

Developmental Stage of Performance in Reasoning About Bullying in School Age Youth

by  
Christopher J. Joaquim

An Applied Dissertation Submitted to the  
Fischler School of Education and Human Services  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Education

Nova Southeastern University  
2011

## Approval Page

This applied dissertation was submitted by Christopher J. Joaquim under the direction of the persons listed below. It was submitted to the Fischler School of Education and Human Services and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

---

Marcelo Castro, PhD  
Committee Chair

---

Date

---

James Pann, PhD  
Committee Member

---

Date

---

Program Professor Review  
Applied Research Center

---

Date

---

Dana Scott Mills, PhD  
Executive Dean

---

Date

Copyright by

Christopher J. Joaquim

2011

## Acknowledgments

During the dissertation process, sound research, effort, dedication, and personal sacrifice are necessary. However, the successful completion of a dissertation is not possible without the support of others, and I was fortunate to be surrounded by exceptionally supportive, talented individuals. Dr. Marcelo Castro, my committee chairperson, always believed in this research, and continuously encouraged me to meet the highest standard possible. He shared his vast knowledge of quantitative research, academic writing, and the dissertation process. I greatly appreciate all of the conversations, e-mail responses, and clear guidance he provided over the last few years. I also would like to express my gratitude to Dr. James Pann, my committee member, for his insightful suggestions and the extensive time he spent reviewing my dissertation.

Without the support of Dr. Michael L. Commons (Harvard Medical School), my external adviser, this research would not have been possible. I am thankful Dr. Commons permitted me to adapt his instrument (the Counselor-Patient Problem), so I could measure cognitive developmental stage of performance in reasoning about bullying. Dr. Commons' willingness to guide me through the adaptation process was invaluable. The information he provided about the Model of Hierarchical Complexity (MHC) and about data analysis was also invaluable. Dr. Commons' encouragement and quick responses to my questions are all greatly appreciated. I would also like to thank Andrew Richardson for helping me to understand how to utilize Winsteps Software and MHC formulas. I am immeasurably grateful to Esther Byrnes for her ongoing support, encouragement, and understanding over the course of my doctoral studies. I am thankful to all family members and friends who have been supportive. This is dedicated to J.B. Joaquim.

## Abstract

Developmental Stage of Performance in Reasoning About Bullying in School Age Youth. Christopher J. Joaquim, 2011: Applied Dissertation, Nova Southeastern University, Fischler School of Education and Human Services. ERIC Descriptors: Bullying, Cognitive Development, High Schools, Middle Schools, Peer Harassment, Stage Theory

The Student-Bully Problem, an assessment of cognitive developmental stage adapted from Commons et al.'s (2006) Counselor-Patient Problem, was administered to 176 adolescent participants and 77 adult participants at an urban high school, urban middle school, and mid-size college (N = 253). High school counselors do not have an adequate understanding of how students reason about bullying. This study investigated the following inquiries: At what cognitive developmental stages (as defined by the Model of Hierarchical Complexity) do students at an urban high school reason about bullying? What percentage of students operate at each identified stage of cognitive development? How effective is the Student-Bully Problem at measuring cognitive developmental stage? This research study was quantitative and descriptive in nature.

After data was gathered from the Student-Bully Problem instrument, a Rasch analysis was conducted. Item and person Rasch scores were used to identify each participant's cognitive developmental stage of performance on the Student-Bully Problem, and to identify the item difficulty of the Student-Bully Problem's items. The Rasch analysis was also used to assess the validity and reliability of the Student-Bully Problem. Participants performed at the preoperational through metacognitive stages on the Student-Bully Problem. The Student-Bully Problem proved to be a useful tool in assessing cognitive developmental stage of performance in reasoning about bullying in school age youth. Modifying portions of the Student-Bully Problem might improve the effectiveness of the instrument. A larger more widespread study should be conducted to better assess the effectiveness of the Student-Bully Problem with more diverse national and international student populations.

## Table of Contents

	Page
Chapter 1: Introduction .....	1
Nature of Problem.....	1
Background and Significance of the Problem .....	1
Research Questions.....	6
Chapter 2: Literature Review .....	7
Introduction.....	7
Defining Bullying .....	7
Types of Bullying.....	10
The First Amendment & Cyberbullying .....	16
Prevalence of Bullying.....	18
The Student Victim of Bullying .....	20
The Bully .....	22
The Influence of Environment, Student Mobility, and Peers.....	26
Bullying Prevention .....	29
School Connectedness .....	30
Socioeconomic Status .....	35
Effects of Bullying.....	37
Bullying Laws and Students With Disabilities .....	44
Neurobiology of Bullying.....	47
Longterm Effects of Bullying.....	48
Bullying: A Global Issue.....	49
Reasoning and Cognitive Structure .....	51
Cognitive Developmental Stage and Stage Theory .....	53
Tasks Measuring Cognitive Developmental Stage .....	56
Hierarchical Complexity and Task Difficulty .....	58
Rasch Analysis.....	60
The Model of Hierarchical Complexity (MHC).....	62
Scoring Stages With the MHC.....	65
Brain Biochemistry and Emotions.....	69
Bullying and Cognitive Developmental Stage.....	71
Cognitive Developmental Stage and Antibullying Policy .....	72
Summary .....	73
Chapter 3: Methodology .....	76
Participants.....	76
Instruments .....	78
Procedure .....	87
Rasch Analysis .....	90
Stage Scores .....	92
Limitations .....	95

