. The bullies and victims observed in the classroom aggression episodes demonstrated the full range of emotional displays.

During aggressive interactions, a select few types of emotional displays appeared to be highly characteristic of both victims and bullies. Figure 1 presents the frequencies for each emotional display type observed among victims. The emotional displays of interest, joy, and anger comprised the most frequently observed group, accounting for 67.3% of all victim emotional displays during classroom bullying episodes. The emotional displays of surprise, sadness, contempt, and distress comprise the next most frequently observed group, accounting for 27% of victims' emotional displays during classroom bullying interactions. The remaining eight display types accounted for only 5.7% of the observed victim emotional displays during bullying episodes.

The concentration of displays among a few select categories was even more pronounced for bullies. Figure 2 presents the frequencies for each emotional display type observed among bullies. The emotional displays of interest, joy, and anger were by far the most characteristic of bullies, comprising 89.6% of their observed displays. Of the remaining eleven displays, only contempt and surprise (which accounted for 4.0% and 1.6% of bullies' displays, respectively) were observed with greater than 1% frequency.
Figure 1. Observed Frequency of Victim AFFEX Displays
Figure 2. Observed Frequency of Bully AFFEX Displays.
The frequency patterns observed in the emotional displays of bullies and victims show strong parallels to one another. The emotional displays of interest, joy, anger, contempt, surprise, and sadness are among the six most frequent emotional displays of both bullies and victims. To determine whether there were significant differences in the relative proportions of observed emotional displays of bullies and victims, Z-tests of proportion were performed for each of these top six AFFEX displays (cell n’s were insufficient to test the other AFFEX displays). Results of the analyses indicate that bullies showed a significantly greater proportion of joy ($Z = 2.59, p < .01$) and anger ($Z = 1.68, p < .05$) in their emotional displays than victims did. Victims, however, showed a significantly greater proportion of surprise ($Z = 3.42, p < .001$) and sadness ($Z = 4.09, p < .0001$) in their emotional displays than did bullies. Differences in the proportions of interest and contempt displays used by bullies versus victims were not statistically significant.

**Emotional Regulation**

In total, 308 episodes were coded for emotional regulation coping styles. The number of coping styles observed per episode ranged from 1 to 26, with a mean of 2 coping styles per episode and standard deviation of 2.83. With the exception of Instrumental Support, which was never observed, victims of classroom aggression demonstrated the full range of coping responses. However, based upon the frequencies calculated for each coping style, some appear to be more characteristic of victims’ responses than others.

Figure 3 presents the total and percentage observed frequencies for each coping style. The styles of ignores/distraction, verbal aggression and physical aggression comprise the most frequently observed group of coping styles, accounting for 66% of the total number of coping responses observed. The group of acquiescence/compliance, instrumental coping and avoidance comprise the second most frequently observed group, accounting for 27% of the observed coping styles. The remaining seven coping styles of
venting, denial, emotional intervention, instrumental intervention, emotional support, and cognitive restructuring accounted for only 7% of the observed coping styles.

*Figure 3.* Observed Frequency of Victim Coping Styles
**Gender Differences**

To note, although the age range of the sample was somewhat broad, cell n’s for the following analyses were insufficient to allow for the statistical analysis of age as a covariate in the gender tests performed.

A series of analyses of variance (ANOVA) was performed to examine whether there were significant gender differences in the average duration of time spent in each coping style. No statistically significant differences were found.

Similarly, a series of ANOVA was conducted to determine whether there were significant gender differences in the average time spent in each type of AFFEX emotional display. No statistically significant gender differences were found in either the bully or victim groups.

However, when considering bully-victim interactions, gender must not only be considered as a single, static dimension, but also as a variable that may manifest itself in the dynamic between bully and victim; i.e., in the gender composition of the bully-victim dyad.

Thus, to investigate whether there were statistically significant differences in the average time spent in each coping style by victims engaged in different dyad compositions (bully-boy, victim-boy; bully-boy, victim-girl; bully-girl, victim-girl; bully-girl, victim-boy) a series of ANOVA was performed. No significant differences were found. Two subsequent series of ANOVA was conducted to determine whether there were significant differences in the average time spent in each AFFEX display for 1) victims, and 2) bullies, engaged in the four different dyadic compositions. Again, no statistically significant differences were found.

**Contextual Factors**

**Escalation and Resolution.**

Because the effect of AFFEX displays on contextual factors such as episode escalation and resolution could not be coded reliably, the last series of analyses performed
focused on an examination of the relationships between coping styles and such contextual variables.

Tables 4 and 5 present the distributions of escalation and resolution ratings across coping styles. At a descriptive level, a relationship between different groups of coping styles and the escalation and resolution of aggressive episodes seems apparent.

Table 4
*Observed Effects of Coping Styles on Episode Escalation*

<table>
<thead>
<tr>
<th>Coping Style</th>
<th>De-escalates % (n)</th>
<th>No Effect % (n)</th>
<th>Escalates % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquiesces</td>
<td>88.4 (76)</td>
<td>10.5 (9)</td>
<td>1.2 (1)</td>
</tr>
<tr>
<td><em>Instrumental</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>75.0 (3)</td>
<td>25.0 (1)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>Avoidance</td>
<td>74.1 (40)</td>
<td>25.9 (14)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>Ignores</td>
<td>63.2 (117)</td>
<td>35.1 (65)</td>
<td>1.6 (3)</td>
</tr>
<tr>
<td><em>Instrumental</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping</td>
<td>50.8 (31)</td>
<td>41.0 (25)</td>
<td>8.2 (5)</td>
</tr>
<tr>
<td>Denial</td>
<td>50.0 (10)</td>
<td>50.0 (10)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td><em>Emotional</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td>50.0 (2)</td>
<td>50.0 (2)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>Cognitive Restructuring</td>
<td>50.0 (1)</td>
<td>50.0 (1)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td><em>Emotional</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>40.0 (2)</td>
<td>60.0 (3)</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>Physical Aggression</td>
<td>37.5 (45)</td>
<td>26.7 (32)</td>
<td>35.8 (43)</td>
</tr>
<tr>
<td>Verbal Aggression</td>
<td>36.4 (67)</td>
<td>56.0 (103)</td>
<td>7.6 (14)</td>
</tr>
<tr>
<td>Venting</td>
<td>35.0 (7)</td>
<td>65.0 (13)</td>
<td>0.0 (0)</td>
</tr>
</tbody>
</table>
Table 5

*Observed Effects of Coping Styles on Episode Resolution*

<table>
<thead>
<tr>
<th>Coping Style</th>
<th>Perpetuates % (n)</th>
<th>No Effect % (n)</th>
<th>Resolves % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Aggression</td>
<td>50.0 (92)</td>
<td>9.2 (17)</td>
<td>40.8 (75)</td>
</tr>
<tr>
<td>Cognitive Restructuring</td>
<td>50.0 (1)</td>
<td>0.0 (0)</td>
<td>50.0 (1)</td>
</tr>
<tr>
<td>Physical Aggression</td>
<td>47.5 (57)</td>
<td>13.3 (16)</td>
<td>39.2 (47)</td>
</tr>
<tr>
<td>Denial</td>
<td>40.0 (8)</td>
<td>10.0 (2)</td>
<td>50.0 (10)</td>
</tr>
<tr>
<td>Emotional Intervention</td>
<td>40.0 (2)</td>
<td>0.0 (0)</td>
<td>60.0 (3)</td>
</tr>
<tr>
<td>Instrumental Coping</td>
<td>31.1 (19)</td>
<td>8.2 (5)</td>
<td>60.7 (37)</td>
</tr>
<tr>
<td>Ignores</td>
<td>26.5 (49)</td>
<td>8.1 (15)</td>
<td>65.4 (12)</td>
</tr>
<tr>
<td>Emotional Support</td>
<td>25.0 (1)</td>
<td>25.0 (1)</td>
<td>50.0 (2)</td>
</tr>
<tr>
<td>Venting</td>
<td>25.0 (5)</td>
<td>35.0 (7)</td>
<td>40.0 (8)</td>
</tr>
<tr>
<td>Instrumental Intervention</td>
<td>25.0 (1)</td>
<td>0.0 (0)</td>
<td>75.0 (3)</td>
</tr>
<tr>
<td>Avoidance</td>
<td>20.4 (11)</td>
<td>11.1 (6)</td>
<td>68.5 (37)</td>
</tr>
<tr>
<td>Acquiesces</td>
<td>11.6 (10)</td>
<td>4.7 (4)</td>
<td>83.7 (72)</td>
</tr>
</tbody>
</table>
Unemotional, problem-solving strategies — both active (instrumental coping) and passive (acquiesces, avoidance, ignores) — appear to be associated with the de-escalation and resolution of bullying episodes. In contrast, aggressive (physical and verbal aggression) and emotional (venting) coping styles appear to perpetuate and rarely de-escalate episodes. The coping style of denial appears equally likely to de-escalate and resolve bullying as not. The remaining coping styles were not observed frequently enough to reliably ascertain whether they were associated with distinct escalation and resolution trends.

To test whether the above two classifications of coping styles (de-escalate/resolve versus perpetuate/escalate) represented valid, statistically distinct groups, a cluster analysis was performed using the escalation and resolution data gathered for each coping style. Cluster analysis is a statistical classification technique that allows researchers to identify relatively homogeneous groups of cases or variables based upon selected characteristics (SPSS, Inc., 1994). In the present study, the goal of the cluster analysis was to identify homogeneous groups of coping styles based upon their observed effects on episode escalation and resolution. To determine group composition, cluster analysis uses an algorithm that begins with each case in a separate cluster, and then combines these clusters in successive iterations until the number of clusters in the model optimally discriminates among groups on the basis of the characteristics of interest.

Results of the cluster analysis performed for the present study indicated that the patterns observed in the escalation and resolution data gathered for each coping style could best be accounted for by two clusters. The first cluster was centered on an escalation rating of 1 (de-escalates) and a resolution rating of 3 (resolves). The second cluster was centered on an escalation rating of 2 (no escalation effect) and a resolution rating of 1 (perpetuates).

To determine the cluster classifications of each coping style, the distance from the center of each cluster was calculated for each coping style observation. Each observation was then assigned to the most proximal cluster. The frequencies of cluster 1 versus cluster
2 assignments were calculated across all observations for a coping style, and the coping style was then assigned to the cluster that the majority (approximately 60% or greater) of its observations were closest to. Cluster 1 was comprised of the coping styles of ignores, acquiescence, avoidance, and instrumental coping. Cluster 2 was comprised of the coping styles physical aggression, verbal aggression, and venting. The coping style of denial loaded equally onto both clusters, and as such, could not be classified. The coping styles of emotional intervention, instrumental intervention, emotional support, and cognitive restructuring were not included in the analysis due to insufficient sample sizes.

The results of the cluster analysis validate the presence of two distinct groups among the coping styles used by victims in the present study. Cluster 1 coping styles represent active and passive problem-solving approaches that tend to de-escalate the severity of the aggression involved in a bullying interaction and move the interaction towards resolution. In contrast, Cluster 2 coping styles represent aggressive, emotion-based strategies that are unlikely to have an effect on the severity of the episode, but serve to perpetuate the bullying interaction.

In order to further investigate the relationship between coping styles and the escalation and resolution of bullying episodes, two loglinear analyses were performed. Loglinear analysis is a non-parametric statistical technique that is used to examine the patterns of associations between categorical variables. The advantage of using loglinear analysis over numerous two-way Chi-Square analyses is that loglinear analysis allows for the measurement of main and interaction effects in higher-order contingency tables with multiple, multi-level categorical variables, much like an ANOVA. However, where ANOVA procedures are based upon models of population means expressed in linear terms, loglinear techniques are based upon models of frequency distributions. In loglinear analysis, the variable to be predicted is a count, which is expressed using an exponential equation. By taking the natural logarithm (ln) of this exponential equation, the count can then be expressed as a linear combination of factors and covariates (SPSS, Inc., 1994).
Thus, the loglinear procedure not only allows a researcher to test hypotheses based upon categorical data, but also to produce parameter estimates -- measures that allow for the comparison of probabilities between two groups (Stevens, 1996).

Generally, the central issue in a loglinear analysis is the selection of an appropriate model. Loglinear models are described as either saturated or unsaturated. In the saturated loglinear model, all possible main and interaction effects are included; so that the goodness of fit of the model, measured by the likelihood statistic $G^2$, is 1 (perfect). In the unsaturated loglinear model, only selected main and/or interaction effects are included, and the goodness of fit of the model is assessed relative to the saturated model. Should the difference in goodness of fit between the saturated and unsaturated models be statistically non-significant, the unsaturated model is considered both reliable and preferable, as it eliminates redundant terms (SPSS, Inc., 1994).

Once the optimal model has been chosen, effects can be identified and parameter estimates can be calculated for all levels of the variables included in the model. Parameter estimates are based upon the concept of the log-odds ratio between two groups. The odds that a given event will occur are derived from the ratio of the probability that it will occur to the probability it will not. When two variables are independent, the odds ratio equals 1, and its natural logarithm -- or the log-odds ratio -- equals 0. Therefore, if the parameter estimate for a group of interest is set to 0, that group can be used as a reference point for comparisons with other groups (SPSS, Inc., 1994). By comparing the difference between the log of the expected frequencies of the two groups we can determine the log-odds ratio. Calculation of the exponent of the log-odds ratio yields the odds ratio: the odds that a given event will occur for a group of interest relative to the comparison group. Using the ratio of the parameter estimate to its standard error, the confidence intervals of the odds ratio can be determined. If the confidence intervals do not include the value of 1, the null hypothesis that the two probabilities are equal can be rejected.
It is because parameter estimates offer the capacity to measure the relative probabilities of effects for categorical variables that loglinear analyses were used in the present study. In particular, the relative likelihood that different groups of coping styles would produce particular escalation and resolution effects was of interest. In the first loglinear analysis, coping cluster group (1 versus 2) was the explanatory (independent) variable and escalation was the response (dependent) variable. Because the primary effect of interest was the interaction between coping clusters and escalation effects, the saturated model was the only model that could be fit to the data. Thus, goodness of fit was perfect: $G^2=0$, $p=1$. Results of the analysis indicated that two odds ratios were significant. The odds that Cluster 1 coping styles would de-escalate an episode were 13.39 times greater than the odds that Cluster 2 coping styles would produce episode de-escalation, within a 95% confidence interval of 6.55 to 27.38. Similarly, the odds that Cluster 1 coping styles would have no escalation effect on an episode were 4.63 times greater than the odds that Cluster 2 coping styles would have no escalation effect, and this odds ratio value would be expected to fall within a confidence interval of 2.23 to 9.58 in 95 cases out of 100. Thus, Cluster 1 coping strategies appear significantly more effective at de-escalating bullying interactions than do Cluster 2 coping styles.

In the second loglinear analysis, coping cluster group was the explanatory variable and resolution was the response variable. Again, because the effect of interest was the interaction between coping clusters and resolution effects, the saturated model was the only model that could be fit to the data. Thus, goodness of fit was perfect: $G^2=0$, $p=1$. As in the case of escalation, results of the analysis indicated that two odds ratios were significant. Cluster 1 coping styles were 0.28 times less likely to perpetuate episodes than Cluster 2 coping styles were, within a 95% confidence interval of 0.20 to 0.39. Similarly, Cluster 1 coping styles were 0.37 times less likely to have no effect towards resolution than were Cluster 2 coping styles, and this odds ratio value would be expected to fall within a confidence interval of 0.22 to 0.61 in 95 cases out of 100. Overall, Cluster 1 coping styles
appear more effective than Cluster 2 coping strategies at moving bullying interactions towards resolution, or at the very least, preventing their perpetuation.

Other Contextual Variables.

The results of the above loglinear analyses suggest a strong association between coping style clusters and the contextual variables of episode escalation and resolution. To determine whether differences in the coping styles used by victims appeared related to other contextual variables, a series of multivariate analyses of variance (MANOVA’s) were performed. The aim of these analyses was to explore whether there were significant differences in the contextual characteristics of episodes involving victims who coped using the more effective Cluster 1 strategies, versus those involving victims who used the maladaptive Cluster 2 coping styles. Composite scores of the duration spent in Cluster 1 versus Cluster 2 coping strategies were calculated for each victim, and victims were assigned to cluster groups based upon the composite score that represented 55% or greater of the total duration spent in all coping styles. The 55% cutoff for cluster assignment was chosen as it both maximally discriminated between the two cluster groups, as well as maximized sample size. Victims who spent reasonably equivalent time (46% to 54% of their total coping duration) in both sets of coping styles were eliminated from the analyses. In total, 82 victims were assigned to Cluster 1, and 42 victims were assigned to Cluster 2.

Using coping style cluster as the independent variable, five MANOVA’s were run:

1. An analysis examining the global characteristics of the episode, using duration, state (classroom location of the aggressive episode), and total severity of aggression as the dependent variables;

2. An analysis investigating the power differential inherent in the episode, using bully/victim height differential and weight differential as the dependent variables;

3. An analysis examining the characteristics of the bully’s behaviour during episode, using scores for combination, direct, physical, proactive, reactive, social, and verbal aggression as the dependent variables;
4. An analysis exploring the average duration spent in each AFFEX display by the victim: and

5. An analysis exploring the average duration spent in each AFFEX display by the bully.

Lastly, an ANOVA was run to examine whether there were the differences in the level of peer reinforcement in episodes involving victims who chose predominantly Cluster 1 versus Cluster 2 coping styles.

No significant differences were found in the contextual characteristics of episodes involving Cluster 1 versus Cluster 2 victims for any of the MANOVA or ANOVA analyses described above.
Discussion

The objectives of the present study were to observe the emotional regulation and display patterns of child victims of bullying in a naturalistic classroom setting, and evaluate the relationships of these patterns to the contextual characteristics of the episode. The results of the present study indicate that particular patterns of emotional display and regulation typify the interactions that victims have with bullies, and that the choices that they make in emotional expression and behavioural coping styles have a discernible influence on the course and outcome of classroom bullying episodes.