Chapter 4: Results .....	96
Coding the Data .....	96
Rasch Analysis With Student Data.....	96
Reliability of the Rasch Analysis .....	97
Stepwise Regression .....	98
Item Stage Scores.....	98
Person Stage Scores .....	101
Person Stage Scores for Student Assigned Seat Data .....	103
Person Stage Scores for Student Push Data .....	106
Stepwise Regression With Collapsed Multistage Categories .....	108
Student Rasch Variable Map for Assigned Seat.....	110
Student Rasch Variable Map for Push.....	110
Univariate ANOVA Scatter Plots: Participant Grade Level and Person Rasch Score.....	111
Adult Data.....	112
Personal Opinion and Experiential Questions .....	114
Chapter 5: Discussion .....	117
Assigned Seat Vignettes and Student Data .....	118
Push Vignettes and Student Data .....	121
Adult Data.....	123
ANOVA: Educational Level and Person Rasch Score.....	125
Student-Bully Problem Effectiveness .....	125
Limitations .....	127
Recommendations for Future Research .....	129
Clinical Implications.....	130
Research Implications.....	132
References.....	133
Appendices	
A Notes on Fixing Items' / Vignettes' Order of Hierarchical Complexity .....	142
B Student-Bully Problem (a, 1-1, 2-1) .....	149
C Student-Bully Problem (b, 1-2, 2-2) .....	155
D Variable Map Figures.....	161
Tables	
1 Data Matrix of Participant Ratings .....	96
2 Item Stage Scores.....	102
3 Assigned Seat Vignettes.....	104
4 Ratings for Assigned Seat Vignettes.....	105
5 Ratings for Assigned Seat Vignettes With Collapsed Multistage Categories .....	105
6 Assigned Seat Vignettes With Collapsed Multistage Items.....	106
7 Push Vignettes.....	107

8	Push Vignettes With Multistage Categories.....	108
9	Reliability With Multistage Categories (for Student Data) .....	109
10	Adult Assigned Seat Item Rasch Scores .....	113
11	Adult Push Item Rasch Scores.....	114
12	Mean Ratings of Experiential and Opinion Questions About Bullying.....	115
13	Experiential and Opinion Questions.....	116

Figures

1	Assigned Seat Linear Regression Scatter Plot (Students) .....	100
2	Push Linear Regression Scatter Plot (Students) .....	101
3	Assigned Seat Linear Regression Scatter Plot.....	109
4	Push Linear Regression Scatter Plot With Multistage Categories.....	111
5	Assigned Seat Scatter Plot: Education Level.....	112
6	Push Scatter Plot: Education Level.....	113

## **Chapter 1: Introduction**

### **Nature of the Problem**

The problem is that counselors at an urban high school do not have an adequate understanding of how students reason about bullying. The impact of this problem is that counselors do not have the knowledge needed to most effectively help student victims of bullying deal with bullying problems at school. There is research (Higgins-Trenk & Gaité, 1970; Inhelder & Piaget, 1958; Myers et al., 2002) supporting the idea that if urban high school counselors are to be more effective in counseling student victims of bullying, it could be important for them to consider how student victims of bullying understand and reason about an instance of bullying. At present, counseling methods of dealing with bullying focus on education about school rules, student behavior, and consequences, but do not take into account cognitive skills as they relate to the cognitive developmental stage of the student. The purpose of this study is to discover at what cognitive developmental stage or stages students at an urban high school operate at when reasoning about bullying, and to provide this information to school counselors whom work with student victims of bullying as well as bullies.

### **Background and Significance of the Problem**

Over the last two decades bullying has been a serious problem for public schools across the United States as well as globally (Coloroso, 2003; Felix & McMahon, 2006). Aside from having a significantly negative effect on students' academics, bullying can threaten the safety of school environments, as seen in many tragedies in the United States and around the world (Coloroso, 2003; Graham, 2006). In 1999, two reported victims of bullying killed 12 students, one teacher, and themselves at Columbine High School in

Colorado. Statistics have shown a child is bullied every 7 minutes, and 80% of adolescents have reported being bullied. Bullying has been linked to depression, low self-esteem, and homicide. Students committing acts of homicide are twice as likely to have been student victims of bullying when compared to the homicide victims (Erb, 2008). Merrell, Gueldner, Ross, and Isava (2008) found that bullying interventions (traditional bullying prevention programs) have modest positive outcomes, and do not have a significant effect on bullying behaviors in schools.

Presently, the researcher's high school has a commonly practiced antibullying protocol. Specifically, high school administrators take disciplinary measures when bullying takes place; which means they mainly reprimand the student carrying out the bullying, and then record and report the incident to parents or other appropriate individuals and authorities when necessary. School counselors try to aid student victims of bullying by helping them to develop problem-solving strategies for dealing with current and potential bullying problems.

After counseling a student victim of bullying, a counselor at this urban high school reported (to the researcher) that the victim left with an understanding of how to effectively respond to future similar instances of bullying. However, the same counselor reporting this seemingly successful counseling intervention later observed the same student ineffectively dealing with similar instances of bullying - in spite of what appeared to be an effective intervention. This researcher observed similar issues with the effectiveness of counseling interventions and student victims of bullying. It is difficult for counselors to effectively help students understand adaptive versus maladaptive responses to bullying. Repeatedly, student victims of bullying will carry out maladaptive behaviors,

such as punching a bully or yelling at the bully in a school hallway, even after receiving counseling regarding the bullying issue.

It is possible that a significant number of students respond to bullying in maladaptive ways, and that they do not respond positively to counseling because counseling interventions are not appropriate for the relevant cognitive developmental stages (or ability levels to reason about bullying) of students (Greene & Ablon, 2006).

When discussing the effectiveness of counseling interventions for adolescents and children with anger management issues, Greene and Ablon (2006) stated that a

...child's difficulties are not due to a lack of motivation or to adult (counselor, parent, or teacher) ineptitude, but rather to a deficit in cognitive skills, and therefore programs based on rewarding and punishing are unlikely to achieve satisfactory results because incentive based programs do not train lacking cognitive skills, shifting cognitive set. (p. 30)

Fajemidagba (1986) found that African adolescents might reach the stage of formal operations, but that the age of attainment can differ. The findings among Nigerian adolescents were similar to findings in Western cultures:

the implication of developmental stages for learning is that whatever a child is able to learn depends upon the child's level of cognitive functioning, competence to learn and the suitability of the learning or curriculum items. To assist students to move from a lower stage to the next higher stage of cognitive functioning, they must be confronted only with those curriculum items which can be understood by them in their present stage and at the same time, the curriculum items must add to and challenge their modes of reasoning. (Fajemidagba, 1986, p. 26)

By way of comparison, math teachers, for example, often assess the ability of their students to solve mathematical problems before teaching them problem-solving skills in math, and most high school learning interventions are based on student performance on relevant assessments. However, school counselors at this high school have not had any means of assessing how students reason about bullying. Furthermore,

counselors have students in Grades 9 through 12 on their caseloads, and reasoning ability can vary widely. A counseling approach where the same type of intervention is used for students of varying cognitive styles could result in a large number of cases of ineffective interventions. Rather, counselors should try to fit the intervention to the student's cognitive developmental stage.

In this study, bullying will be defined as physical, verbal, or psychological abuse, which occurs between students in the school setting (Juvonen, Nishina, & Graham, 2006). It is perpetrated by the bully with the deliberate intention of causing harm to the student victim of bullying (Solberg, Olweus, & Endresen, 2007). In order to qualify as bullying, the bully must possess more power than the bullied peer, and the bully must intend to do physical or psychological harm to the harassed peer (Coloroso, 2003). Coloroso indicated there is an imbalance of power between the bully and the bullied because the bully "...can be older, bigger, stronger, more verbally adept, higher up on the social ladder, of a different race, or of the opposite sex" (p. 13). The word *bullying*, as used in this paper, will be synonymous with the terms *peer harassment* and *peer victimization*.

In the context of this study, the theoretical framework to understand cognitive development will be based largely in the work of Jean Piaget (Inhelder & Piaget, 1958) and Commons, Trudeau, Stein, Richards, and Krause (1998). Piaget formulated and documented the "development of human reason" and found it important to evaluate the reasoning of children (Mayer, 2005). Further, Piaget (as cited in Inhelder & Piaget, 1958) identified specific stages of development along the human growth continuum by analyzing the reasoning ability of children and adolescents. Each stage definition was

based on how intelligence could be used to solve problems at various stages of human growth (Inhelder & Piaget, 1958). Commons, et al (1998) indicated that cognitive developmental stage can be analytically measured by assessing the performance of an individual on a task sequence containing tasks of varying levels of hierarchical complexity. In this study, cognitive developmental stage will be defined by the performance of high school students on a reasoning task about bullying.

The proposed study will be conducted at a midsize urban high school and junior high school in the Northeastern United States. The urban school district serves a community of approximately 50,000 people. The student bodies are very diverse with respect to culture and socioeconomic status. At the high school, over 60% of the students fall below the poverty line. Students speak 49 different languages, and 56% of the student body is classified as minority. Most out-of-country transfers emigrate from parts of South America, Central America, and Southeast Asia. Additionally, a notable number of out-of-country transfers are from the Middle East, Bosnia, and Africa.