Emotional Display

The findings of the present study suggest that a select group of emotional displays distinguishes the affective expressions of victims during their interactions with bullies, and that these displays are striking to the degree that they mirror the pattern of displays observed in bullies during the same interactions. The emotional displays of interest, joy, anger, surprise, sadness, and contempt were among the six most frequently observed facial expressions of both bullies and victims, accounting for 96.00% and 89.78% of their observed displays, respectively. However, while there were important parallels between the emotional displays of child victims and those who bullied them, there were also interesting differences in the relative proportions in which bullies and victims employed particular affective displays. Bullies expressed significantly greater proportions of anger and joy than did victims, whereas victims displayed significantly greater proportions of sadness and surprise than did bullies. Bullies and victims used emotional displays of interest and contempt in relatively equal proportions.

The patterns of emotional displays observed in bullies and victims in the present study can be interpreted at multiple levels. To begin, emotional displays can be analyzed solely in terms of the functions they serve for the individual emitting the display; namely, the transmission of affective information to others during social interaction (Campos et al., 1989). For instance, the emotional displays of interest and joy serve to signal pleasure,
engage others, and encourage continued interaction; in children they also act to motivate play behaviour (Cicchetti et al., 1995). Unfortunately, in the case of the victim, such emotional displays are maladaptive and have serious long-term consequences. By engaging the bully and signaling their approval, victims provide the bully with immediate positive social reinforcement for their own present and future victimization. Given the negative outcomes associated with such emotional displays, it might seem surprising that victims would express interest and enjoyment when being bullied. However, numerous studies have demonstrated that both bullying and victimization are strongly associated with peer rejection (Boulton & Smith, 1994; Olson, 1992; Olweus, 1994; Perry et al., 1988). Thus, the high levels of interest and joy displays shown by bullies and victims during bullying episodes may reflect that the exchange provides both with the desired (albeit dysfunctional) social interaction that they are unable to obtain with other peers. Boulton (1991) has observed that positive and neutral affective displays are often characteristic of children engaged in rough-and-tumble play, an aggressive play style that serves to establish dominance in the peer group and is often a precursor to aggressive fighting or bullying (Boulton, 1996; Smith & Boulton, 1990). To the victim seeking social interaction, aggressive overtures by the bully might be cognitively misinterpreted as rough-and-tumble play, and the victims' emotional expressions would mirror this misinterpretation. Indeed, in some cases, victims appear to like the children who bully them, and have been observed seeking out their company and even inviting aggression (Perry et al., 1992).

Because bullies are aggression-prone, peer-rejected children who lack prosocial methods of playing with peers, they, too, might cognitively frame their own bullying overtures as initiating rough-and-tumble play with victims and signal this through expressions of interest and joy. However, because bullies typically: 1) initiate aggressive exchanges; 2) choose victims that they believe will not be able to defend themselves or retaliate successfully; and 3) expect positive gains from their bullying behaviour (Olweus, 1994; Perry et al., 1990); they effectively have the "upper hand" during their interactions
with victims. As noted above, the bullying interaction affords the bully an opportunity to establish their social dominance relative to the victim, which is behaviourally reinforcing and pleasurable to the bully (Smith & Boulton, 1990). Consequently, it would seem logical that bullies would be observed using a relatively greater proportion of joy displays than would victims.

The high levels of anger and contempt displays observed in bullies and victims may also be interpreted from a functional perspective. The adaptive function of anger is to internally motivate progress towards goals in the face of obstacles, as well as to signal to others the intent to persevere in goal achievement (Cole et al., 1994). Displays of contempt signal disdain for the individual that they are directed towards, and/or his or her behaviour. Given that bullies enter a bullying interaction with expectations of tangible gain, victim suffering, and a low threat of retaliation (Perry et al., 1990), the messages of goal attainment and social threat inherent in their displays of anger and contempt are appropriate reflections of their situational motives and expectations. Boulton (1991) has found that emotional displays such as anger and contempt are typically observed in playground aggressive fighting, and these displays may serve to signal the intent to establish or maintain social dominance. In short, bullies are significantly motivated by the expectation that they will prevail, thus, it would seem logical that they would be observed signaling this motivation by using a greater proportion of anger displays than would victims.

On the other hand, key situational challenges for the victim of bullying are to assert themselves against the bully’s behaviour, convey that the bully’s actions are socially intolerable, and overcome the threat of bullying to defend their person and property. With these challenges in mind, the high levels of anger and contempt observed in victims might be interpreted as resistance to the bully’s attempts to establish dominance, and thus, could be seen as adaptive responses to a provocative social situation when they accompany effective, assertive coping behaviours, such as instrumental coping. When coupled with (ineffectual) aggressive behaviours, displays of anger and contempt from victims may
serve to further provoke an already hostile bully. Similarly, displays of anger and contempt from the passive victim are likely to reinforce the bully's expectations of dominance and victim suffering.

Aside from their apparent function, however, the anger displays of victims observed in the present study may also be interpreted from another perspective. Recent research by Rubin, Coplan, Fox, and Calkins (1995) emphasizes the role of reactivity (or emotional arousal threshold) in emotionally regulated behaviour. According to Rubin et al., children who are easily emotionally aroused and have difficulties regulating their affect are at higher risk for regulation dysfunction - in effect, their emotional feeling states overwhelm their coping processes. Children who have low thresholds for anger and anxiety arousal appear to be particularly susceptible to these types of regulation difficulties and tend to behaviourally manifest their emotional regulation problems via acting out (in the case of anger) and withdrawal (in the case of anxiety). By doing so, Rubin et al. (1995) postulate that the children's expressions of affect serve to "alert members of the immediate social milieu that the child is being overwhelmed emotionally and that his or her behaviour may be out of control" (p. 49). Considering the high levels of aggressive and withdrawn behaviour observed in the victims of this study, it seems reasonable to suggest that, in addition to having poor emotional regulation skills, the victims in the present study may also be highly emotionally reactive. Thus, the high levels of anger and contempt displays observed in victims in the present study may represent expressive emotional evidence that a particular sub-group of victims is innately predisposed to be highly reactive to frustration. As noted earlier in the discussion, the bullying interaction provides victims with ample frustration, and should they be particularly sensitive to such stimulation, displays of anger and contempt may be the logical outcome. Furthermore, such an interpretation would appear to mesh well with findings reported in the literature that provocative victims often demonstrate exaggerated feelings of frustration (Perry et al., 1992).
Lastly, the emotional display of sadness signals that an individual has relinquished desired objects and goals; both in order to avoid wasted effort, as well as to elicit nurturance from others (Cole et al., 1994). Displays of surprise convey that an individual has not anticipated the events that he or she has just experienced, which may be due to the fact that the events are situationally unusual, and/or because the individual has failed to appropriately process contextual cues. While surprise and sadness were among the six most frequently observed emotional displays of bullies and victims, they were observed much more frequently in victims. Considering that the experience of victimization is generally associated with loss (e.g., social, emotional, and/or property) the frequent observance of sadness among victims is not surprising; and certainly displays of distress are reported to be characteristic of both provocative and passive victims (Olweus, 1994; Patterson et al., 1967; Perry et al., 1992). However, because the display of sadness both conveys that the individual seeks comfort, and signals that he or she perceives further pursuit of goals as fruitless, it is an emotional display that speaks of submission and suffering to its recipient. Indeed, bullies are motivated by the capitulation and suffering of their victims (Perry et al., 1990), so victim displays of sadness fulfill the bully’s situational expectations. Perhaps more importantly, submissive behaviour with peers has been found to be an important antecedent to chronic victimization among school children (Schwartz, 1993).

When interpreted in concert with their observed displays of anger and sadness, the surprise displays of victims might be viewed as further expressive evidence of a low arousal threshold. An alternative, but equally plausible, explanation given victims’ apparent emotional regulation difficulties, is that victims frequently display feelings of surprise because they have failed to interpret the contextual cues of the bullying situation, and the bully’s behaviour is unanticipated.

While emotional displays can be interpreted in terms of the immediate adaptive purpose they serve for the individual, they can also be evaluated with respect to the
information they provide regarding the dynamics of social interaction between parties in a given situation. Despite some important differences in the proportions of affect displays observed between bullies and victims in the present study, as noted previously, there were striking parallels in their overall display patterns. Such parallels may be indicative of the psychological phenomenon of emotional contagion: wherein the emotional signals generated by one individual are used by a recipient individual to decode a socially ambiguous situation, producing a similar emotional state in the recipient (Hatfield, Cacioppo, & Rapson, 1994). The phenomenon of emotional contagion appears to offer a plausible description of the dynamics in emotional display observed between bullies and victims in the present study for a number of reasons. To begin, in situational dynamics involving power differentials - such as the bullying interaction - the dominant figure (i.e., the bully) is likely to pass on their emotional state to the subordinate figure (i.e., the victim), yet rarely attends to the emotional states of the subordinate figure (Hatfield et al., 1994). This type of emotional contagion would appear to explain why there were parallels between bullies' and victims' displays, but the overall pattern of bullies' displays was concentrated into relatively fewer display types.

Furthermore, there is evidence to suggest that children who develop victimization problems are more likely than their non-victimized peers to have family histories of insecure attachment, child abuse, and/or poorly managed family conflict (Perry, Perry, & Kennedy, 1992). As noted by Campos et al. (1989) repeated exposure to particular types of emotions can, over time, result in a disposition towards reacting with the same emotion when in its presence. Should victims enter school with significant exposure to aggressive, angry, and/or conflictual situations in the home, they may be prone to reactions of emotional contagion when exposed to like peer situations, such as bullying. The effect of emotional contagion may also partially explain the stability that has been observed in victimization (Olweus, 1994; Perry et al., 1988), as it implies that victims enter into the
bullying interaction with a predisposition towards the use of emotional display patterns that are both inflexible and reward the bully for their victimizing behaviour.

Thus, the emotional displays of victims and bullies observed in the present study appear to offer further evidence of the imbalance of power inherent in the bully/victim relationship, as well as deficits in the emotional regulation skills of victims. Overall, the emotional displays generated by victims appeared to act as behavioural reinforcement for the motivations and expectations that are generally attributed to bullies in the literature. Victims frequently sent signals of submission, enjoyment, and frustration to the children that bullied them, and, perhaps due to low arousal thresholds and/or past conflict experiences, appeared to be highly susceptible to the influence of bullies' emotional displays. When such patterns of emotional display are coupled with ineffectual coping styles, there appear to be serious implications for the victim - both in terms of the course and outcome of individual bullying episodes, as well as precedents for future victimization. It is the relationship of victim coping styles to the contextual characteristics of the bullying episode to which we turn our attention next.

*Emotional Regulation and Its Relationship With Contextual Factors*

Results of the analyses for the present study indicate that the observed coping strategies of victims can be classified into two broad clusters, each of which has its own unique implications for the dynamics and outcome of the bullying interaction:

1. Aggressive, emotional coping strategies that fail to have a positive effect on the (de)escalation of bullying interactions, and that frequently appear to perpetuate the length of the bullying episode. Such strategies include verbal aggression, physical aggression, and venting; and

2. Problem-solving strategies that are effective in de-escalating bullying interactions and generally appear to move the bullying episode towards resolution. These strategies include active problem-solving approaches,
such as instrumental coping; as well as passive problem-solving approaches, such as avoidance, acquiescence, and ignores/distraction.

Aggressive, emotional strategies accounted for 43.49% of all victim coping styles. Given that aggressive strategies actively engage an already hostile bully in an antisocial manner, it is not surprising that they acted to prolong bullying episodes, and were less likely than problem-solving strategies to have a de-escalating effect on the overall severity of aggression in the episode. Indeed, the overall magnitude of difference in escalation effect between aggressive and problem-solving strategies is astonishing: aggressive coping styles were 13 times less likely than problem-solving approaches to de-escalate a bullying interaction. Yet, victims consistently made aggressive coping choices in the face of bullying. The apparent inability of victims to realize the dysfunctional nature of their coping choices and/or employ more adaptive coping skills is highly suggestive of other reports in the literature describing one sub-group of victims as ineffectual, reactive aggressors - or, provocative victims (Olweus, 1994; Perry, et al., 1992). Provocative victims have been observed to become highly aroused during bullying interactions; prolonging and escalating the conflict into successively higher levels of aggression only to lose amid exaggerated displays of frustration (anger) and distress (Perry et al., 1990; Perry et al., 1992). To note, within the sub-group of provocative victims are those children who are both proactively and reactivity aggressive. Thus, the provocative victim sub-group includes children who hold the dual status of bully/victims - they both victimize others and are themselves victimized.

The results of the present study appear to strongly support this description of the provocative victim, particularly when the widespread use of aggressive coping styles among victims is analyzed in conjunction with their observed high levels of anger, sadness, contempt, and surprise displays. Observations of aggressive/provocative victims in the present study parallel Rubin et al.'s (1995) description of the child with a low arousal threshold for anger and poor emotional regulation skills who is prone to externalizing
problems. Under this scenario, the provocative victim is highly reactive to frustrating situations, and encounters such frustration in the form of bullying. The high emotional reactivity of the victim makes them particularly susceptible to *arousal transfer* - the predisposition towards more extreme emotional reactions in a given situation due to an initially elevated state of arousal (Campos et al., 1989). Unable to cope with the bullying effectively, the victim’s anger mounts, overwhelming their regulation processes and aggression towards the bully ensues. Indeed, Lazarus and Folkman (1984) construe such ineffectual angry and aggressive behaviour as emotion-focused coping that impedes the production of subsequent, more adaptive problem-focused coping styles. In effect, the provocative victim appears primarily to suffer from problems of *regulation failure*: a breakdown in the coordination of communications between the different elements of the emotions system, resulting in the disinhibition of dysfunctional behaviour (Cicchetti et al., 1995).

Similar scenarios involving aggressive victims have been observed in recent research examining the role of aggression in social transactions leading to peer rejection and victimization, where aggressive victims were observed to enter social interactions with peers with a predisposition towards both initiating aggression and reacting aversively to prosocial overtures (Olson, 1992). Over time, the antisocial nature of these children’s behaviour resulted in their rejection by peers; rejection which subsequently led to their becoming *targets* of bullying and aggressive provocation. In turn, the continued aggressive responses of these provocative victims served to perpetuate their ongoing ostracism and victimization.

Indeed, because provocative victims enter peer interactions with the predisposition towards antisocial responding, they are both the “architects and victims of their negative social experiences” (Olson, 1992, p.348). Yet, given that victims are often observed to come from family backgrounds of conflict, their predisposition towards such aversive behaviour is not altogether surprising. According to research by Patterson (1982),
tendencies towards the use of aversive and aggressive behaviour are often modeled and reinforced in the home. Victims both witness and are involved in family conflicts where the use of aversive and/or aggressive responding is rewarded. According to Patterson, conflicts begin when one family member responds aversively to the neutral or prosocial behaviour of another; for instance, a parent expressing disapproval of a child's play behaviour. Should the child respond with a similarly aversive behaviour (e.g., escalation of the disapproved behaviour) then a dynamic is initiated wherein a cycle of mutually aversive behaviour begins, with both the parent and child progressively increasing the severity of their behaviour in an effort to outwill, or coerce, the other. The cycle ends only when either the parent or child gives in. This gesture of capitulation both reinforces the person who ends the interaction, as they no longer are exposed to the aversive behaviour of the other; as well as the individual who persisted in their aversive behaviour, as they have “gotten their way.” Patterson’s (1982) research suggests that in high conflict families, these coercion cycles typically have two outcomes: 1) the parent gives in to the child; or 2) the cycle escalates until the parent uses physical and verbal assault against the child to end the child’s aversive behaviour. Should the parent give in, the child would learn that in some instances their own aversive behaviour was an effective means of ending a conflict. Should the parent use aggressive behaviour, the child learns that aggressive behaviour is a means of expressing dominance socially. Either way, exposure to such dynamics in family conflict would provide the future provocative victim with powerful lessons in the use of aggressive behaviour - lessons that they take with them in their interactions with peers. Because provocative victims are ineffectual aggressors, their aversive behaviour merely serves to escalate and perpetuate the conflicts in which they are involved, as well as predispose them to future victimization. The problems of such under-control have their associated long-term costs for provocative victims. As Lazarus and Folkman (1984) note, repeated failure to cope effectively with a problem situation (i.e., to end the bullying) tends to lead towards depression, apathy, and pessimism regarding the individual’s self-efficacy.
in future challenging situations. Provocative victims are also likely to internalize peers’ negative perceptions of them, a factor which further enhances their risk for depression, delinquency, and dropping out of school (Olson, 1992; Perry et al., 1988; Slee, 1995).

The second group of coping styles characteristic of victims was the problem-solving group, which accounted for 51.81% of the observed coping styles. Overall, these coping styles were associated with the de-escalation and resolution of bullying episodes, and by these contextual measures alone, they might be judged as effective and functional. However, closer inspection of this cluster of coping styles reveals that it is comprised of both active (instrumental coping) and passive (avoidance, acquiescence, ignores) coping styles. When interpreted in conjunction with the observed emotional displays of victims, and in the broader context of the dynamics between bullies and victims, the distinction between active and passive problem-solving strategies is extremely meaningful. Whether a victim uses active versus passive problem-solving strategies implies very different things about their emotional regulation capabilities, and about the situational messages that they are communicating to bullies. Thus, while the immediate situational outcomes of active and passive problem-solving approaches may be very similar, the long-term implications they have for repeated victimization are likely to be significantly discrepant. With this difference in mind, the following discussion addresses the use of active versus passive problem-solving strategies by victims in separate sections.