The urban high school involved in this study has over 100 teachers, six administrators, five school guidance counselors, two clinical social workers as well as additional support staff. The school year begins at the end of August and is completed in June. All programs are college preparatory in design and academically oriented; thus, vocational options are not offered. Minimally, students are required to complete 4 years of mathematics, 4 years of English, 3 years of science, 3 years of history, 2 years of foreign language, and 1 year of physical education.

The researcher is a school guidance counselor in this urban high school, and works with students from Grades 9 through 12. School administration and the

superintendent of schools have given the researcher permission to seek consent from a sample of students in Grades 7 through 12 (and their parents if the students are under 18 years of age) to participate in the proposed study. The researcher has also gained permission to have teacher volunteers participate in the study.

### **Research Questions**

This study sets out to investigate the following inquiries: At what stages of cognitive development (preoperational, primary, concrete, abstract, formal, systematic, and metacognitive) do students at an urban high school reason about bullying? What percentage of student participants operate at each identified stage of cognitive development? How effective is the Student-Bully Problem at measuring cognitive developmental stage in adolescent students?

## **Chapter 2: Review of Related Literature**

### **Introduction**

This review of the research literature includes discussion about bullying research, cognitive developmental stage research, and other developmental stage research. It is difficult to seriously consider the problem of bullying in high schools without first considering how high school students reason about bullying. Counseling interventions, bullying programs, and other reactions to bullying are not going to reach an optimal level of effectiveness until they are aligned with the reasoning abilities of the involved students. Student bullies, student victims of bullying, student bystanders, student communities, teachers, school administrators, parents, and local communities all contribute to the atmosphere of bullying found in many high schools today.

### **Defining Bullying**

Horne, Stoddard, and Bell (2007) indicate that bullying is a subset of aggression, which is a typical problem found in schools, and acts of aggression might cause either physical or psychological harm. Coloroso (2003) defined bullying as a “conscious, willful, and deliberate hostile activity intended to harm, induce fear through the threat of further aggression, and create terror” (p. 13). Bullying includes an imbalance of power, the intention to harm others, threats of further aggressive acts, and terror. Furthermore, intimidation can be used by the bully to terrorize the student victim of bullying and to help the bully maintain a power imbalance (Coloroso, 2003). Olweus (as cited in Schuster & Maxmilian, 1996) identified bullying behaviors as repeated negative actions by one or more persons that are intentional attempts to hurt or make another person uncomfortable. Negative actions might consist of physical violence, teasing or the use of

words, gestures, or even the refusal to respect another person's expressed wishes. Olweus broke bullying into direct and indirect bullying. Direct bullying is an overt, more easily observable attack on a student victim of bullying while indirect bullying could be group exclusion or forced social isolation (Olweus, as cited in Schuster & Maxmilian, 1996).

The Health Resources and Services Administration (2009) indicated that bullying is aggressive behavior that a student victim of bullying could have difficulty defending him or herself against. Plaford (2006) stated that bullying can include "...hitting, striking, pinching, shoving, tripping, grabbing, holding, or touching someone in a painful, threatening, unfriendly, unwelcome, demeaning or humiliating manner" (p. 20). In addition, threats of physical harm, harassing behavior, attempts to humiliate someone, public ridicule, and jokes at another's expense can all qualify as bullying (Plaford, 2006).

Massachusetts' state government now defines bullying as follows:

Bullying, the repeated use by one or more students of a written, verbal or electronic expression or a physical act or gesture or any combination thereof, directed at a victim that: (i) causes physical or emotional harm to the victim or damage to the victim's property; (ii) places the victim in reasonable fear of harm to himself or of damage to his property; (iii) creates a hostile environment at school for the victim; (iv) infringes on the rights of the victim at school; or (v) materially and substantially disrupts the education process or the orderly operation of a school. For the purposes of this section, bullying shall include cyber-bullying (mass.gov, Massachusetts General Laws).

Massachusetts also created an exceptionally detailed definition of cyberbullying, which follows:

"Cyber-bullying," bullying through the use of technology or any electronic communication, which shall include, but shall not be limited to, any transfer of signs, signals, writing, images, sounds, data or intelligence of any nature transmitted in whole or in part by a wire, radio, electromagnetic, photo, electronic or photo optical system, including, but not limited to, electronic mail, internet communications, instant messages or facsimile communications. Cyber-bullying shall also include (i) the creation of a web page or blog in which the creator assumes the identity of another person or (ii) the knowing impersonation of another person as the author of posted content or messages, if the creation or

impersonation creates any of the conditions enumerated in clauses (i) to (v), inclusive of the definition of bullying. Cyber-bullying shall also include the distribution by electronic means of a communication to more than one person or the posting of material on an electronic medium that may be accessed by one or more persons, if the distribution or posting creates any of the conditions enumerated in clauses (i) to (v), inclusive, of the definition of bullying. (Massachusetts General Laws, n.d.)