Of the problem-solving coping styles used by victims in the present study, 84.12% (or 43.62% of the total coping styles) were passive in nature. Although these coping styles are associated with the de-escalation and resolution of bullying interactions, they are problematic inasmuch as victims who employ these strategies fail to confront their bullies. By failing to confront their bullies - or in more extreme cases, complying with bullies' demands - victims’ use of passive coping strategies positively reinforces the bully’s motivations of capitulation, low threat of retaliation, and personal gain. As noted earlier in the discussion of emotional displays, when combined with the observed emotional displays
of joy, interest, sadness, or even anger, the employment of passive coping styles serves to fulfill the bully’s situational expectations; setting a dangerous precedent for future victimization. However, as Cole et al. note (1994), “even the most dysregulated emotion serves some adaptive purpose in the present, even as it interferes with optimal adjustment or development” (p. 81). Because the use of passive coping styles ends the aversive experience of bullying, victims are also likely to find these strategies very reinforcing, and may choose them in the absence of more functional options, creating a vicious cycle that entrenches their victim role. Indeed, Lazarus and Folkman (1984) note that while emotion-focused coping strategies, such as avoidance, serve to regulate the individual’s short-term emotional distress, they prevent the individual from dealing with the full reality and long-term implications of the situation. Over time, the consistent use of avoidant coping styles in the absence of other more problem-focused approaches impairs the individual’s ability to learn more adaptive behaviour, further entrenching their rigid coping style pattern. Thus, the passive victim appears to be characterized by problems of emotional dysregulation: their cognitive and emotional responses, while effective during the immediate bullying interaction, are maladaptive in the long-term; and their emotion-related behaviour is directed towards inappropriate goals (Cicchetti et al., 1995).

Victims in the present study who were observed using passive coping styles are suggestive of the withdrawn, anxious sub-group of victims reported in the literature. This sub-group of victims has been labeled passive victims, and they are distinguished by their submissive behaviour, insecurity, and negative self-concept (Olweus, 1994; Perry et al., 1992; Perry et al., 1988). In contrast to the provocative victim described earlier, observations of passive victims in the present study mirror Rubin et al.’s (1995) description of the child with a low arousal to fear/anxiety and poor emotional regulation skills who is prone to internalizing problems. In this scenario, the passive victim is highly reactive to threatening situations, and encounters such threat in the form of bullying. Once again, the high emotional reactivity of the victim makes them particularly susceptible to
arousal transfer. Unable to cope with the bullying assertively, the victim's fear and anxiety mount, and they either withdraw or capitulate. Recent research by Schwartz (1993) would appear to offer further support towards applying this interpretation to the present study. Schwartz found that a low incidence of assertive behaviour with peers and a high incidence of submission to peer demands were significantly predictive of a child's becoming chronically victimized. Kliwer (1991) also notes that children who believe that they cannot effectively influence a situation - for instance, children who are excessively fearful - often signal this by using avoidant coping strategies. Furthermore, there is some research to suggest that in addition to being high in conflict, some victims' families are also overprotective, enmeshed and controlling (Oliver, Oaks, & Hoover, 1994; Olweus, 1994). If, during family conflict situations, children should be denied the opportunity to assert themselves or even outwardly acknowledge the conflict, they are likely to bring these submissive and avoidant conflict management strategies to interactions with their peers (Perry et al., 1992). The long-term costs to victims of adopting passive coping strategies should not be underestimated. While passive coping strategies may be effective in the short-term by ending bullying interactions, victims who use them may be at risk for low self-esteem, depression, and suicide in adolescence and adulthood (Neary & Joseph, 1994; Perry et al., 1992; Slee, 1995). Lazarus and Folkman (1984) also note that rigid usage of avoidant coping strategies can lead to impaired reality testing and psychopathology in more extreme cases.

Finally, active problem-solving strategies were rarely observed among victims in the present study; accounting for only 15.88% of the problem-solving strategies used (or 8.19% of the total observed coping styles). Yet, it is the active problem-solving strategies that are likely to be the most effective and psychologically functional in the management of bullying interactions. While active problem-solving approaches appear to de-escalate and resolve episodes, they also allow the victim to act assertively; thus providing positive reinforcement to the victim for the use of prosocial conflict resolution coping choices, while
simultaneously denying the bully reinforcement for their aggressive overtures. Therefore, it would appear less probable that active problem-solving strategies would set the victim up for repeated victimization. Indeed, recent studies have demonstrated that children who use high levels of assertive behaviour with peers are unlikely to develop problems with victimization (Schwartz, 1993). However, the successful use of active problem-solving strategies requires the victim to have well-developed social skills and, in the case of intervention or support-based coping styles, a supportive peer group. In most cases, victimization is associated with peer-rejected status and poor social skills, so for the majority of victims these coping strategies simply may not be accessible - consider that intervention and support-based strategies, which require the victim to obtain assistance from others, accounted for only 1.74% of the total coping styles used by victims in the present study. Yet, findings reported in the developmental literature reinforce the importance of developing interventions to assist victims in acquiring active problem-based coping skills. Assertive behaviour skills not only protect against victimization, but they also foster a personal sense of social mastery, facilitate peer acceptance, and act as protective factors against the negative psychological impact of stress (Eisenberg et al., 1997; Kopp, 1989).

Thus, the results of the present study suggest that chronically victimized children do, indeed, have serious deficits in emotional regulation, as evidenced by their chosen coping styles during bullying interactions. In general, the behaviour of the provocative victim sub-group appears to be best understood in terms of regulation failure, whereas the behaviour of the passive victim sub-group appears to be best understood in terms of emotional dysregulation. Particularly when they are considered in conjunction with victims' observed emotional displays, the coping styles of both the passive and provocative victims appear likely to provide positive behavioural reinforcement for bullies; consequently setting the stage for chronic victimization. While active problem-solving strategies show promise as adaptive means of coping with the immediate and long-term
threats of bullying, it appears unlikely that chronic victims (such as the children in the present study) have the social or emotional resources to deploy them effectively. As such, helping victims to develop the social and emotional resources they require to make these coping strategies accessible should be a priority in future victim intervention research.

Gender Differences

While the lack of gender differences observed in the duration of coping styles and emotional displays is perhaps surprising, in many ways it is also a very encouraging finding. The absence of any observed gender differences suggests that although males and females may tend to have different victimization experiences, their responses to these experiences are essentially the same. Thus, there may be some universal deficits in emotional management skills that are associated with victims of bullying, and broadly targeted and delivered initiatives (e.g., school-based programs) may be effective for early identification and intervention with child victim populations.

Limitations of the Present Study

While the present study addresses a gap in the victimization literature, and offers strong preliminary evidence towards the presence of emotional regulation deficits in victims of bullying, there are limitations inherent in the research that was conducted. To begin, the focus of the present study was on the analysis of victim behaviour during naturalistic observations of bullying in the classroom. Classroom interactions were specifically chosen over playground interactions, as the videotapes recorded in classrooms were of generally higher observational quality: they afforded reasonably unambiguous interpretation of the bullying interaction, and facial displays were proximal enough to be coded reliably. Despite these precautions, however, the fixed nature of the cameras used for filming meant that many times either the victim or the bully was in profile or obscured; effectively rendering their emotional displays uncodeable. While this difficulty did not prevent data collection on the general characteristics of affective displays used by victims and bullies, it did prevent the collection of data on the affective dynamic between them. Yet, data
regarding the apparent influence of various affective displays on the escalation and resolution of bullying episodes would provide important information towards understanding how victims’ affective displays versus their coping behaviours differentially reinforce bullies’ behaviour.

Furthermore, the majority of bullying in schools typically takes place on the playground - particularly the more severe forms (Bentley & Li, 1995; Sharp, 1991). Thus, the present study needs to be replicated using playground observations to determine whether its findings are generalizable. The overall low severity of the bullying observed in classrooms may also explain the failure of the present study to find any significant relationships between coping styles and contextual variables beyond those reported for escalation and resolution. When there is little variation inherent in a given measure, such as severity; assigning single values to an entire episode may fail to capture meaningful fluctuations that occur over the course of the episode. The escalation and resolution measures used in the present study were the only contextual factors coded on a dynamic, sequential basis. Thus, as measures, they were likely more sensitive to the relationships between coping styles and the contextual course of the bullying interaction.

The failure of the present study to find meaningful relationships between emotional regulation patterns and contextual factors other than escalation and resolution also raises another important consideration. The present study focused on the episodic outcome of victims’ emotional regulation and display patterns. While the predictive relationship between individual coping behaviours and episode outcome is clearly important, it may be that central effects expressed by this relationship can be accounted for by the escalation and resolution variables. Rather than focusing future research efforts on greater exploration of the immediate coping style/episode outcome dynamic, it may be more important to explore: 1) the individual differences that lead to tendencies towards different coping responses; and 2) the long-term outcomes associated with various coping style and display behaviours. For instance, because the sample of children observed in the present study was selected for
for their victim status, the results of the present study are primarily generalizable to the chronically victimized child. Yet, future research with broader samples of children would allow researchers to gain a better understanding of how the displays and coping behaviours of children who are only intermittently bullied differ from those of chronic victims. Furthermore, longitudinal research with broad samples of victimized children would allow researchers to test empirically the relationships between coping styles, display patterns, and precedents for long-term victimization that are implied in the results of the present study.

Conclusions and Directions for Future Research

The results of the present study appear to offer sound evidence regarding the presence of emotional management deficits in chronic child victims of bullying, both in terms of emotional regulation and display. The presence of such deficits has serious implications for victims' social development and general psychological functioning. To be socially successful, children must understand the emotional displays and behaviours that are appropriate to a situation, and how different display or behavioural choices may affect the course and outcomes of interactions (Hubbard & Coie, 1994). Yet, the victims in this study consistently made maladaptive display and coping style choices, and appeared to lack the emotional and social resources to effect choices that would produce more positive short and long-term outcomes. Such inflexibility and overall lack of breadth in emotion-based behaviour is the hallmark of dysfunction in the emotional regulation process (Cole et al., 1994), and is frequently associated with risk for mental health problems (Lazarus & Folkman, 1984). When the emotional regulation process functions adaptively, the intra-system communication between the feeling, neural, and expressive domains allows individuals greater access to, and awareness of, their own emotional experiences and emotion-based behavioural tendencies. In turn, heightened emotional self-knowledge provides a framework for interpreting and reacting adaptively to others' emotional displays (Cicchetti et al., 1995).
However, although victims clearly require heightened awareness of how emotions shape responses, interpreting emotional displays, and training in effecting more regulated responses, the results of this study suggest that there are two distinct types of chronic child victims: 1) the provocative victim, who suffers primarily from regulation failure; and 2) the passive victim who suffers primarily from emotional dysregulation. While both groups of victims suffer from broad emotional skill deficits; the developmental trajectories, risks, and outcomes associated with each type of victim are likely to be very different. Indeed, by integrating the results of the present study with findings reported in the emotional regulation and victimization fields, models of related, but distinct, developmental trajectories for the passive versus provocative victim are suggested. Clearly, these models are only implied - not verified - by the present study, but they provide a useful framework for both organizing the current state of the victimization and emotion regulation literature and considering directions for future research in these fields. The proposed models of developmental trajectories for passive and provocative victims are presented for the reader's consideration in Figures 4 and 5, respectively.

By applying models based in developmental psychopathology to the study of emotional functioning and victimization, and number of important areas for future research are highlighted. To begin, longitudinal studies of victimization that examine individual and family risk factors, as well as the long-term outcomes associated with different coping styles and display tendencies are urgently needed. Through such longitudinal research, the hypotheses put forth in the present study regarding the roles of emotional reactivity, emotional contagion, and arousal transfer in the development of victimization can be tested. Similarly, empirical validation of the different long-term social and psychological outcomes that are likely to be associated with passive, provocative and assertive victim emotional regulation patterns is urgently required.
Figure 4. Proposed Model of Passive Victim Developmental Trajectory

Sphere of Influence:
- Genetic predisposition to high fear reactivity
  → Susceptibility to arousal transfer

Susceptibility to contagion in emotional display
- Poor emotional regulation skills
  → Poor peer relations
  → Target for bullying
  → Victimization
  → Submissive coping/display reinforce bully

Sphere of Influence:
- High conflict, poor resolution family environment
  → High exposure to emotional conflict dynamics
  → Opportunity to model poor coping skills

Victim Cycle Outcome: Negative self-concept, depression, etc.
Figure 5. Proposed Model of Provocative Victim Developmental Trajectory
Furthermore, such research would be invaluable to prevention, early identification, and early intervention efforts with victims. Victimization typically develops and is identified among school-aged children. However, by the time children reach school age, many of their emotional regulation processes are internalized and may be less amenable to external influence in the form of treatment programs. Thus, identifying the pathogenic interactions between individual differences in emotional regulation patterns, social, and familial variables will be crucial if we are to intervene at a time when children's emotional regulation processes are still accessible to external influences, and the likelihood of positive treatment outcomes will be maximized. Given that the developmental trajectories associated with passive and provocative victims are also likely to differ in significant ways, longitudinal research will be essential to the creation of intervention programs that address the distinct needs of passive versus provocative victim sub-types.

However, while prevention and early identification approaches represent the ideal means for limiting the long-term psychopathological outcomes associated with victimization, they fail to address the fact that victimization remains a widespread problem for today's school-aged child. Serious attention should also be directed towards the development and testing of emotional management skills training programs that enhance victims' coping repertoires and overall social adjustment. For instance, recently developed emotional restructuring techniques assist individuals in constructing more mature cognitive organizations of their emotional experiences, which fosters their ability to reflect upon and manage their emotions (Cole et al., 1994). With such improvements in emotional awareness, individuals are often better able to regulate their emotions; in effect, they can manage their arousal levels to effect more adaptive coping performance. Given victims' apparent difficulties in emotional arousal and regulation, such techniques would seem promising for victim interventions. Direct skill-training programs that teach children assertive coping behaviours and displays via modeling and role play may also offer prevention and intervention options that are easily incorporated into existing school-based
programs. Indeed, because so many current treatment approaches are emotion-based, it would appear that there should be numerous potentially effective interventions that could be used with victims. However, longitudinal research is as essential to the identification of effective emotion-based victim interventions as it is to the identification of risk factors. Without an empirical understanding of the long-term outcomes associated with victim intervention techniques, we risk sacrificing victims’ long-term psychological health to short-term treatment gains - in effect, perpetuating the cycle of victimization.
References


**Socioemotional development: Nebraska symposium on motivation** (Vol. 36, pp. 367-467). Lincoln, Nebraska: University of Nebraska Press.
APPENDIX A

"Naturalistic Observation of Bullying in the Classroom / Playground:"

Coding Manual and Global Ratings Questionnaire
PLAYGROUND AND CLASSROOM CODING SCHEME BULLYING AND VICTIMIZATION

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DRAFT DOCUMENT
FOR INTERNAL USE ONLY
CODING SCHEME FOR BULLYING INTERACTIONS

The purpose of these analyses will be to review the tapes in order to code the individual, dyad, social, and ecological variables in bullying and victimization interactions. Please code all instances of aggression that you can clearly see and hear where either the target or the aggressor or a participating peer is wearing the monitor. The following is a list and definitions of the variables that will be targeted when the tapes are reviewed for these analyses. The playground and classroom coding schemes are similar, however, exceptions are noted (e.g., teacher led activity is a classroom code only, while organized game is the playground equivalent code). The progression of coding will be as follows: identification of bullying episodes, contextual coding, and fine-grained sequential coding.

I. IDENTIFICATION OF AGGRESSIVE INTERACTIONS

The goal of the initial screening of the tapes is to identify all episodes that contain not only bullying and victimization, but also aggression. In addition, the coders rate the power differential between the aggressor and the victim in order to determine if the bullying episode could be defined as bullying. Coders will record this data on the "Screening Form" in Appendix 1.

Definition of Aggressive Interactions

An aggressive episode will be coded when a physical or verbal act by one child involves the intention to harm, threaten or offend the target of the act is observed (i.e., hitting, kicking, threatening to beat up someone). Social aggression will be coded when a physical or verbal act by one child harms others through purposeful manipulation and damage of the peer relations (i.e., purposefully withdrawing friendship or acceptance in order to control or hurt the target, spreading rumours). Verbal and nonverbal interactions will be examined. An episode will be judged concluded when aggressive interchanges end between the individuals, and one or both children have moved onto other activities.

Direct aggression can be physical or verbal. Direct physical aggression includes punching, hitting, kicking, shoving, scratching, biting, and spitting. It can also include attacking a person with a weapon, pushing a person into another, throwing an object at someone, or taking an object from someone. Direct verbal aggression involves threatening to hurt someone physically, name-calling, swearing, yelling, teasing, or any other verbally disparaging comment.

Social aggression can be physical or verbal. Examples of physical social aggression include: moving in a way to exclude a person from the group, sideways glances, eye rolling.
obscene gestures, unflattering imitations, or disapproving stares. Examples of verbal social aggression include: exclusionary comments (e.g., you can't play with us), spreading nasty gossip, threatening to withdraw a friendship, or getting others to gang up on a child.

**Definition of Bullying**

"A person is being bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more persons" (Olweus, 1991, p. 411). Bullying is defined as a form of social interaction in which there is an implied imbalance of power or strength in the interaction. The person exposed to the negative action has difficulty defending himself/herself against the person(s) who is harassing. Implicit in the definition of bullying is a power imbalance. Bullies are always more powerful than victims. This power imbalance may be demonstrated through physical size, physical stance, tone of voice, or the number of children. In some cases more than one child may bully another child.

Negative actions refer to behaviour that is intended to inflict harm, injury, pain, or discomfort upon another individual. Negative actions can have both a physical and/or verbal component. This aggressive behaviour can manifest itself in physical attacks or verbal contact, or gesture (i.e. making faces or rude gestures). Negative intent is difficult to quantify because we cannot see what one is thinking. However, negative intent may be exhibited through facial expression of verbalizations of intent.

**Direct and Indirect Bullying**

There are two types of bullying: direct and indirect. Direct bullying involves open attacks on the victim and may be either verbal or physical. Some examples include: kicking, swearing, hitting, name calling to their face, malicious teasing, and rude. Direct bullying may be verbal or physical. Indirect bullying is less visible and more subtle than direct bullying. It is also negative actions in an asymmetrical power relationship but takes the form of social isolation, exclusion, and ostracism from a group. Another form of indirect bullying is aggression directed towards a victim who is not present. An example would be spreading nasty gossip. Nasty gossip is when one or more persons talk or spread rumours about the private affairs of others, or when they say mean or derogatory things about a person's character. The victim in this situation is unable to defend himself/herself because he/she is not present in the interaction. This creates a power differential which is a criterion in determining bullying. Note that this power differential is not one of differential size or demeanour. One child has the power to manipulate the peer group to hurt another child.

Social exclusion involves the rejection of an individual from a group. An example of social exclusion is when an individual tries to gain entry into a group or a game, but is denied permission to participate. However, it is only considered to be bullying when the exclusion is related to the child, not the nature of the activity from which they were excluded. This would imply negative intent which is necessary to categorize social exclusion as bullying. It would not be considered social exclusion if a child asked to sit with some other children and was told he/she could not because there are not enough seats. It is also social exclusion when one child
tells other children not to be someone’s friend or not to let someone play.

Exclusion is a form of bullying that may be viewed as either direct or indirect. The distinction between the two is that when the victim asks to participate he/she is either given a response or ignored. If ignored, the exclusion is recorded as indirect but if the bully responds, then it is recorded as direct exclusion.

**Initiation of Aggressive Episodes:**

An episode of aggression is initiated when: the attention is focused on a victim and a verbal or physical negative action is directed toward the victim. An episode continues as long as the following occurs: there is a constant theme in the interaction, the individual are involved in the interaction; and the majority of the interaction is bullying. An episode terminates when the involvement by the aggressor ceases; the attention is no longer directed toward the victim; the negative action (either verbal or physical) have ceased for five seconds. If the victim or aggressor leave the interaction and engage in another activity, then the episode has terminated. If the aggressor victim take a break from the interaction and don’t engage in another activity for 5 seconds, and then continue the aggressive interaction, the episode is continuing.

To complicate things even further, within each episode, there may be other episodes. These episodes must be coded and are referred to as sub-episodes. To indicate that they are nested segments, label them with two letters. For example, a nested episode in 2 would be labelled as 2cc. A sub-episode takes place within a larger theme but the theme of the sub-episode is different from the theme of the larger episode. The aggressor or victim in the larger episode will be a participant in the sub-episode. The sub-episode begins with the negative action and terminates when the negative action has ceased for five seconds. In the case where there is a sub-episode, that is timed separately from the larger episode. A sub-episode occurs within the context of the larger episode. Thus, the duration of the larger episode will include the time for the sub-episode.

**Differentiation of Rough and Tumble Play from Aggression**

In order to determine intent to inflict harm, it is necessary to differentiate aggression from rough and tumble play. Smith and Boulton (1990) discriminate between the two using the following criteria:

1) Laughing and playful faces are characteristics of rough and tumble play, while frowning, staring, grimacing, and crying are typical of aggressive exchanges.

2) Rough and tumble play exchanges end with the participants remaining together, while aggressive exchanges lead to the participants’ separation.

3) Children who are play fighting will refrain from making contact with one another, or only touch their opponent lightly, while there will be less restrain in aggressive interactions.
4) Stronger children will purposefully reverse roles during play fighting (e.g., allow the weaker child a chance to dominate), while this role reversal is unlikely to happen in aggressive interactions.

5) Rough-and-tumble play has little interest for onlookers. Will serious fighting draws onlookers.

In summary, rough-and-tumble play has an acting or "as if" quality to the interaction. In rough-and-tumble play, children's understanding that both participants enter the interaction willingly and agree to participate.

Instructions for completing the forms

The top section of each screening form contains a space for the coder to enter his/her name, the name of their coding partner (if applicable), the current date, and the number and time of the tape being coded. Tapes are numbered according to school (Q or D, respectively), type of filming (R or C for recess or classroom respectively), the number of the tape, and the time of data collection. For example, tape DR3T6 indicates school d, recess tape 3, filmed at time 6.

Coders should screen the tapes by watching an entire segment of tape. Coders may need to view the tape more than once in order to make decisions. After viewing the tape, the coder should fill in the following information for each segment:

STID: The student identification number of the target child. The target child (also referred to as the focal child) is the child wearing the transmitter during a given segment of tape.

AGGRESSION: The coder indicates whether the aggression (intentional inflicting of pain, injury, or harm) is present in the segment, using Y (yes) or N (no).

DURATION: refers to the length of the aggressive interaction. If aggression is present, the coder should record the total length of time of the aggression from the timer on the videocassette recorder. Duration can be computed from the difference between the start and finish times. Duration of an episode begins with the initiation of the negative action and terminates when the negative actions have ceased for 5 seconds. Some sections of tape have several aggressive interactions. Each one should be timed separately. Use the stop watch to time the incidents. If there is a period of time where the aggression is uncodeable, but you can be absolutely certain it is continuing, than count the uncodeable segment. If you cannot be certain that it is continuing than you cannot count the uncodeable section in the duration estimate (i.e., total time-uncodeable time).

NOTES: Coders can identify any unusual or significant features of the tape segment in this space (e.g., tape contains poor sound quality).

POWER DIFFERENTIAL: is rated on a 5 point Likert scale, where 1 equals no power differential, 3 equals medium differential, and 5 equals extreme differential. Ratings are based
on the relative advantage that the aggressor(s) has (have) over the victim(s). All episodes with a power differential will be examined later as bullying interactions.

An example of a power differential of 1 would be when two children shove and glare at each other, then mutually decide to walk away from their hostile interaction. A 3 rating would be given if in the above example, one child withdrew while the other followed shouting mild insults. A 5 rating would be given if one child was unsuccessfully attempting to withdraw from a highly aggressive child (the aggression could be verbal, physical, or any combination off the two).

SEVERITY: of the incident is also rated on a 5 point Likert scale, where 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Codes these according to the amount of heightened affect, the intensity and duration of the aggression, and the coder’s interpretation of the potential consequences of the episode.

A severity rating of 1 would be given when a children lightly shove each other or utter mild threats. The level of emotional arousal (judged by the voice quality, rigidity of stance, facial expression) should be low. A 3 rating would be given for physical aggression that involves medium hard aggression (e.g., hitting or kicking), or threats and/or insults that are more serious and vehement (e.g., shouted threats and insults). A 5 rating would be given if the actors engage in hard physical aggression (e.g., hitting or kicking), or verbal aggression (e.g., hatred, serious desire to inflict harm), or display extreme arousal (e.g., anxiety, distress, gloating).
II. CONTEXTUAL CODING SCHEME

The contextual coding scheme is designed to reflect the theoretical models driving the research. Each theoretical perspective (individual difference, social-interactional, ecological) is associated with specific codes (e.g., individual perspective is represented by sex, race, etc., codes). Observations will be entered on summary sheets and later entered into the computer.

Once the bullying interactions have been identified and downloaded onto separate tapes, coding of the contextual factors can begin. Bullying episodes will be defined as the identified aggressive interactions with a power differential greater than 1. Contextual factors are coded for each bullying interaction. In addition to coding the contextual factors for each episode, a Global Rating Form must be completed. Copies of the coding sheet for the contextual factors and the Global Rating Form and answer sheet are in Appendix 2.

On the following pages is a summary of all the codes, followed by specific definitions.
SUMMARY OF THE PLAYGROUND AND CLASSROOM CODES

<table>
<thead>
<tr>
<th>Individual Perspective</th>
<th>Observations</th>
<th>Global Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bully Characteristics</td>
<td>Gender</td>
<td>Voice Quality</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>Anxious</td>
</tr>
<tr>
<td></td>
<td>Identification</td>
<td>Hostility</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
<td>Pleasure</td>
</tr>
<tr>
<td></td>
<td>Type of aggression (verbal, physical)</td>
<td>Fearful</td>
</tr>
<tr>
<td></td>
<td>Reactive or proactive aggression</td>
<td>Reinforce</td>
</tr>
<tr>
<td></td>
<td>Social Aggression (yes, no)</td>
<td>Social Skills</td>
</tr>
<tr>
<td></td>
<td>Type of bullying (direct, indirect)</td>
<td>Participate</td>
</tr>
<tr>
<td></td>
<td>Specific Act (hit, poke, yell, threaten, exclusion, insult, eye rolling, ignoring, disapproving stare, sideways glance)</td>
<td>Aversive</td>
</tr>
<tr>
<td></td>
<td>Racial content (yes, no)</td>
<td>Non-compliant</td>
</tr>
<tr>
<td></td>
<td>Sexist content (yes, no)</td>
<td>Tense</td>
</tr>
<tr>
<td></td>
<td>Weapons used (yes, no)</td>
<td>Cold</td>
</tr>
<tr>
<td></td>
<td>房屋 ADMINISTRATION</td>
<td>Angry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensitivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Depressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Camera reactivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physically bullying</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verbally aggressive</td>
</tr>
</tbody>
</table>

<p>| 2. Victim Characteristics | Gender       | Voice quality |
|                          | Race Identification | Provocative vs. passive |
|                          | Weight         | Hostility      |
|                          | Type of aggression (verbal, physical) | Fearful |
|                          | Reactive or proactive aggression | Reinforce |
|                          | Social aggression (yes, no) | Social skills |
|                          | Type of bullying (direct, indirect) | Participate |
|                          | Specific Act (hit, poke, yell, threaten, exclusion, insult, eye rolling, ignoring, disapproving stare, sideways glance) | Aversive |
|                          | Racial content (yes, no) | Non-compliant |
|                          | Sexist content (yes, no) | Tense |
|                          | Weapons used (yes, no) | Cold |
|                          |                     | Angry |
|                          |                     | Sensitivity |
|                          |                     | Depressed |
|                          |                     | Camera reactivity |
|                          |                     | Physically bullying |
|                          |                     | Verbally aggressive |</p>
<table>
<thead>
<tr>
<th>Social Interactional Perspective</th>
<th>Observations</th>
<th>Global Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dyadic Level</td>
<td>Differential Height</td>
<td>Relative dominance</td>
</tr>
<tr>
<td></td>
<td>Differential Weight</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dyad composition (same-sex, opposite-sex)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race composition (same-race, mixed race)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aggression composition (i.e., physical to physical)</td>
<td></td>
</tr>
<tr>
<td>2. Peer Group</td>
<td>Present (yes, no)</td>
<td>Participate</td>
</tr>
<tr>
<td></td>
<td>Peer roles (Active, onlooker, in parallel, intervener)</td>
<td>Respectful</td>
</tr>
<tr>
<td></td>
<td>Gender of peers (same-sex, mixed sex)</td>
<td>Aroof</td>
</tr>
<tr>
<td></td>
<td>Race of peers (same, mixed)</td>
<td>Friendly</td>
</tr>
<tr>
<td></td>
<td>Reinforcing verbal acts (i.e., cheering)</td>
<td>Hostility</td>
</tr>
<tr>
<td></td>
<td>Reinforcing nonverbal acts (i.e., surround victim)</td>
<td>Pleasure</td>
</tr>
<tr>
<td></td>
<td>Number of peers</td>
<td>Fearful</td>
</tr>
<tr>
<td></td>
<td>Adult intervention (positive, negative, yes, no)</td>
<td>Reinforce</td>
</tr>
<tr>
<td></td>
<td>Adult present (yes, no)</td>
<td>Participant</td>
</tr>
<tr>
<td></td>
<td>Consequences for bully (yes, no)</td>
<td>Aversive</td>
</tr>
<tr>
<td></td>
<td>Consequences for victim (yes, no)</td>
<td>Arrogant</td>
</tr>
<tr>
<td></td>
<td>Specific consequence (i.e., detention)</td>
<td>Effectiveness of intervention</td>
</tr>
<tr>
<td></td>
<td>Effectiveness of intervention</td>
<td></td>
</tr>
</tbody>
</table>
## Ecological Perspective

### 1. Where it happens on the Playground or classroom

<table>
<thead>
<tr>
<th>Duration (in seconds)</th>
<th>Severity of aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where it happen</td>
<td>Severity of power differential</td>
</tr>
<tr>
<td>(mark on a playground or classroom map)</td>
<td>Escalation in episode</td>
</tr>
<tr>
<td></td>
<td>Resolution in episode</td>
</tr>
<tr>
<td></td>
<td>Pace of episode</td>
</tr>
</tbody>
</table>

### 2. Behavioral state prior to interaction

- Solitary
- Dyadic interaction
- Unstructured group interaction (Playground code)
- Organized game (Playground code)
- Group unstructured not teacher led (Classroom code)
- Group structured teacher led (Classroom code)
Background Codes

When you begin coding, the coder’s name, the date, the tape number, and the episode number must appear on the coding summary sheet as well as the global rating sheet. The following information is required for each bullying interaction:

1. Code all episodes of bullying and victimization. If a bully becomes a victim, then this is a new episode of bullying and must be coded separately.

2. For all bullying interactions you must code 1) the Descriptive Analyses Part 1 sheet; 2) a Global Rating Sheet; and 3) fill out the playground/classroom map.

3. If you have to make any inferences about what you are coding, STOP AND REFER TO THE MANUAL.

STID: The student identification number of the target child. The target child (also referred to as the focal child) is the child wearing the transmitter during a given segment of tape.

TAPE NUMBER: Once the bullying interactions have been downloaded, a new directory and tape listing has been made. The tape number refers to the number that has been placed on the tape. For example it may be bullying tape number 2.

EPISODE NUMBER: Within each segment of tape there may be more than one episode of bullying. A segment of tape is delimited by the person wearing the microphone. However, a segment of tape may have three mini episodes and they would be labelled as 1A, 1B, and 1C, respectively. The number refers to the segment of tape and the letter code refers to the episode. If the section of the tape is deemed to be uncodeable, it should be given an episode number but identified as uncodeable. For each new child wearing the microphone, there is a new segment number.

DESCRIPTION: For future reference of this episode it is important to write down a brief description of the aggressor’s and victim’s clothing (i.e. red jacket, no hat, yellow boots) or any other salient features that may help later to identify the child.

DURATION: refers to the length of the bullying interaction. Each episode has a lead in and a lead out. Duration is the length of the aggression episode only. Duration of an episode begins with the initiation of the negative action and terminates when the negative actions have ceased for 5 seconds. Some sections of tape have several bullying interactions. Each one should be timed separately. Use the stop watch to time the incidents. If there is a period of time where the aggression is uncodeable, but you can be absolutely certain it is continuing, than count the uncodeable segment. If you cannot be certain that it is continuing than you cannot count the uncodeable section in the duration estimate (i.e. total time-uncodeable time).
**UNCODEABLE:** Tape segments may be uncodeable for a variety of reasons: you can't see or hear the interaction. It is too far away to code anything, there is too much glare, etc.... In this case indicate on your sheet the tape segment and episode and write uncodeable across the top. If there is only a portion of the tape that is uncodeable, than just don't count that section. If a tape is uncodeable and there is a new victim after the uncodeable segment, this counts as a new aggression segment. If the victim is the same and you know for sure that during the uncodeable segment the aggression continued (you could see it or hear it), than it is the same episode. If you don't know for sure than you must start it as a new episode, even though the victim may be the same.

**Tips to avoid recodes:**

After coding each coding session, check over all sheets briefly to make sure that all information has been coded, dated, and identified with your name. Make sure the information is legible, so that others can read them.

**1. INDIVIDUAL PERSPECTIVE**

**1. BULLY CHARACTERISTICS**

**Bully:** The bully is the person(s) who initiates the aggressive action. It is important to realize that the bullying interaction is not one of mutuality. The aggressive behaviour is not invited by both the parties involved in the interaction. It is possible to have more than one bully in the incident, a bully. A co-bully is an individual who takes joint leadership in dominating the interaction. A co-bully is different from an active peer in that an active peer is not demonstrating leadership in the incident. Active peers may be thought of as lieutenants. A co-bully has an equal leadership role with the bully, and must take part in 50% of the interaction.

**GENDER:** 'm' is for male; 'f' is for female.

**RACE:** in this column please indicate if the bully is from which of the following groups: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

**IDENTIFICATION NUMBER:** refers to the number previously assigned to each subject in the study. This is a four digit number. If you do not know this number (e.g., because it is not the target child or you are not familiar with the child) leave this space blank.

**WEIGHT:** indicate if the bully is of smaller than average weight (with a "1"), of average weight (with an "2"), or heavier than average (with a "3"). This is a global rating.
HEIGHT: indicate if the bully is of smaller than average height (with a "1"), of average height (with an "2"), or taller than average (with a "3"). This is a global rating.

SPECIAL ADORNMENTS: indicate if the bully is wearing any cultural or ethnic special adornment. If the bully is wearing a special adornment, please indicate what the adornment is. Some examples include: a yamakah, a sword, a special head piece, etc.

GLASSES: indicate if the bully is wearing glasses. The default is "1" for no glasses. If the identified individual is wearing glasses, please indicate this with a "2" in this column.

PHYSICAL HANDICAPS: indicate if the bully is in some way physically disabled (i.e., in a wheelchair, missing limbs). Code "1" for no and "2" for yes.

FORM OF AGGRESSION:
1. PHYSICAL AGGRESSION: Physical aggression refers to physical attacks on another individual. It can take the form of hitting, kicking, spitting on, pushing or shoving, and rude and threatening gesturing. The physical aggression is coded on a 6-point Likert severity scale, where 0 equals no physical aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the physical aggression, and the coder's interpretation of the potential consequences of the episode.