In Oregon, antibullying law defined bullying by the effects of a bully's actions on other students or the school environment as a whole. The intentions of the bully and the perceptions of the student victim of bullying are not given much importance. The focus is securely on the effects of the bullying on others. If a student is harmed, property is damaged, a student is in fear of being hurt, or of possessions being damaged, then the actions might qualify as bullying. Also, if a student's actions create a hostile educational environment, the actions might be defined as bullying in Oregon (Kosse & Wright, 2005).

Rhode Island's anti-bullying law states that bullying is an

“...intentional written, verbal or physical act or threat of a physical act that, under the totality of the circumstances: (i) a reasonable person should know will have the effect of: physically harming a student, damaging a student's property, placing a student in reasonable fear of harm to his or her person, or placing a student in reasonable fear of damage to his or her property; or (ii) is sufficiently severe, persistent, or pervasive that it creates an intimidating, threatening or abusive educational environment. (Kosse & Wright, 2005, p. 63).

One noteworthy point made in the Rhode Island definition is that the bullying or harassment is something that a reasonable person would recognize as an action or behavior that could negatively impact another person (Kosse & Wright, 2005).

In the definition crafted in New Jersey, the perception (of possible bullying behaviors) held by the student victim of bullying is considered and deliberately included as part of the definition, which differentiates New Jersey's definition from others. The student victim's interpretation of the bully's action, and the effects of that action on the

student victim are important aspects of New Jersey's bullying definition. If the student victim of bullying perceived that a bully is carrying out bullying behaviors against him or her because of an actual or perceived characteristic, then the bullying is viewed as troubling under New Jersey antibullying legislation. More precisely, New Jersey legislation defined bullying as an instance where one student carries out harassing or bullying behaviors against a peer due to the peer's (perceived or actual)

... race, color, religion, ancestry, national origin, gender, sexual orientation, gender identity and expression, mental, physical or sensory handicap, or... any other distinguishing characteristic... in such a way as to cause substantial disruption in, or substantial interference with the orderly operation of the school" (Kosse & Wright, 2005, p. 64).

### **Types of Bullying**

**Physical Bullying.** Physical Bullying is the most obvious, observable form of bullying, and might manifest itself in a punch, kick, push, property destruction, throwing of an object, spitting, or in many other ways. Bullying of a physical nature becomes especially disturbing as bullies become older and larger in size because the probability of them causing serious harm to the student victim of bullying increases. Typically, the most extreme and dangerous bully in a school will carry out acts of physical bullying. Those engaging in physical bullying have been found to be the most likely among bullies to engage in criminal activity (Coloroso, 2003). Physical bullying is associated with verbal bullying, and up to 58% of students experiencing physical bullying have also reported experiencing verbal bullying (Orpinas, Horne, & Staniszewski, 2003). Coloroso (2003) states that 70% of reported bullying is verbal bullying, and can include: "name-calling, taunting, belittling, cruel criticism, personal defamation, racist slurs, and sexually suggestive or sexually abusive remarks" (Coloroso, 2003, p. 16).

**Teasing/Psychological Bullying.** Teasing is a frequent part of routine social interactions, and could be an adaptive or maladaptive function. For example, teasing might be playful or imaginative without causing harm. However, teasing might be humiliating or harassing toward a person. Teasing has often been looked at as a part of bullying. Keltner et al. (2001) defined teasing as “an intentional provocation accompanied by playful, off-record markers directed by one person toward another that comments on something of relevance to the target” (p. 229). Teasing might take place after social interactions where there is a deviation from a norm or where interpersonal conflict occurs. An individual who breaks social norms might be the recipient of teasing. For example, it has been observed that high school girls at a lunch table would tease those at the table whom violated social norms of physical contact, appearance, and typical female behaviors (Eder, 1991). It has also been observed that high school girls tease each other in order to resolve conflicts, especially those regarding boys or intimate friendships with other members of a group. Teasing is also used by children or adolescents who are trying to prevent possible problems that they foresee happening in the future (Keltner et al., 2001).

**Social Exclusion/Relational Bullying.** Socially excluding students from a peer group or from activities can be another form of bullying (MacDonald & Leary, 2005). Social exclusion (also referred to as relational bullying) is a type of bullying that is difficult to observe, and when it is observed, its negative effects might easily be underestimated. Coloroso (2003) defined relational bullying as socially excluding, ignoring, isolating, or shunning others. The spreading of rumors or gossip about someone is categorized as relational bullying. Coloroso points out that it is specifically devastating

when a bully uses exclusionary tactics combined with rumor spreading. Interestingly, many typically subtle, unnoticed behaviors might be relational bullying. These include, but are not limited to: "...aggressive stares, rolling of eyes, sighs, frowns, sneers, snickers, and hostile body language" (Coloroso, 2003, p. 17). In Europe, relational bullying has even been documented in the workplace (Schuster & Maximilians, 1996); workers have reported being excluded and intimidated by colleagues. Bullied European adults were found to experience consequences, such as: depression, dysfunction in the workplace, lowered self-esteem, job loss, and even suicide on some occasions (Schuster & Maximilians, 1996).

**Cyberbullying.** Feinberg and Robey (2008) defined cyberbullying as the sending or posting of negative and cruel text as well as electronic images via the Internet. They cite instant messaging, e-mails, chat rooms, and social networking sites as some of the specific tools accessed on the Internet for cyberbullying activities. Although cyberbullying does not physically take place at school or in any particular location, it can be hurtful and negatively impact student victims of bullying. Consequences of bullying might range from academic decline to development of mental health problems. Hypervigilance might result from cyberbullying because the cyberbully can remain anonymous, leaving the victim uncertain about which peer is carrying out the bullying. Cyberbullying has been known to result in serious problems, including violence and even suicide (Feinberg & Robey, 2008).

Whether it happens at school or off-campus, cyberbullying disrupts and affects all aspects of students' lives. Today, 93% of students ranging from 12 to 17 years of age use the Internet. Increasingly, students in this age group are setting up online profiles, such as

on social networking sites. Many parents are unaware of their son or daughter's online activity (Enough Is Enough; as cited in Feinberg & Robey, 2008).

In the United States, it is believed that about 13 million adolescents and children are victimized by cyberbullies (Fight Crime; as cited in Feinberg & Robey, 2008). It has been found that 30% of teenagers and 45% of children (up to 12 years of age) are cyberbullied during the school day (Opinion Research Corporation; as cited in Feinberg & Robey, 2008). As schools and students are becoming more technologically advanced, it stands to reason that cyberbullying might take place during school hours. For example, students might carry cell phones with text messaging and e-mail capabilities during the school day, and students might work on computers in school with Internet and e-mail access.

Effects of cyberbullying are often more severe than the effects of traditional bullying, so it is essential for schools to take cyberbullying seriously (Zande, 2009). In 1999, the year Columbine occurred, students across the country often socialized with peers in a variety of locations after school, but this is no longer the case for many students. Today, students often are socializing on social networks from home like Facebook or MySpace. Research studies have reported that approximately 18% of students report being a victim of cyberbullying over a 2-month period. In traditional modes of bullying, a bully typically has intermittent access to the victim of bullying, but with the advent of cyberbullying, the bully has gained a method of bullying offering continual, unobstructed access to a victim (Zande, 2009).

There are many different methods used by the cyberbully to accomplish his or her goals. *Flaming* is a term describing the instigation and participation in an online

argument or at least a one-sided delivery of insults by the cyberbully. The purpose would be to put down or humiliate the victim in a chatroom, on a discussion board, or on a virtual gaming web site (which allows communication between gamers). Although the victim of bullying might not respond, it would be possible for the victim to respond since he or she is in the chatroom or on the discussion board at the same time as the cyberbully. *Harassment* is another form of cyberbullying, which involves the cyberbully repeatedly sending a victim offensive messages via email, an instant messenger, a text message, or a similar method of electronic communication. Harassment is the sum of repeated harassing comments that take place over a certain period of time. *Denigration* is when the cyberbully disseminates offensive, hurtful messages to people about the victim, but does not send the messages directly to the victim. The message could be sent by any electronic means or posted on a blog, discussion board, social networking site, or another type of web site (Zande, 2009).

*Impersonation* involves the cyberbully accessing the victim's e-mail account, or assuming the victim's identity on a social networking site, blog, or discussion board. While assuming the victim's identity online (via e-mail, instant messenger, Facebook, a chatroom, etc.), the cyberbully types comments and posts or sends them via e-mail with the intention of hurting the victim. Therefore, the cyberbully creates embarrassing, hateful, or otherwise harmful comments with the expectation that those reading the comments will turn against the victim. In some instances, the victim might not discover that the cyberbully hijacked his or her online identity (or e-mail) in order to inflict psychological pain or humiliation. Sometimes a cyberbully will purposefully befriend the victim (while assuming a false identity or real identity) and attempt to gather personal

information that could prove embarrassing or humiliating. If this type of information is acquired, it is used against the victim. Sometimes the cyberbully will bully the victim by excluding him or her from a social group online or by encouraging a group of other people to *gang up* on the victim in a public area of a web or social networking site. Another method of exclusion occurs when the bully repeatedly sends messages to a web site administrator (such as an administrator for Facebook or MySpace) indicating that the victim repeatedly sends offensive or discriminatory messages to others. The bully's intention is to have the victim banned from the particular social networking site, chatroom, or blog (Zande, 2009).

Cyberbullying has the potential to have a far greater impact than traditional bullying because it can occur off school grounds, and can be extremely difficult to detect or anticipate. A text message, post on a blog, or comment posted on a web site might easily be distributed to a large group of people instantaneously. Bullying comments that are made in cyberspace or on the Internet typically seep into the school hallways and classrooms, disturbing student learning. In 2007, the Federal Probation Juvenile Department found that 90% of middle-school students report having feelings hurt on the Internet, and 75 % reported viewing a web site where derogatory comments were made about another student (Erb, 2008).