2. VERBAL AGGRESSION: the bully's action is verbal when he/she verbally attacks the victim. Such actions include name-calling, yelling, swearing, and gossip. The verbal aggression is coded on a 6-point Likert severity scale, where 0 equals no verbal aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the verbal aggression, and the coder's interpretation of the potential consequences of the episode.

3. DIRECT AGGRESSION: Direct aggression involves open attacks on the victim and may be either verbal or physical. The verbal or physically bullying is conducted face-to-face. Some examples include: kicking, swearing, hitting, name calling to their face, malicious teasing, and rude gestures. Direct aggression is coded on a 6-point Likert severity scale, where 0 equals no direct aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of direct aggression, and the coder's interpretation of the potential consequences of the episode.

4. SOCIAL AGGRESSION: Social aggression is less visible and more subtle than direct aggression. Social aggression can be physical or verbal. Examples of physical social aggression include: moving in a way to exclude a person from the group, sideways glances, eye rolling, obscene gestures, unflattering imitations, or disapproving stares. Examples of verbal social aggression include: exclusionary comments (e.g., you can't play with us), spreading nasty gossip, threatening to withdraw a friendship, or getting
coded as racist. We cannot assume unspoken racist motivation. An interracial interaction does not constitute racial bullying. Racial content is coded on a 6-point Likert severity scale, where 0 equals no racial content, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of racial content and the coder’s interpretation of the potential consequences of the episode.

SEXIST CONTENT: an interaction has sexist content when the incident is primarily characterized as including derogatory comments based on an individual’s gender. An episode is considered to be sexist in nature if sexually derogatory language is used as a means to hurt another child. Sexist content is coded on a 6-point Likert severity scale, where 0 equals no sexist content, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the sexist content and the coder’s interpretation of the potential consequences of the episode.

WEAPONS: refers to the presence and actual use of a weapon in the bully victim interaction. Examples of weapons include: knives, swords, etc... Code “1” if a weapon is used in the interaction and “2” if it is not used in the interaction. The use of weapons is coded on a 6-point Likert severity scale, where 0 equals no weapons, 1 equals low severity of weapon use, 3 equals medium severity of weapon use, and 5 equals high severity of weapon use. Code these according to the amount of heightened affect, the intensity and duration of weapon use, and the coder’s interpretation of the potential consequences of the episode.

2. VICTIM CHARACTERISTICS

VICTIM: refers to the individual who is the target of the negative actions of the bully. It is possible to have more than one victim in the episode. The victim is the person(s) who is subjected to the aggressive actions (physical or verbal) of another more dominant individual. A more dominant individual is defined by the power differential which is determined by such things as: differential size, tone of voice, stance or demeanour.

GENDER: ‘m’ is for male; ‘f’ is for female.

RACE: in this column please indicate if the victim is from which of the following groups: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

IDENTIFICATION NUMBER: refers to the number previously assigned to each subject in the study. This is a four digit number. If you do not know this number (e.g., because it is not the target child or you are not familiar with the child) leave this space blank.

WEIGHT: indicate if the victim smaller than average weight (with a “1”), of average weight (with an “2”), or heavier than average (with a “3”). This is a global rating.
HEIGHT: indicate if the victim is of smaller than average height (with a "1"), of average height (with an "2"), or taller than average (with a "3"). This is a global rating.

SPECIAL ADORNMENTS: indicate if the victim is wearing any cultural or ethnic special adornment. If the bully is wearing a special adornment, please indicate what the adornment is. Some examples include: a yamachah, a sword, a special head piece, etc.

GLASSES: indicate if the victim is wearing glasses. The default is "1" for no glasses. If the identified individual is wearing glasses, please indicate this with a "2" in this column.

PHYSICAL HANDICAPS: indicate if the victim is in some way physically disabled (i.e., in a wheelchair, missing limbs). Code "1" for no and "2" for yes.

FORM OF AGGRESSION:
1. PHYSICAL AGGRESSION: Physical aggression refers to physical attacks on another individual. It can take the form of hitting, kicking, spitting on, pushing or shoving, and rude and threatening gesturing. The physical aggression is coded on a 6-point Likert severity scale, where 0 equals no physical aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the physical aggression, and the coder's interpretation of the potential consequences of the episode.

2. VERBAL AGGRESSION: the victim's action is verbal when he/she verbally attacks the victim. Such actions include name-calling, yelling, swearing, and gossip. The verbal aggression is coded on a 6-point Likert severity scale, where 0 equals no verbal aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the verbal aggression, and the coder's interpretation of the potential consequences of the episode.

3. DIRECT AGGRESSION: Direct aggression involves open attacks on the bully and may be either verbal or physical. The verbal or physically bullying act is conducted face-to-face. Some examples include: kicking, swearing, hitting, name calling to their face, malicious teasing, and rude gestures. Direct aggression is coded on a 6-point Likert severity scale, where 0 equals no direct aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of direct aggression, and the coder's interpretation of the potential consequences of the episode.

4. SOCIAL AGGRESSION: Social aggression is less visible and more subtle than direct aggression. Social aggression can be physical or verbal. Examples of physical social aggression include: moving in a way to exclude a person from the group, sideways glances, eye rolling, obscene gestures, unflattering imitations, or disapproving stares. Examples of verbal social aggression include: exclusionary comments (e.g., you can't
play with us), spreading nasty gossip, threatening to withdraw a friendship, or getting others to gang up on a child. It is also takes the form of social isolation, exclusion, and ostracism from a group. Another form of social aggression is aggression directed towards a victim who is not present. An example would be spreading nasty gossip. Nasty gossip is when one or more persons talk or spread rumours about the private affairs of others, or when they say mean or derogatory things about a person's character. The victim in this situation is unable to defend him/herself because he/she is not present in the interaction. Another example of social aggression is exclusion that involves the rejection of an individual from a group (e.g., an individual tries to gain entry into a group or a game, but is denied permission to participate. It is also social aggression when one child tells other children not to be someone's friend or not to let someone play. Social aggression is coded on a 6-point Likert severity scale, where 0 equals no social aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the social aggression, and the coder's interpretation of the potential consequences of the episode.

4. REACTIVE AGGRESSION: A hostile act displayed in response to a fear, threat, or provocation. An example of reactive aggression would be hitting someone after they had hit you. Note that reactive aggression can be verbal, physical, direct, or social. Reactive aggression is coded on a 6-point Likert severity scale, where 0 equals no reactive aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the reactive aggression, and the coder's interpretation of the potential consequences of the episode.

5. PROACTIVE AGGRESSION: Nonprovoked coercive behaviour that functions to achieve some goal or influence another individual (e.g., hitting someone for apparently no reason). Note that reactive aggression can be verbal, physical, direct, or social. Proactive aggression is coded on a 6-point Likert severity scale, where 0 equals no proactive aggression, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the proactive aggression, and the coder's interpretation of the potential consequences of the episode.

SPECIFIC ACT OF AGGRESSION: Please note what the specific act or acts of aggression are (e.g., hitting, kicking, punching, teasing, threatening, , kicking, shoving, scratching, biting, and spitting, attacking a person with a weapon, pushing a person into another, throwing an object at someone, taking an object from someone, name-calling, swearing, yelling, teasing, other verbally disparaging comment, moving in a way to exclude a person from the group, sideways glances, eye rolling, obscene gestures, unflattering imitations, disapproving stares, exclusionary comments, spreading nasty gossip, threatening to withdraw a friendship, or getting others to gang up on a child). Note that this list is not exhaustive.

RACIAL CONTENT: an interaction has racial content when the incident is primarily based on an individual's race or ethnic origin. An episode has racial content if the players in the episode
use overt racist language. Derogatory language about another person's ethnicity or race would be coded as racist. We cannot assume unspoken racist motivation. An interracial interaction does not constitute racial bullying. Racial content is coded on a 6-point Likert severity scale, where 0 equals no racial content, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of racial content and the coder's interpretation of the potential consequences of the episode.

SEXIST CONTENT: an interaction has sexist content when the incident is primarily characterized as including derogatory comments based on an individual's gender. An episode is considered to be sexist in nature if sexually derogatory language is used as a means to hurt another child. Sexist content is coded on a 6-point Likert severity scale, where 0 equals no sexist content, 1 equals low severity, 3 equals medium severity, and 5 equals high severity. Code these according to the amount of heightened affect, the intensity and duration of the sexist content and the coder's interpretation of the potential consequences of the episode.

WEAPONS: refers to the presence and actual use of a weapon in the bully victim interaction. Examples of weapons include: knives, swords, etc... Code "1" if a weapon is used in the interaction and "2" if it is not used in the interaction. The use of weapons is coded on a 6-point Likert severity scale, where 0 equals no weapons, 1 equals low severity of weapon use, 3 equals medium severity of weapon use, and 5 equals high severity of weapon use. Code these according to the amount of heightened affect, the intensity and duration of weapon use, and the coder's interpretation of the potential consequences of the episode.

II. SOCIAL INTERACTIONAL PERSPECTIVE

1. DYADIC LEVEL

DIFFERENTIAL HEIGHT: indicate if the bully relative to the victim is a height which is smaller (with a "1"), the same height (with an "2"), or larger (with a "3"). There is a height differential, if the difference in height between the bully and the victim is half a head. If the bully is half a head taller than the victim, the code is "3". If the bully is half a head smaller than the victim, the code is "1". If there is not half a head difference than the code is "2".

DIFFERENTIAL WEIGHT: indicate if the bully relative to the victim is a weight which is lighter ("1"), the same weight (with an "2"), or heavier (with a "3").

The other variables that provide information on the dyadic level can be obtained from data analyses and need not be coded separately. These variables include: dyad composition, race composition, and aggression composition.

2. PEER GROUP CODES

There are five categories of peer involvement that are important in this study. A peer that fits into any of the following categories should be recorded for each episode. Any peers who fit the categories below will be noted. During an bullying interaction, peers may take on one or more of the roles described below (e.g., a peer in joint may become a peer active). In such cases
such as these, the peer should be coded according to the highest level of involvement during the episode. The order of level of involvement from lowest to highest is as follows: peer in joint, peer observer, peer active, and peer intervener. For each category of peer, identify each of the peers who are participating and rate each peer separately. This notation will enable us to count the number of peers involved in the bullying interaction.

**PEER ACTIVE INVOLVEMENT:** refers to children who join in the bullying interaction by either physically or verbally abusing the victim themselves. They may also be thought of as a subset of bullies, but they did not initiate the attack. The peer active involvement is coded on a 6-point Likert severity scale, where 0 equals noninvolvement, 1 equals low involvement, 3 equals medium involvement, and 5 equals high involvement. Code these according to the amount of heightened affect, the intensity and duration of the involvement, and the coder’s interpretation of the potential consequences of the episode.

**PEER IN JOINT ACTIVITY:** refers to peers who are not actively involved in the bullying interaction but may be involved concurrently with the episode in an activity with either the victim or the bully. For example, this category may include peers who are turning a skipping rope when a victim is indirectly bullied by the child who is skipping. This category refers to peers who are present during the aggression but are not actively participating and are involved only to the extent they are participating in a concurrent activity with either the victim or the bully. For each peer in joint activity please indicate if the peer is aware or unaware of the aggression episode. The peer active involvement is coded on a 6-point Likert severity scale, where 0 equals noninvolvement, 1 equals low involvement, 3 equals medium involvement, and 5 equals high involvement. Code these according to the amount of heightened affect, the intensity and duration of the involvement, and the coder’s interpretation of the potential consequences of the episode. Please also indicate if the peers in joint are unaware “1” or aware “2” of the bullying interaction.

**PEER ONLOOKER:** refers to when a target is not engaged in the bullying interaction but is actively watching the event. The target is in close proximity and looking at the interaction between the bully and the victim. The peer is coded as onlooker only if he/she is not directly involved in the interaction and is watching the interaction for at least 2 seconds. The peer active involvement is coded on a 6-point Likert severity scale, where 0 equals noninvolvement, 1 equals low involvement, 3 equals medium involvement, and 5 equals high involvement. Code these according to the amount of heightened affect, the intensity and duration of the involvement, and the coder’s interpretation of the potential consequences of the episode.

**PEER INTERVENER:** refers to a peer who attempts to help the victim either by verbally or physically terminating the bully/victim interaction in a prosocial manner. The peer may or may not be successful in his/her attempt. For example, asking the bully to stop; identifying the inappropriateness of the behaviour and the distress that the victim may be experiencing; or physically separating the bully and the victim, threatening to tell an adult. The peer intervener is coded on a 6-point Likert severity scale, where 0 equals no intervention, 1 equals low involvement, 3 equals medium involvement, and 5 equals high involvement. Code these according to the amount of heightened affect, the intensity and duration of the involvement, and
the coder’s interpretation of the potential consequences of the episode. Please note the specific act of intervention (e.g., asking to stop).

**PEER INTERVENERS ROUGH:** refers to a peer who attempts to end the interaction either verbally or physically in a socially inappropriate manner. This individual may or may not be successful. An example would be attempting to physically beat up the bully(ies) or swearing at the bully(ies). The peer intervener is coded on a 6-point Likert severity scale, where 0 equals no intervention, 1 equals low involvement, 3 equals medium involvement, and 5 equals high involvement. Code these according to the amount of heightened affect, the intensity and duration of the involvement, and the coder’s interpretation of the potential consequences of the episode. Please indicate the specific act of intervention (e.g., threatening to beat up the bully).

**SEX PEERS ACTIVE:** in this column please indicate the gender of the peers actively involved in the bullying interaction. "m" is for male, "f" is for female. If unknown "?" in the designated column.

**SEX PEERS IN JOINT ACTIVITY:** in this column please indicate the gender of the peers in joint activity with children involved in the bullying interaction. "m" is for male, "f" is for female. If unknown "?" in the designated column.

**SEX PEERS IN PARALLEL PLAY:** in this column please indicate the gender of the peers in parallel play with the child or children involved in the bullying interaction.

**SEX PEERS ONLOOKER:** in this column please indicate the gender of the peers onlooking the bully interaction. "m" is for male, "f" is for female. If unknown "?" in the designated column.

**SEX PEER INTERVENERS:** in this column please indicate the gender of the peers intervening in the bullying interaction. "m" is for male, "f" is for female. If unknown "?" in the designated column.

**SEX PEER INTERVENERS ROUGH:** in this column please indicate the gender of the peers intervening in the bullying interaction. "m" is for male, "f" is for female. If unknown "?" in the designated column.

**RACE PEERS ACTIVE:** in this column please indicate if the peer actively involved in the bullying interaction is: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

**RACE PEERS IN JOINT ACTIVITY:** in this column please indicate if the peer in joint activity with either the bully or the victim is: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.
RACE PEERS IN PARALLEL PLAY: in this column please indicate if the peer in parallel play is Caucasian (cauc.), black (blk), Asian of oriental descent (As.), West Indian (Ind.), or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

RACE PEER ONLOOKERS: in this column please indicate if the peer onlooking the bullying interaction is: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

RACE PEER INTERVENER: in this column please indicate if the peer intervening the bullying interaction is: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

RACE PEER INTERVENER ROUGH: in this column please indicate if the peer intervening the bullying interaction is: Caucasian (cauc.), black (blk), Asian or Oriental Decent (As.), West Indian (Ind.) or unknown. Please use the designated short forms in parentheses when coding or write out the race completely.

REINFORCEMENT: Consequences that increase the likelihood that the aggression will continue to occur. Reinforcements can be verbal (e.g., clapping, shouting, cheering) or physical (e.g., patting the bully on the back). Please not down what the specific reinforcing act was. The peer reinforcement is coded on a 6-point Likert severity scale, where 0 equals no reinforcement, 1 equals low reinforcement, 3 equals medium reinforcement, and 5 equals high reinforcement. Code these according to the amount of heightened affect, the intensity and the coder’s interpretation of the potential consequences of the episode.

3. ADULT CODES

ADULT PRESENCE: refers to any adult who enters the area where the bullying is taking place. These adults may either actively become involved in the interaction (i.e. by intervening) or they may not attend to the interaction and pass by. Please indicate whether the adult is unaware “1” or aware “2” of the bullying interaction.

ADULT INTERVENTION: refers to an adult who attempts to help the victim either by verbally or physically terminating the bully/victim interaction. The adult may or may not be successful in his/her attempt. For example, asking the bully to stop; identifying the inappropriateness of the behaviour and the distress that the victim may be experiencing; or physically separating the bully and the victim; threatening to tell an adult. The peer intervener is coded on a 6-point Likert severity scale, where 0 equals no intervention, 1 equals low involvement, 3 equals medium involvement, and 5 equals high involvement. Code these according to the amount of heightened affect, the intensity and duration of the involvement, and the coder's interpretation of the potential consequences of the episode. Please not the specific act of intervention (e.g., asking to stop).
BULLY CONSEQUENCES: Refers to any behavior by the adult that may decrease the likelihood of the bully repeating his/her actions (e.g., sent to the office, sent to stand against the wall, verbal reprimand). Please note the specific consequence down. The consequences are coded on a 6-point Likert severity scale, where 0 equals no consequences, 1 equals low consequences, 3 equals medium consequences, and 5 equals severe consequences.

VICTIM CONSEQUENCES: Refers to any behavior by the adult that could be considered supportive or nonsupportive to the victim. Please note down what the specific consequences were (e.g., verbal support, time out). The consequences are coded on a 6-point Likert severity scale, where 0 equals no consequences, 1 equals low consequences, 3 equals medium consequences, and 5 equals severe consequences. Negative signs in front of the ratings indicate nonsupportive actions by the adult.