However, most state antibullying statutes do not include measures to address cyberbullying. It has been difficult for public schools to punish students for comments they have written on the Internet or in a text message. The courts have often declined giving punishments to students writing harassing comments online because it is claimed that these comments are protected under the First Amendment. A television network,

ABC, televised a special about a case of cyberbullying where the bullying and harassment culminated in a middle school student committing suicide. Further, this particular student suffered from learning and motor disabilities. Male and female students made derogatory comments about the student as well as questioned his sexual orientation openly on blogs and student web pages (Erb, 2008).

There was also a very high profile case of cyberbullying in 2007, which consisted of a parent creating a false identity on MySpace, posing as a teenage boy, and then tormenting a 13-year-old girl, Megan Meier, whom she was angry with. This adult posted comments stating the 13-year-old victim was a “slut” and was “fat.” Many other insulting comments were made as well, which eventually depressed Meier and was linked to her suicide. Meier might have had some issues with low self-esteem and mild to moderate depression may have previously existed, but she did not exhibit suicidal tendencies or express a wish to die prior to her experience with cyberbullying (Zande, 2009).

### **The First Amendment and Cyberbullying**

In the *Tinker v. Des Moines Independent Community School District* decision, the Supreme Court ruled that the First Amendment protected students’ right to wear armbands in school to protest the Vietnam War. More generally, the decision set the precedent that the First Amendment protects students’ right to express themselves unless there is reason to believe material interference or substantial disruption of school activities is likely to result from such student speech or expression. The Court ruling in the *Tinker* case is often referenced when legal issues regarding Internet expression arise (Erb, 2008).

A student named Brandon Beussink created a web page at home that contained

negative, vulgar comments about his school's administrators. When the web page was brought to the attention of the school administrators, the student was punished with a 10-day suspension. However, a district court gave the student a preliminary injunction because it was determined that administrators based the suspension on the fact that they were personally hurt and insulted by the comments. The comments on the web site were not found to have caused a disruption or interference with school. There is much conflict with school policies and state bullying laws because policies and laws punish some bullying, but not all bullying (Erb, 2008).

The director of the ACLU, Walczak, indicated that speech made on the Internet has potential to cause much more pain and much greater consequences than an actual verbalization of a derogatory comment, as the speech is amplified through the medium of the Internet. Civil and criminal laws might be used to address cyberbullying, but victims of cyberbullying have not received much support from either civil or criminal law. For example, a group of male high school students were charged with second-degree harassment for posting alleged sexual histories of a group of girls from their high school, but only 2 days after the charges were given, the District Attorney dropped them, stating that the postings on the web page, although offensive, did not meet the legal definition of harassment. Courts have tried to help teachers who have had defamatory comments made against them - if the comments had an adverse effect on their standing in the community or in their profession. However, it is difficult for a teacher to win a battle against students because many student comments could be rude, insulting, and negative, yet not meet the court's definition of defamation (Erb, 2008).

## **Prevalence of Bullying**

While some school problems, such as theft, have decreased, bullying has been increasing over the last ten years (DeVoe et al., 2002). Consequently, bullying is a very real problem in schools, and does not appear to be showing any signs of decline. When it is allowed to operate without obstruction in a school, the school environment can be adversely affected (Hoover & Hazler, 1991). Between 40 and 80% of school children have reported being subjected to some type of bullying, and 28% of 10th graders have reported being bullied (Nansel et al., 2001). Graham (2006) reported that bullying is now considered a major public health concern because the bullies are being viewed as very aggressive and those victimized by bullies indicate feelings of vulnerability. Felix and McMahon (2006) discovered that urban middle school students experienced a significant amount of bullying. Specifically, it was found that 16% of students reported sexual harassment, 21% reported experiencing relational victimization, 18% reported either direct verbal or physical peer victimization, and 21% reported victimizing other students. Moreover, the majority of students indicated experiencing several types of victimization (Felix & McMahon, 2006).

Evans and Rey (2001) indicated that the PRIDE Questionnaire Report of 1998 found that 12% of 7th through 12th-grade respondents in North Central Florida reported involvement in gang activity, and 43% indicated threatening either a teacher or peer. Grunbaum et al. (2004) studied 15,000 students, and found 41% of boys and 25% of girls reported involvement in a physical fight, and 9% of boys and 3% of girls reported possessing a weapon in school. Oripinas et al. (2000) discovered that over 9,000 children they surveyed reported involvement in bullying activity over the course of one week.

Specifically, 60% reported name calling, 55% “made fun” of others, 44% pushed someone, 39% slapped or kicked another student, and 36% threatened to hurt others.