III. ECOLOGICAL PERSPECTIVE

1. LOCATION

A. Playground: The playground has been divided into small areas. For each episode of bullying, you need to identify where the bullying took play. On the map indicate where the bullying interaction took place with the episode and the tape number (i.e., 1A). If the bullying interaction took place over a number of places indicate this with a circle encompassing the area of the bullying interaction. If the aggression involved a chase or other such movement, indicate this with a circle where the chase took place. To indicate the movement of the bullying (i.e. the chase, put arrows around the circle. BE SURE TO INDICATE THE SPOT WHERE bullying interaction is initiated.

B. Classroom: The classroom has been divided into small areas. For each bullying interaction, you need to identify where the aggression took place. On the map indicate where the bullying interaction took place with the episode and the tape number (i.e., 1A). If the bullying interaction took place over a number of places indicate this with a circle encompassing the area of the bullying interaction. If the aggression involved a chase or other such movement, indicate this with a circle where the chase took place. To indicate the movement of the aggression (i.e. the chase, put arrows around the circle. BE SURE TO INDICATE THE SPOT WHERE bullying interaction is initiated.

2. STATE

A. Playground Codes: Refers to the type of activity that is ongoing when the bullying interaction occurs.

SOLITARY ACTIVITIES: The child plays alone and independently. The child does not engage with others and his/her activity is not affected by what is going on around him/her. Some examples include: wandering the playground alone, playing with a toy by one’s self.

PARALLEL PLAY: The child still plays independently but his/her activity naturally brings him/her among other children. The child plays besides them, not with them, but the activity is
similar to the children around the child. There is no attempt to control or interact with other children. An example would be playing ball against a wall beside another child.

**DYADIC INTERACTION:** The child plays with one other child. There is sharing of materials (toys). Some examples include: walking and talking to one other child or playing a game with one other child.

**STRUCTURED GAME ACTIVITIES:** refers to children (two or more) who are actively playing a game together. The child plays in a group that is organized for some purpose (i.e., baseball, playing house). There is a sense of belonging to the group and each child has a role to play in the group.

**UNSTRUCTURED GROUP ACTIVITIES:** refers to children who are hanging out together but there are no organized activity that is maintaining the group’s cohesiveness. An example would be standing around and talking.

**R. Classroom Codes:** Refers to the type of learning activity that is most predominant in the classroom. Different teachers have different teaching methods which may encompass a combination of the various types of learning activities. The different types of learning activities in the classroom include: teacher-led tasks, group tasks and/or solitary tasks.

**TEACHER-LED ACTIVITIES:** refers to situations where the teacher uses a directive approach and plays an active role in engaging the students in constructive activities. An example of teacher led tasks would be when the students sit in front of the teacher or when the teacher is interacting with the children (individually or in a group) giving instructions about a particular activity.

**SOLITARY ACTIVITIES:** refers to children who engage in constructive activities alone. These children work in close proximity with other children, but do not engage them. This is a non-directive method where the children are left to select activities and to move freely about the classroom.

**GROUP ACTIVITIES:** refers to children (two or more) who are actively working together on a task. These children are interacting with each other. Group tasks would be considered to be categorized somewhere between the two extremes of the types of structured classrooms.

**COMMENTS:** This section is designed for you to write down any observations or thoughts you had about the interaction. In addition, in this section you can indicate if you had any concerns about the coding or about the nature of the interaction.
III. GLOBAL RATING SHEET

The Global Rating Questionnaire is designed to capture the rater’s impressions of the interaction, as well as to provide information about the nature of the interaction among the bully, victim, peers, and adults. The Global Rating Sheet must be completed for every episode. Answers should be recorded on the accompanying Global Rating Answer Sheet.

At the top of the Global Rating Answer sheet indicate the name of the target child (i.e., the one wearing the microphone), the episode, the coder’s name, and the date. Once you have completed the Global Ratings Questionnaire, the location of the bullying interaction must be indicated on the appropriate playground or classroom survey form.
### A. Bullies

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### C. Peer Active

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### D. Peer Onlookers

### E. Peers in Joint

### F. Intervener

### G. Intervener Rough

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### CUMULATIVE RELIABILITY

91
APPENDIX B

AFFEX System Coding Manual
The Maximally Discriminative Facial Movement Coding System (Max) (Izard, 1979) provides an objective, anatomically based system for coding facial behavior and identifying affect expressions. Since it focuses only on the facial movements that signal affect and also eliminates affect signals that are redundant or ineffective in differentiating among affects, it is a more efficient affect identification system than methods that code all facial behaviors regardless of their relation to affect (Ekman and Friesen, 1978; Gergerian and Ermine, 1978).

Despite the fact that Max is assumed to be the most efficient of the movement coding systems, it is still quite time consuming. Video records of infants or children in situations that elicit frequent changes in facial behavior may require as much as 200 minutes of coding time for each minute of facial behavior. Thus the ratio of coding time to length of the data record analyzed can vary from about 50:1 to about 200:1, depending on the frequency of appearance changes (ACs).

Many investigations of emotions focus on the facial behavior immediately subsequent to some stimulus situation or incentive event (e.g., mother's face, jack-in-the-box, inoculation, departure of caregiver). Data on changes in affect during the first 10-30 seconds subsequent to such events are quite informative and may satisfy the requirement of such investigations. In this case Max may well be the method to apply.
There are other investigations, however, that require the coding of relatively long and continuous sequences of facial behavior. Examples are studies of individual differences in facial expressions of emotions in response to physical or psychological stressors. In such studies, it may be necessary to code several minutes of stressor-elicited facial behavior for each child in each stimulus situation. Thus Max coding of nine minutes of facial behavior for each of 30 infants in, for example, the Ainsworth-Wittig Strange Situation could require from 225 to 900 hours, depending on the frequency of appearance changes (ACs). This amount of time for the coding plus the time for data analysis might seriously discourage investigators from tackling this type of study. With the holistic system described below, emotion expressions in one hour of facial behavior can be reliably identified in as little as 15 hours of coding time.

I. Overview of A System for Identifying Affect Expressions by Holistic Judgments (Affex)

Affex was developed to provide a sufficiently reliable and time-efficient affect expression identification system to encourage research that requires the analysis of relatively long periods of facial behavior. Affex is based on differential emotions theory, cross-cultural research, and developmental studies of infants and young children (e.g., Izard, 1971, 1977,
Affex Manual

1978; Ekman, Friesen, and Ellsworth, 1972; Tomkins, 1962, 1963). Affex can reliably identify eight fundamental emotion expressions -- interest, joy, surprise, sadness, anger, disgust, contempt, fear, and the affect expression of physical distress or pain. It can also identify combinations or blends of any two of these affect expressions. It can identify shame with special attention to gaze and postural behavior.

Our approach in developing Affex was to devise a system for making direct judgments of the affective meaning of the patterns of facial muscle movements or ACs (as described in Max). A major goal of this system was to make it possible for observers to classify affect signals reliably by making sophisticated affect-classification judgments based on specific criteria for each component of each expression of the fundamental emotions. Our first effort resulted in the Facial Expression Scoring Manual (FESM) that paralleled FMCS (see Izard, 1979). The FESM included all the ACs involved in the expressions of the fundamental emotions and used adult emotion expressions for illustrative material. Our next step was to substitute illustrative material from our video records of infants and young children and to use Max as a guide in revising the verbal descriptors of FESM. This effort produced Affex.

The judgment process is the principal difference between Max and Affex. In using Max the judgments of presence or absence of ACs are objective and nonattributional. In applying Affex, judges look for affect-related appearance changes and classify them
directly, according to affect categories. Such judgments can not be said to be totally free of subjective factors or attributional bias. Thus special steps are taken to minimize misattributions or misjudgments stemming from subjective factors. The first step is to require judges to begin their training by learning Max. By making reliability on Max a prerequisite to training on Affex, judges approach the task with full knowledge of the objectivity involved in identifying affects by movement coding. Judges are also informed that use of data obtained with Affex will be checked for both intrasystem and intersystem reliability and that a random sample of segments analyzed with Affex will be coded by independent Max and Affex coders to check for reliability. Other steps to assure objectivity are detailed in the section on procedure for using Affex. One index of the success of these procedural guidelines for maintaining objectivity was the 87% Max-Affex intersystem agreement obtained by Izard, Huebner, Risser, McGinnes, and Dougherty (1980).

Affex's use of established emotion-identification criteria described both verbally and pictorially is also expected to reduce attributional-interpretive bias to a minimum. At the same time Affex retains any possible advantages inherent in holistic judgments that are based on simultaneous observation of movement patterns in the face as a whole. This system takes advantage of the mind's capacity to integrate a complex set of signals into a meaningful gestalt. Emphasis is placed on making criterion-based judgments -- "make sure you see the particular emotion-related signals before giving the face that emotion label." Affex also
emphasizes the need to be alert to blends or combinations of simultaneous signals of two different emotions. This cautions against assigning a single emotion label to the whole face on the basis of an AC in only one region.

II. Verbal Descriptions of Appearance Changes for Each Emotion

The illustrative and training materials that are shown on both the Max Videotape and Affex Videotape were recorded in natural and laboratory settings. The majority of the material was videotaped at a well-baby clinic during the visits of the mother and infant for the infant's immunizations. The procedure for these events consists of four phases: playful interactions of mother and nurse with the infant before the medical procedure; administration of the medical procedure; the mother's comforting of the infant after the procedure; another brief period in which the nurse plays with the baby and attempts to take and hold the baby. Some segments were videotaped in our laboratory during the Ainsworth-Wittig Strange Situation. Additional segments were videotaped in our laboratory for a study testing Charlesworth's (1969) ideas about surprise in relation to unexpected and misexpected events. A series of stimuli (e.g., disappearing toy, balloon pop, slow vs. rapid rise of Kagan's eyeless mask) intended to elicit surprise were presented to three groups of infants of different ages. These procedures produced a wide array of affect expressions.
Some examples of the disgust and surprise expressions were obtained in studies conducted at Vanderbilt University and the Institute of Pediatric Sciences in Moscow. Stimuli included administration of a bitter taste, jack-in-the-box, and various other affect-eliciting events.
<table>
<thead>
<tr>
<th>Expression</th>
<th>Features</th>
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| SADNESS: SD | 1. Brows raised, skin below brow stretched  
2. Forehead smooth (0)  
3. Nasal root narrowed (20)  
4. Transverse furrows (20)  
5. Forehead shows highcheekbones or long face |
| SURPRISE: SA (20+0+50) | 1. Mouth opened, over or roundish  
2. Eyes opened normally (0)  
3. Nasal root narrowed (20)  
4. Transverse furrows (20)  
5. Forehead shows highcheekbones or long face |
| SAD | 1. Eyes opened normally (0)  
2. Forehead smooth (0)  
3. Mouth closed, relaxed (0)  
4. Lips pursed (65)  
5. Mouth corners drawn down, long and frown (50) |
| SURPRISE | 1. Eyes squinted or narrowed (33)  
2. Forehead smooth (0) |
| INTEREST: IE | 1. Mouth opened, relaxed (15)  
2. Lower lid raised (34)  
3. Eyes opened normally (0)  
4. Lips pursed (65)  
5. Mouth corners drawn down, long and frown (50) |

A. Verbal Descriptions of Appearance Changes by Region

B. Facial Features
<table>
<thead>
<tr>
<th>Forehead/Eyebrows/Nasal Root</th>
<th>Eyes/Nose/Cheeks</th>
<th>Mouth/Lips/Chin</th>
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<td></td>
</tr>
<tr>
<td>1. Brows sharply lowered and drawn together (25)</td>
<td>Eyes squinted (33)</td>
<td>Angular, squarish, open mouth (54)</td>
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<td>2. Vertical wrinkles or bulge between brows (25)</td>
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<tr>
<td>3. Nasal root broadened (25)</td>
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</tr>
<tr>
<td><strong>DISGUST: DR</strong> (25 + 33 + 42 + 59B + 63)</td>
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<tr>
<td>1. Brows sharply lowered and drawn together (25)</td>
<td>1. Nasal ridge furrowed or shows lumpy ridge running diagonally upward from nasolabial fold (42)</td>
<td>1. Upper lip raised, tongue may protrude (59B)</td>
</tr>
<tr>
<td>2. Vertical wrinkles or bulge between brows (25)</td>
<td>2. Eyes squinted (33)</td>
<td>2. Lower lip lowered, may be slightly forward (63)</td>
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<tr>
<td>3. Nasal root broadened (25)</td>
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<tr>
<td><strong>CONTEMPT: CS</strong> (21 + 61)</td>
<td>Eyes opened normally (0)</td>
<td>Upper lip raised on one side</td>
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<td>One brow may be raised higher than the other (other may be slightly lowered) (21)</td>
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<tr>
<td><strong>FEAR: FT</strong> (22 + 31 + 53)</td>
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<tr>
<td>1. Brows raised, drawn together (straight or normal contour) (22)</td>
<td>Upper lid raised, eye fissure widened (sclera/white shows more than usual) (31)</td>
<td>Mouth opened, tense, corners retracted straight back (53)</td>
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<tr>
<td>2. Short transverse furrows or thickening in mid-forehead (22)</td>
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<td>3. Nasal root narrowed (22)</td>
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B. Verbal Descriptions of the Illustrative Material on the Affex Videotape

The following descriptions of emotions are the same as those on the Affex Videotape. They apply to the pictorial illustrations of the appearance changes of the discrete affects and follow the order of the material on the tape. It may be helpful to read through these verbal descriptions prior to viewing the tape.

INTEREST-EXCITEMENT--IE

There are several expressions of interest. In the first one shown, the brows are drawn together but neither raised nor lowered. In older children vertical furrows may appear above and between the brows. There is no movement in the eye or cheek region. The mouth is opened and relaxed.

The next photo is another example of the interest expression. The upper face is in a normal, resting position with no codeable movements present. In the lower face the mouth is opened, relaxed.

HYPOTHESIZED INTEREST--(IE)

A face that appears alert and attentive but with no codeable movements may be coded as "hypothesized interest" and labeled (IE). The face shows moderate to high muscle tone. There are no codeable ACs due to muscle contractions and no observable visual scanning. The label for hypothesized interest is placed in parentheses to indicate that the judgment is an hypothesis made without benefit of codeable ACs.
ENJOYMENT—JOY--EJ

In the joy expression the brows remain in a normal or resting position. The corners of the mouth are drawn back and up and the cheeks are pushed up.

SURPRISE—ASTONISHMENT--SA

In the surprise expression the brows are raised in their normal shape with the skin below the brow stretched. Bulging (in young infants) or horizontal wrinkles (in some infants and in children and adults) may appear completely across the forehead. The raising of the brows causes the eyes to appear widened and the nasal root to narrow or thin out. The mouth is opened in an oval or roundish shape.

SADNESS—DEJECTION--SD

In the expression of sadness the inner corners of the brows are raised and a triangular or open A shape of skin appears under the inner corners. In the infant shown there is some bulging of tissue or possibly vertical wrinkles above the inner corners of the brow. The raising of the inner corners of the brows causes the upper eyelid to be pulled up at the inner corner and the nasal root to be narrowed. The eyes are narrowed or squinted and the cheeks raised. The corners of the mouth are drawn downward and outward. The mouth can be opened or closed. The center of the lower lip is pushed upward by the chin muscle and the nasolabial fold is lengthened.
In the anger expression the brows are drawn down and together. There is a bulge (in young infants) or vertical wrinkles (in older children and adults) between the brows. The nasal root is broadened. The eyes are narrowed or squinted and the cheeks pushed up. Initially the mouth is usually rectangular or squarish. The angularity may diminish more or less quickly, leaving an open tense mouth. Older children may close the mouth, press the lips tightly together and clench the teeth. This is probably a learned pattern of movements that plays a role in the self-regulation of anger.

In disgust the brows are drawn down and together causing vertical furrows or bulging between the brows. The nasal root and nasal bridge are broadened or bulged. The eyes may be narrowed or squinted and the cheeks raised. The mouth is opened, the lips are tensed and the lower lip may be lowered. The tongue moves forward beyond the gum line. The upper lip and nasal wings may be raised causing the nasal bridge to bulge or wrinkle.

In contempt, a rare expression in young children, one brow is raised higher than the other. The forehead thickens or has transverse furrows on one side. The nasal root narrows. The eyes may be narrowed or squinted. The head is tilted back or cocked with the gaze downward toward another person. The upper lip is
raised on one side. The infant in the photo is only seven months old, and there was nothing in the context to make us feel that it was a genuine emotion expression. We consider it an unexplained display of the contempt expression.

FEAR-TEERROR--FT

In the fear expression the brows are straight or normal shape, slightly raised and drawn together. The head angle of the infant makes the brows difficult to distinguish. There may be bulging or horizontal lines partially across the forehead. The nasal root is narrowed. The upper eyelids are raised and tense with the eye fissure widened. In older children and adults, sclera (white) shows above the pupil. In young infants, fatty deposits on the upper lid may prevent it from being lifted high enough to expose the sclera above the pupil, but tension or movement in the upper lid may be observable. The mouth is opened with the corners retracted straight back.

SHAME-SHYNESS--SH

Shame is another rare expression in young infants. We have not yet observed it in our video records. Shame is distinguished by special attention to gaze behavior. The eyes are lowered with the gaze downward or askance, away from another person. In older children, the lips may be rolled inward or the lower lip may be tucked between the teeth.
THE INFANTS' AFFECT EXPRESSION OF PHYSICAL DISTRESS OR PAIN--DP

In the physical distress or pain expression the brows are sharply lowered and drawn together. The nasal root is broadened and vertical furrows or bulging appear between the brows. The eyes are tightly closed and they stay closed for extended periods of time. The cheeks are raised. The mouth is typically rectangular or squarish, and is always stretched open, tense, and angular.

The pain expression of young infants can be confused with the anger expression when the latter includes momentary eye closure. The critical differences are the amount of tension in the eye region and the duration of the eye closure. In the pain expression the eyes are tightly closed for extended periods (several seconds) while in the anger expression of young infants and toddlers the eyes are not closed as tightly and for relatively shorter periods of time. Of course, the anger expression often occurs without eye closure. In our lab, eye closure of less than one second duration that is preceded and followed by the AR expression is considered transitory and is not counted as a DP.

FATIGUE--SLEEP--FS

The face is in a normal, resting position with the eyelids drooping or closed. The head is relaxed and usually it is resting on something. The baby appears to be drowsy or sleeping. Brow or mouth movements may occur and should be noted. This affect is not illustrated on the Affex Videotape.
III. Procedure for Using Affex to Identify Emotion Expressions

The first step in applying Affex is to have judges learn the observable patterns made by muscle movements in each of the three grand regions of the face -- forehead/brow, eye/nose/cheek, and mouth/lip/chin. This is done by achieving reliability on The Maximally Discriminative Facial Movement Coding System (Max), (Izard, 1979).

Recently, we have begun training some Affex coders without requiring prior reliability on the Max system. These coders are required to become familiar with Max by reading the manual, viewing the training tape, and practicing some segments. When the coders have demonstrated understanding of Max, they progress to the Affex coding system, where training proceeds as described below. To date, three coders have been trained in this manner, acquiring Affex reliability in about the same amount of time as required by coders who have previously obtained reliability with Max.

After training with Max, judges learn the movement patterns that occur in each region of the face for each emotion. It is important to be aware of the fact that a given AC may contribute to different emotions. For example, raised eyebrows can be a part of the interest or surprise expressions and a squarish, angular mouth can be a part of the anger or pain expressions. This is a reminder that continuous scanning of the whole face is essential.
Judges observe the face as a whole, with particular attention to changes in any of the three regions that constitute change from one emotion expression to another. Based on the established Affex criteria they classify the movement patterns into emotion expression categories. Since judges are trained to observe criterion movements in each region, they can classify a facial gestalt as a combination or blend of two emotion expressions; for example, the brow region may show the movement pattern of anger while the mouth region shows the pattern of sadness.

The general rule for applying Affex calls for coders to make judgments or classifications of emotion signals on the basis of observable ACs as described in the Affex Codes (Section III) and illustrated on the Affex Videotape. These are the same ACs as the ones in Max. There are two exceptions to this rule; they relate to criteria that lead to the hypothesis that interest or sadness is present, without the ACs as previously described for these emotions. These judgments are made on the basis of muscle tone rather than movements due to muscle contractions and are recorded in parentheses [(IE), (SD)]. They require special reliability checks and may be excluded from the calculation of intersystem reliability since they are not based on ACs described in Max. When the intercoder reliability for these judgments considered separately cannot be demonstrated, they should be dropped from the analysis. The social validity of these judgments, like any others, can be assessed with an emotion labeling, emotion recognition, or emotion matching procedure (Izard, 1971; Izard, et al., 1980; Yarczower and Kilbride, in preparation).
The relatively high agreement between Max and Affex may justify the independent use of Affex, but we recommend that the two be used in complementary fashion. In studies that require analyzing extensive amounts of facial behavior, Affex can be used to determine the sequence and duration of emotion signals. Max can then be used to analyze a relatively small (10-20%) representative sample of segments drawn from the material. The sample of segments should represent each affect expression identified by Affex in proportion to the number of times it was observed by Affex coders. If intersystem agreement is 75% to 80% or better, Affex judgments can be assumed to be adequately objective and accurate. If agreement falls below 75%, the material should be recoded and intersystem and intercoder reliability should be rechecked. Frequent checking of intercoder and intersystem reliability should help prevent "sagging" of reliability.

Training for Affex consists of several steps.

1. Obtain reliability on Max as specified in the Max Manual.

2. Learn the observable patterns made by muscle movements in each of the three regions of the face -- brow (forehead-eyebrow-nasal root), eyes (eyes-nose-cheeks), and mouth (mouth-lips-chin) -- as described in Part II of the Affex Manual.

3. Learn the ACs of each emotion by region.

4. Practice observing the face as a whole, while scanning for
appearance changes in all three regions.

Once you have learned the regional ACs for each emotion well enough to detect them in real time, proceed with the analysis of the video records as follows:

5. Play the entire segment in real time, scanning for ACs. Segments can be established on any basis that suits the investigator but segments longer than one minute will probably decrease coding efficiency.

6. Repeat step five as necessary depending on the density of ACs, in order to get a general map of the ACs and to form hypotheses as to what emotions are expressed.

7. Analyze the video segments in units organized by the observed ACs; that is, each AC is a stop point for labeling affect signals.

8. Play the segment in real time until an AC is observed. Stop when the AC is clearly visible. This stop-frame (or stop point) may show signals that enable you to identify or label the affect or affect blend.

9. Consider the initial label (assigned in step 8) as an hypothesis to be confirmed by using the slow motion mode to view the stop-frames immediately preceding and following this stop point.

10. Use time coding to determine onset and offset times of each component of the emotion expression (explained in Section C).
11. After making the necessary re-runs of the stop-frames surrounding the AC, identify and label the affect signals. Proceed in real time (or slow motion, depending on the density of ACs) to the next AC, which is the next stop point.

12. Repeat steps 6-11 for the remainder of the segment.
A. **Judging Discrete Affect Expressions**

1. Be sure to keep in mind the facial appearance of the subject during a "neutral" expression--no codeable ACs and neither specially high nor specially low muscle tone. The awake face with no codeable ACs (or a face on which the only codeable movement is a Max code 51--open, relaxed mouth) forms a "baseline" for judging changes in expression.

2. Make judgments on the basis of ACs and the results of muscle movements.

3. Disregard context (turn off sound on video records).

4. Be aware of changes in muscle tone when coding expressions. If there are no codeable appearance changes due to muscle movements, the expressions of hypothesized interest and hypothesized sadness may be judged on muscle tone. High muscle tone ("bright, alert" face) may indicate hypothesized interest, scored (IE), and low muscle tone ("droopy, sagging" face) may indicate hypothesized sadness, scored (SD). It is recognized that judging hypothesized interest and hypothesized sadness on the basis of muscle tone alone is a relatively less objective and more intuitive process than judging expressions on the basis of ACs that follow from muscle contraction. Place these judgments in parentheses to indicate that the emotion was judged without codeable appearance changes, may be of low intensity, and requires special reliability checks.
coder thinks an NC may constitute an effort at the self-regulation of emotion expression, it may be recorded in narrative form for later evaluation.

12. Scoring AR expression: In this manual and the master code for practice material, both code 33 and 32 are considered components of the AR expression. Code 32 describes eyes narrowed by the lowering of the brow (contraction of the corrugator, glabellae, and eye brow depressors). The 32 is distinguished from code 33 by the absence of AC's associated with contraction of the orbicularis oculi. Contraction of this eye sphincter typically results in concentric movement of the tissue surrounding the eye fissure (squinting of the eyes); for example this concentric movement draws the tissue under the eye fissure (upper cheek area) upward and toward the iris. This orbicular action may produce creases extending from the outer corner of the eyes, and in young infants bulges all around the eye fissure. These AC's are not equally evident on all faces.

Distinguishing code 32 from 33 by these criteria is a difficult process, and one with which we have had relatively poor reliability. In addition, in our lab we have not found code 32 to occur before age 12 months and infrequently between 13 and 20 months. However, we hypothesize that the decreasing intensity of orbicularis oculi contraction (as in code 33) reflects a developmental trend. Preliminary analyses of 36 2- to 19 month-old infants in response to inoculation showed a significant, progressive decrease in orbicularis contraction
with age, as judged by the relative frequency of codes 37, 33, and 32.

Because of the rarity of occurrence and difficulty in reliably identifying code 32, we suggest that trainees of the Affex coding system try to observe and record the AC's associated with these two codes but that such distinctions not be considered in computing reliability.

13. Use of Affex in our lab from 1980 to 1983 has also led us to include another AC in the mouth region, Max code 55. Code 55 describes the mouth usually opened wide with lips tense. It is distinguished from a code 54 by dimunition or absence of a clear rectangular, squarish shape to the mouth. The 55 seems to reflect a less intense contraction of the muscles which combine to form the squarish shape of code 54. Both of these AC's of the mouth occur as components of the AR and DP expressions.

In our lab, we have met with greater success in reliably distinguishing these two mouth AC's than with codes 33 and 32. We suggest that trainees of the Affex coding system try to observe the AC's associated with codes 54 and 55, though only two 55's are explicitly noted in the Affex Master Code.

3. Affect Blends

1. When an emotion component is clearly visible in one region but a signal for another emotion is visible in another region,
score a combination or blend; e.g., AR/SD. Write the code for the upper face signal first.

2. The judgments (IE) and (SD) may also be part of a blend.

3. Blends are common with some children. Do not hesitate to score them when indicated.

4. Obs, NS, and NC may also be a part of a blend.

C. Judging Onset-Offset Times

1. When there is a change from one expression or AC to another continue the video until you see clear indicators of the new expression or AC. Then go back in slow motion to locate the beginning of the new expression or AC.

2. Use slow motion (preferably frame by frame control) to score onset and offset times of each facial expression.

3. Code an expression no matter what the duration (even 0.2 second), if it is clearly visible.

4. Time coding is more difficult and time consuming when expressions change rapidly. Frequency of expression changes vary with individuals and situations.

5. In comparison to single affects, blends are more difficult to time code because they involve different components that may have slightly different onset-offset times.

6. The "transitional" rule discussed on page 16 also applies to brief occurrences of NS or OBS. If a NS or OBS segment of less than one second duration is preceded and followed by the
same affect expression, the NS or OBS segment may be con-
sidered that expression in tabulating facial data.

IV. Training Material for Obtaining Reliability on Affex

The training material for Affex was drawn from the same
sources as those used for Max (Izard, 1979). As with Max,
practice segments for Affex were selected to represent the
full range of affect signals that are observed in infants from
birth to two years. Numerous examples were drawn from the
second year of life, but the source materials were not as
extensive in the second year as in the first. At least one
emotion, expected under certain social conditions in the second
year, the emotion of shame or shyness, has not yet been added
to our video tape library.

The Affex training segments, like those of Max, were drawn
from stimulus situations ranging from playful interactions to
the acute pain of inoculation or incision (for blood tests).
The material includes examples of 8 discrete affect expressions
and several expression combinations or blends. The procedure
for use of the training segments is detailed in Section III.
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### Training Material for Obtaining Reliability:
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<td>W</td>
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<td>W</td>
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<td>F</td>
<td>W</td>
<td>724.2</td>
<td>736.0</td>
<td>598</td>
</tr>
</tbody>
</table>

Concluding Comments

Credits
V. Development, Reliability and Validity of Affex

Affex is the Facial Expression Scoring Manual (FESM) adapted for infants and children. The development of the FESM was guided by differential emotions theory (Izard, 1971, 1977; Tomkins, 1962, 1963). The facial criteria for classifying emotion expressions were based on this theory and the empirical research relating to the expressions it defines (Ekman and Friesen, 1975; Ekman, Friesen and Ellsworth, 1972; Izard, 1971; Tomkins and McCarter, 1964). The illustrative material for FESM was based on concensually validated photographs of emotion expressions. Each emotion expression was illustrated by one or more cross-culturally standardized photographs of emotion expressions of adults (Izard, 1971).

The illustrative material of FESM was arranged by cutting the photographs into three parts, one for each facial region (brow, eye, mouth regions). Several illustrations of the appearance changes in each region for each emotion (interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame-shyness) were placed in the manual. Interjudge reliability (agreement) for FESM ranged from the high 70's to the low 80's (Izard et al., 1980; Parisi, 1977). This level of reliability was obtained on video records of infants' facial behavior, despite the fact that the FESM illustrative material was from adult expressions.

Affex was developed by substituting infant expressions for adult expressions in FESM and by adapting the verbal descriptions of the ACS to infants and children. Most of the changes in the
verbal descriptions follow one rule: when adults show furrows or
wrinkles, infants and young children usually show dimples and
bulges due to relatively heavy fatty deposits of highly elastic
skin. (For a fuller discussion of adult-infant differences in
facial appearance changes see the anatomy section of the Max
Manual and the references cited therein.)

The changes in the illustrative material are more extensive.
Instead of the FESM album of photographic illustrations, the Affex
Videotape shows photographs, artist's drawings, and dynamic video
segments for the major components of the different emotion
expressions, full-face expressions of discrete emotions, and
several different blends of two emotions. All the Affex
illustrative material consists of infants' and toddlers' spontaneous or naturally occurring affect expressions in real-life situations. There are no posed or deliberate, voluntary
expressions. There are a few illustrations of attempts by
toddlers at emotion regulation on the Videotape. These
expressions were illustrated in situations the child perceived as
aversive.

Since the expressions on the Affex Videotape are natural and
the expressors are infants and toddlers, the effects of display
rules and attitudes toward emotion expression are assumed to be
absent or negligible. Individual differences in expressions are
acknowledged and can be observed on the Affex Videotape. Such
individual differences, however, need not lead to
misclassification if the observer becomes familiar with their
range.
A. Reliability

Reliability estimates for Affex use the same methods that are used for computing Max reliability. The first, and most stringent, test of intrasystem reliability is the absolute time (AT) method. Coders' judgments are compared in order to determine the exact amount of time they were in agreement on the affects identified. Reliability is calculated by dividing the number of intercoder agreements and half agreements by the total number of possible agreements. The formula for calculating reliability by the absolute time method is:

\[ r_{(AT)} = \frac{\text{agreements} + \frac{\text{half agreements}}{2}}{\text{total possible agreements}} \]

For example, in a segment of 5 seconds duration, there are 50 possible agreements. A full agreement is scored when coders make identical judgments, and a half agreement is scored when they agree on one half of a blend but disagree on the other half.

In the second, or standard method (SM) of reliability, ACS of two coders are counted as agreements if the onset and offset times of the ACS are within 0.5 sec of each other. This method allows for coder reaction-time error. Reliability estimates are calculated from the total number of agreements concerning the duration and sequence of ACS divided by the total number of judgments made. The following formula is used to calculate standard method reliability:

\[ r_{(SM)} = \frac{\text{agreement} \times 2}{\text{total number of judgments}} \]

* to the tenth of a second
In counting the number of agreements, assign a value of 0.5 to cases where judges agree on one half of a blend but disagree on the other half.

Because data analysis using Affex typically involves long video records and the absolute time method can become unwieldy, in the first edition of this manual we recommended that reliability calculations be done using the standard method. However, several years of experience have shown that the absolute time method offers the most accurate and informative assessment of intercoder reliability. This is true of both intra- (Affex-Affex) and inter-system (Max-Affex) reliability checks. For this reason, we recommend it be used for both purposes.

As described in the first edition of this manual, in using the standard method the investigator may experience a problem with the formula when coders record an unequal number of judgments. In the example described below, coder A judged that three emotion expressions were exhibited in a given video segment, and coder B judged that the same expressions were exhibited together with two instances of a blend involving those expressions. In cases like this, the most accurate estimate of reliability is provided by the absolute time method of calculation. A coder's judgment of the presence of an emotion for any given period of time represents repeated discrete judgments. This is a reasonable assumption since any coder makes frequent checks as to the presence of an ongoing emotion but records only changes in ACs or emotion expressions. In the case illustrated in Table 1, the judgments of A that cover a longer time period than those of B can be
considered as a set of repeated judgments. The protocols of two coders who analyzed a video segment with a clock time lasting from 100.1 to 107.5 are shown in Table 1.

Table 1
Example Code Sheets where Coders Made an Unequal Number of Judgements

<table>
<thead>
<tr>
<th>Coder A</th>
<th>Coder B</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.1</td>
<td>100.1</td>
</tr>
<tr>
<td>101.9</td>
<td>100.9</td>
</tr>
<tr>
<td>105.1</td>
<td>101.7</td>
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<tr>
<td>106.8</td>
<td>102.3</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>104.3</td>
</tr>
<tr>
<td></td>
<td>105.1</td>
</tr>
<tr>
<td></td>
<td>106.5</td>
</tr>
</tbody>
</table>

$\tau (S;1) = \frac{(3 + 1/2) \times 2}{12} = \frac{7}{12} = 58.3\%$

Clearly, the coders agreed on the affects expressed more than 58.3% of the video segment yet it does not appear that way. Our solution to this problem is to use the absolute time method of calculating reliability. Table 2 shows the protocols of A and B, arranged for reliability check.
| Table 2 |
|-----------------|-----------------|

The Protocols of A and B Using Absolute Time Method

<table>
<thead>
<tr>
<th>Coder A</th>
<th>Coder B</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.1</td>
<td></td>
</tr>
<tr>
<td>101.0</td>
<td></td>
</tr>
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<td>106.0</td>
<td></td>
</tr>
<tr>
<td>107.0</td>
<td></td>
</tr>
<tr>
<td>108.0</td>
<td></td>
</tr>
</tbody>
</table>

\[
\tau(\text{AT}) = \frac{48 + 19}{2} = \frac{57.5}{80} = 71.9\% 
\]
A sample Max-Affex comparison form for use with the absolute time method is found in Appendix D of this manual.

 Coders are required to achieve at least 80% agreement with the master code for the training material on four consecutive segments.

 Four coders in our laboratory who had already obtained reliability on Max have learned Affex using the Affex Videotape and Manual. Average training time to achieve reliability (at least 80% agreement with the master code on four consecutive segments of the training material) was 5 hours (coding time), with training times ranging from 3 to 11 hours. On their final training segments, the average agreement with the master code was 92.0%.

 B. Validity

 Evidence for the content, construct, and criterion-related validity of Max generalizes to FESM and Affex since all three systems are based on the same theory and research. Further, in three studies in our laboratory intersystem reliability has ranged from 73.9% to 88.0%, with a mean of 80.0%.

 **Content Validity.** The content universe and content sources sampled are the same as those in Max. The muscle movements that effect the appearance changes are identical in both systems.
Construct Validity. The first test of the construct validity of the system was in the series of studies done by Izard, Huebner, Risser, McGinnes, and Dougherty (1980). Judges used the FESM to specially select 25 video segments of infants' facial behavior so as to represent as clearly as possible the discrete emotion expressions in the repertoire of one- to nine-month-old infants. These segments were analyzed by two Max coders and two FESM (Affex) coders. They were also presented to several groups of college students and health care professionals who were asked to make global judgments of the facial expressions. Both the Max coders and the untrained subjects agreed with the FESM coders in identifying the expressions of interest, joy, surprise, sadness, anger, disgust, and fear. Construct validity was indicated by Max-FESM agreement of 88.0% on this specially selected material.

Criterion-related or Predictive Validity. The predictive validity of Affex has been examined by testing whether the appearance changes it identifies as affect expressions predict the emotion classification responses of untrained observers (social consensus).

Parisi (1977) videotaped the facial responses of 5-, 7-, and 9-month-old infants to 20 emotion-eliciting situations or incentive events. The videotapes were then analyzed by coders using the FESM. The FESM results predicted untrained subjects' classifications of emotion expressions for 73.0% of the stimulus materials. In the Izard, et al. (1980) study the FESM analysis predicted the emotion classifications of untrained subjects for 55.9% of the expressions.
VI. Organization of Data on Emotion Expressions

Affex provides a reliable system for identifying emotion expressions. Once the expressions have been identified by Affex (and confirmed by Max coding of a random sample of the material), there are a number of ways of organizing the emotion expression data. These techniques have been developed in order to organize the data on emotion signals into meaningful units for studying individuals, dyads (e.g., parent-child), and groups. Investigators may develop other methods to meet their particular purposes.
A. Individual Affectograms

Application of Affex will provide a continuous record of each subject's facial expressions for a given incentive event or situation. Information for each individual can be summarized in a bar chart of expressions—an Individual Affectogram (IA). This Affectogram displays the sequence or pattern of emotion expressions along the abscissa with the duration of each emotion expression represented on the ordinate. Each bar can be shaded or colored to identify the specific emotion being represented.

Individual Affectograms can aid in exploring for systematic relationships between incentive events on the one hand and sequences and patterns of emotion expressions on the other. The visual format of the Affectogram facilitates the search for (a) reliable, recurrent patterns of emotion expressions within individuals across events and over time and (b) similar patterns of emotion expressions among different infants experiencing similar events.

Examples of Individual Affectograms (IAs) are presented in Figures 1a and 1b and 2a and 2b. These Affectograms compare the sequence and duration of affects expressed by pairs of same-age, same-sex infants in response to inoculation.

Figures 1a and 1b present the expressive responses of two four-month-old white male infants to the pain of inoculation (DPT 2). While both infants showed interest before the inoculation and pain or physical distress immediately after, infant HP-7 displayed brief expressions of sadness. He also showed a brief sign of
Figure 1a

Individual Affectogram:
A four-month-old white male infant's affect expressions in response to the acute pain of inoculation

![Graph showing duration of emotion expressions (sec) for different patterns of expressions (HP-7).]

- Interest-Excitement: AI=0.188
- Sadness-Dejection: AI=0.086
- Anger-Rage: AI=0.404
- Physical Distress-Pain: AI=0.189
- Anger/Sadness Blend: AI=0.004
- Pain/Sadness Blend: AI=0.040
- Obscured: AI=0.088
Individual Affectogram:

A four-month-old white male infant's affect expressions in response to the acute pain of inoculation.
soothing, an expression of interest, toward the end of the episode. Infant HP-1 never displayed the sadness expression and showed no expressions of interest or indication of soothing prior to the end of the episode.

Figures 2a and 2b present the expressive responses of two female infants, one seven and one eight months of age, to their third DPT inoculation. The differences between the two infants are quite striking. Infant 071 appeared to be minimally affected by the inoculation as evidenced by the amount of time expressing negative affect. She had a relatively short latency to soothe and show interest and expressed joy at the end of the episode. Infant 079 expressed negative affects throughout the episode thus showing a relatively long latency to soothe and show interest.

Once an Affectogram is drawn, Affect Indices (AIs) can be easily computed for total positive affect expressed, total negative affect expressed, and for each discrete affect expressed. The formula for computing Affect Indices is:

\[
AI = \frac{\text{Duration of the Expression}}{\text{Duration of the Episode}}
\]

Thus an AI, which ranges in value from 0.0 to 1.0, is the proportion of time that a particular affect, blend, or pattern of affects is expressed during a given episode. The AIs for the infants in Figures 1a, 1b and 2a, 2b are presented along the abscissa below the emotion label.
Figure 2a

Individual Affectogram:
An eight-month-old white female infant's affect expressions in response to the acute pain of inoculation.
A seven-month-old white female infant's affect expressions in response to the acute pain of inoculation.
B. Dyadic Affectograms

The value of constructing a Dyadic Affectogram (DA) is that it operationalizes the concept of emotion congruence. Emotion congruence indices (ECIs) that show the amount of dyadic co-occurrence of the discrete emotion expressions enable an investigator to study the effects of congruent and incongruent emotion-expressive behavior between mother and infant (or any pair of individuals). A DA differs from an IA in that all information (occurrence and duration) is displayed on the same horizontal, linear dimension—a sequential, real-time dimension. The value of this display system is that it enables an observer to note immediately the correspondence in emotion-expressive behavior between mother and infant (or any two separate individuals). For example, looking at the example of a DA in Figure 3 one can tell at any given moment precisely what facial displays were being encoded by both mother and infant.

An example of a Dyadic Affectogram is illustrated in Figure 3. The data are from a play episode between mother and infant in which the emotion expressions of interest and joy were exhibited. In this dyad an interest expression by the infant was more likely to co-occur with an interest expression by the mother than with a joy expression.

Figure 4 illustrates a feeding episode between the mother and infant. The emotion expressions of interest, joy, and disgust were identified. As in Figure 3 an interest expression from the infant was most likely to co-occur with an interest expression
Figure 3

Dyadic Affectogram:
play episode between a mother
and her nine-month-old male infant

Mother

Time in sec

Infant

Time in sec

Interest—Excitement
ECI=0.467

Enjoyment—Joy
ECI=0.283

Obscured
ECI=0.0
Figure 4

Dyadic Affectogram:
Feeding sequence between a mother and her nine-month-old male infant

Mother

Time in sec

Infant

Time in sec

Interest-Excitement
ECI=0.255

Disgust-Revulsion
ECI=0.0

Enjoyment-Joy
ECI=0.017

Obscured
ECI=0.0
from the mother. The infant's expression of disgust also co-occurred with an expression of interest from the mother. The expression of joy from the infant was more likely to co-occur with a joy expression from the mother than any other expression observed.

Once a DA has been drawn, ECIs can be readily computed:

\[
ECI = \frac{\text{Duration of Emotion Expression Co-occurrence}}{\text{Duration of the Episode}}
\]

Thus ECIs are expressed as proportions that vary from 0.0 to 1.0. In Figure 4 the ECI for all emotions expressed during the entire episode was .272. This ECI represents the proportion of the total time in the episode that the members of the dyad (mother and infant) were expressing the same emotion. The ECIs for each discrete emotion were: Interest .255, joy .017, disgust .000.

An ECI limited to co-occurrence of the same emotion expression in the mother and infant will yield a unit variate for analyzing affect congruence in the dyad for any given event or time period. The proportion of time in an episode that shows co-occurrence of one emotion expression by the caregiver and a different expression by the infant is an emotion incongruence index (EII). (Congruent and incongruent affect expressions do not necessarily imply adaptive and dysadaptive behavior, respectively.)
ECIs and EIIs, like all other indices described in this section, are empirical indices and their use is not dependent on any particular theory. The indices are operationally defined and do not imply a positive-negative or adaptive-dysadaptive value.

C. Group Affectograms

Figure 5 presents an example of a Group Affectogram (GA) based on cross-sectional data from three age groups. Each bar in the graph shows the average duration of a given emotion for the group as a whole. This Affectogram shows developmental changes in facial expressions of emotions in response to trauma (pain of inoculation). The youngest group, Group 1, expressed the most physical distress and sadness of any of the three groups. Group 2 showed less sadness and less joy (after soothing) than Group 1. Group 3, the oldest group, exhibited no joy after soothing but the least amount of sadness. Some of the infants in Group 3 exhibited post-inoculation expressions of anger, and one nine-month-old showed fear after the injection, when the nurse tried to take him. The lack of the joy expression and evidence of the fear expression suggested that Group 3 infants may have retained an image or schema of the nurse as agent of harm by means of perceptual registration or cognitive evaluation.
Figure 3

Average duration of each emotion expression during 70 seconds following penetration

Treatment: DPT 1 (Grouped Data) DPT 2

DPT 3

Interest - Joy

Emotion Expressions Displayed

Group 1 (N=6); $\bar{x}=2.0$ mo

Group 2 (N=6); $\bar{x}=5.6$ mo

Group 3 (N=6); $\bar{x}=7.2$ mo

Excitement - Sadness - Anger - Physical Distress - Pain

Fear - Terr -
VII. Concluding Comments

Affex is a relatively new system and it is still early to judge its ultimate value for studying emotions in human development. In the studies that have been completed, the reliability and validity of Max and Affex appear satisfactory.

The two systems were specially developed for research with infants and children and all the illustrative material consists of spontaneous expressions from these age groups. Judging from the comparability of the facial movement capability of infants and adults and the agreement between results from Max and Affex, the two systems can be used with adolescents and adults, with allowance made for the increasing tendency for furrows and ridges to replace dimples and bulges as age increases. The basic anatomy of the face as it relates to facial patterning capability does not change after birth, and the spontaneous expressions of the fundamental emotions are essentially invariant over the life span.
References


Izard, C. E. (1979). The maximally discriminative facial movement coding system (Max). Newark: Instructional Resources Center, University of Delaware.


APPENDIX C

Emotional Regulation Coding Manual
Episode Coding Sheet: Instructions

1) For each victim in a given bullying episode, the type, degree and duration of coping responses manifested are to be coded in the sequence that they are observed. Coping responses are to be coded according to the definitions provided in this manual, using the key below, and the copies of the coding sheet provided on the following pages.

<table>
<thead>
<tr>
<th>Coping Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Coping</td>
<td>IC</td>
</tr>
<tr>
<td>Instrumental Support</td>
<td>IS</td>
</tr>
<tr>
<td>Instrumental Intervention</td>
<td>II</td>
</tr>
<tr>
<td>Emotional Intervention</td>
<td>EI</td>
</tr>
<tr>
<td>Emotional Support</td>
<td>ES</td>
</tr>
<tr>
<td>Physical Aggression</td>
<td>PA</td>
</tr>
<tr>
<td>Verbal Aggression</td>
<td>VA</td>
</tr>
<tr>
<td>Venting</td>
<td>VE</td>
</tr>
<tr>
<td>Cognitive Restructuring</td>
<td>CR</td>
</tr>
<tr>
<td>Avoidance</td>
<td>AV</td>
</tr>
<tr>
<td>Ignores / Distraction</td>
<td>ID</td>
</tr>
<tr>
<td>Denial</td>
<td>DE</td>
</tr>
<tr>
<td>Acquiesces/Complies</td>
<td>AC</td>
</tr>
</tbody>
</table>

2) Onset and offset times of the coping styles are to be coded using the clock on the VCR. Times must be precise so that subtracting the onset time from the offset times yields the time duration of the coping style used.

3) Escalation effect of the coping style refers to the extent that the coping style manifested by the child appears to contribute to the escalation / de-escalation of the severity of the episode, and should be coded using the scale below:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe De-escalation</td>
<td>No Effect</td>
<td>Severe Escalation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4) Resolution effect of the coping style refers to the extent that the coping style manifested by the child appears to successfully end / perpetuate the episode, and should be coded using the scale below:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perpetuates Episode</td>
<td>No Effect</td>
<td>Resolves Episode</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5) Additional comments or notes that clarify or elaborate upon the coding are to be made in the space provided on the coding sheets. These should provide detailed observations on the victim's behaviour and the situational dynamics of the episode. (E.g., if the victim vented, was it crying or yelling in anger?)
**EMOTIONAL REGULATION CODING MANUAL OF COPING STYLES**

**Coding Definitions**
The following definitions are to be used when identifying and coding the coping styles chosen by victims in each bullying episode.

1) **Instrumental Coping:** The victim responds to the bullying by attempting to take some type of constructive action or problem-solving approach to improve or resolve the episode. An example would be suggesting time limits or "trading" after a certain time when toys are being fought over.

2) **Instrumental Support:** The victim responds to the bullying by talking to others in an effort to "group brainstorm" potential ways to resolve the episode. More specifically, the victim is looking for others to assist them in identifying possible responses from which they then decide the final course of action. An example would be a child asking another peer, "What do you think?" or "What would you do?" about the situation.

3) **Instrumental Intervention:** The victim responds to the bullying by asking others to solve (or help solve) the problem. In this case, the victim is asking others to intervene on their behalf or determine the course of action to take. An example would be one child asking another, "Tell me what to do."

4) **Emotional Intervention:** The victim responds to the bullying by crying to elicit assistance. The emotional tone to the plea for intervention distinguishes it from instrumental intervention. An example would be a child crying for help.

5) **Emotional Support:** The victim responds to the bullying by talking with others to elicit emotional support during the conflict, but does not request intervention or specific ideas regarding the course of action to take. Examples would be a child seeking comfort or commiserating with others about how "mean" the bully is being.

6) **Physical Aggression:** The victim responds to the bully by physically attacking them. Examples include hitting, shoving, kicking, threatening gestures, etc.
EMOTIONAL REGULATION
CODING MANUAL OF COPING STYLES

Coding Definitions (continued)
The following definitions are to be used when identifying and coding the coping styles chosen by victims in each bullying episode.

7) **Verbal Aggression:** The victim responds to the bully by verbally attacking them. Examples include name calling, taunting, teasing, nasty gossip and social exclusion (refusing to let someone play).

8) **Venting:** The victim responds to the bullying with an undirected emotional outburst that appears to release pent-up feelings. Examples would include throwing an object (but not at anyone), crying (but not for help) or yelling in frustration.

9) **Cognitive Restructuring:** The victim responds to the bullying by trying to look at the situation in a more positive way. An example would be a child who, when being told that the rules of a game have changed (in accordance with the bully’s wishes), responds, “Maybe this way will be more fun.”

10) **Avoidance:** The victim responds to the bullying by leaving the situation.

11) **Ignores / Distraction:** The victim responds to the bullying by simply ignoring them or occupying him/herself with some type of distracting activity. Examples include the child who pretends not to hear the bully, turning his/her back to the bully, and beginning or resuming an activity while the bullying continues.

12) **Denial:** The victim responds to the bullying by denying that there really is a problem or basis for the conflict. Examples would be a child who responds to a toy be taken away by saying, “That’s okay, I wanted you to have that,” or a child who says “We were just playing,” when they were clearly physically attacked.

13) **Acquiesces/Complies:** The victim responds to the bully by giving in to the bully’s demands. For instance, giving the bully a toy that he/she is playing with when the bully says, “Give me that.”
CODING RULES FOR EMOTIONAL REGULATION
COPING STYLES

1. Individual ratings are circled. O

2. Agreed upon / group ratings are marked with an ‘X’. X

3. When aggression is repeated during an episode, and the coping response of
the victim remains consistent across the aggressive overtures, count it as one
 coping style / response.

4. When an observed coping style ends the aggression code offset to the end of the
interaction between the bully and the victim; i.e., when both have moved on to
other activities.

5. When the coping style definitively ends the episode, code resolution 5.

6. When the coping style definitively ends the episode, code escalation 1.

7. When the coping style appears successful but the episode dwindles to an end,
code resolution 4.

8. When the coping style appears successful but the episode dwindles to an end,
code escalation 2.

9. Generally, when the coping style that ends the episode is ID, resolution should
be coded 4, and escalation should be coded 2.

10. Generally, when the coping style that ends the episode is AV, resolution should
be coded 5, and escalation should be coded 1.

11. If the episode moves from verbal aggression to physical aggression,
escalation must be coded at least a 4.

12. If the episode moves from physical aggression to verbal aggression,
escalation must be coded at least a 2.

13. If the type of aggression in the episode remains the same (e.g., verbal),
escalation should be coded no higher than a 4.

14. Assertive commands given by the victim should be coded as IC.
15. If two coping styles occur at the same time, and serve to simultaneously end the episode, rate escalation and resolution the same for both coping styles.

16. If one coping response is observed all the way through the episode in concert with a variety of other coping styles that come and go (e.g., the victim is verbally aggressive all the way through the episode, and periodically hits the bully) code the onset of the sustained coping style at its beginning, and the offset at the end of the episode, and code the onset and offset of the others within the duration of the sustained style.

17. If the Denial coping style (DE) is observed in the context of Verbal Aggression (e.g., “I didn’t do that, stupid!”), code the coping style as Verbal Aggression (VA).
EMOTIONAL REGULATION AND DISPLAY IN CLASSROOM VICTIMS OF BULLYING
Coding Sheets

Coder: ____________________________
Date: ____________________________
Coding Partner: ____________________
School: __________________________
Tape Number: _____ Time Number: _____
Episode Number: ______

<table>
<thead>
<tr>
<th>Victim Description (Gender, Hair, Dress, etc.)</th>
<th>Coping Style Code (In order observed)</th>
<th>Coping Style Onset Time</th>
<th>Coping Style Offset Time</th>
<th>Escalation Effect of Coping Style (circle rating)</th>
<th>Resolution Effect of Coping Style (circle rating)</th>
<th>Additional Notes and Comments</th>
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