A Committee for Children Survey (as cited in Crockett, 2003) found 78% of children reported being bullied within a 1-month period. Student victims of bullying have frequently reported isolating themselves from others after being bullied, and about 33% have reported making plans to retaliate against the bully or intimidating student. The National School Safety Center (as cited in Crockett, 2003) found that 31 % of 8th- to 11th-grade girls indicated being harassed almost daily and 18% of boys indicated harassment on nearly a daily basis. Rusby, Forrester, Biglan, and Metzler (2005) assessed levels of peer harassment among 201 middle school students and 182 high school students in Oregon. They found staggering amounts of peer harassment were experienced by students at some level, although not always frequently. Eighty-five percent of boys reported verbal harassment in middle schools and 78% of boys reported it in high school. It was reported that 78% of girls dealt with verbal harassment in middle school while 63% dealt with it in high school. Physical harassment was found to be more prevalent with boys, as 71% of boys experienced it in middle school and 61 % dealt with it in high school. In comparison, 61% of girls reported physical harassment in middle school, and 27% reported it in high school (Rusby et al., 2005).

Students might simultaneously experience different types of bullying victimization. Klomek, Marrocco, Kleinman, Schonfeld, and Gould (2008) learned that about 50% of male students experienced one type of bullying, 27% experienced two types of bullying, 15% experienced three types of bullying, 7.5% experienced four types, and about 6% of males dealt with five to six different types of bullying. Frequency of the

co-occurrence of different types of bullying was found to be similar with female students (Klomek et al., 2008). Klomek et al. also found that 9% of their sample was repeatedly bullied, and 13% reported bullying others repeatedly. The majority of bullying took part in school, but it also took place outside of school. Overall, bullying was more prevalent among male students than female students.

### **The Student Victim of Bullying**

Research has shown that student victims of bullying are often sensitive, prone to crying, tend to be quiet, have a poor self-image, tend to be physically weaker than their peers, and usually do not have many friends (Olweus, 1994). Additionally, Olweus (as cited in Schuster & Maximilians, 1996) discovered that student victims of bullying had low values on assertiveness and aggression scales. Further, teachers perceived them as being weak, which might have been associated with the findings that student victims were not likely to experience or demonstrate anger (Olweus, 1978).

Hodges and Perry (1999) researched the relationships between personal as well as interpersonal factors and victimization on preadolescent students. It was found that both types of factors might cause or exacerbate victimization, and victimization might directly affect interpersonal and personal factors. Internalizing problems and being physically weak were identified as antecedents of student victimization. Specifically, children that openly display anxiety, tendencies to cry, and sadness might be perceived as being incompetent in fending off personal attacks. It is posited that children who are actually fearful or suffering from depression will be less able than the majority of children to demonstrate the assertive behaviors necessary to defend against attacks. Externalizing problems were not associated with an increase in victimization and thus Hodges and

Perry note that a student who demonstrates externalizing problems, such as provoking other students, is most likely not victimized solely due to the externalizing behavior. It is suggested that those with externalizing problems who are victimized also have associated internalizing problems that are most likely linked to victimization (Hodges & Perry, 1999).

There are three noteworthy reasons why peer rejection could be responsible for victimization in some instances:

First, aggressive children may fear little retaliation or ostracism from the peer group for attacking peer-rejected classmates. Second, children who are rejected are likely to be alone more often and thus should be more available and obvious targets. Third, rejected children are probably less able to profit from peers' advice on how to handle conflicts and threats of victimization. (Hodges & Perry, 1999, p. 683)

Hodges and Perry (1999) found the first peer victimization of a child can lead to increases in the victim's internalizing behaviors. Over the course of 1 year, victimization was not shown to significantly affect the number of friendships a child had, but it was suspected that victimization could lead to a shift in the types of friends a student associated with. Specifically, it seemed that since students tended to associate with students similar to themselves that victimized students would more frequently create relationships with other victimized students. Although student victims of bullying might have approximately the same number of friends, it is probable that the victimization will lead to peer rejection by nonvictimized peers, which, in part, might lead victimized students to befriend each other (Hodges & Perry, 1999).

What are some reasons why student victims of bullying neglect to report bullying to adults? Many times the student victim of bullying is not believed when reporting an instance of bullying. This can obviously be disheartening and make seeking help appear

to be a futile endeavor. Within the social group of students, telling an adult about a peer's rule-breaking behavior might be seen as wrong, so a student might fear negative ramifications within the social group if he or she reports bullying to an adult. Moreover, adults in and outside of school tend to discourage children and adolescents from telling on their peers. Another reason a student refuses to report bullying is that getting the bully in trouble with adults could lead to the bully taking revenge against the student victim of bullying via the use of more frequent or intense bullying (Plaford, 2006, p. 9).

### **The Bully**

“Too often an individual's reflexive approach to conflict resolution poses a significant problem for established bullying situations” (Horne et al., 2007, p. 263). It is not necessarily easy to differentiate bullies from victims, as some bullies use tactics that are not easily observable by adults or officials in a school. Rigby (1996) defined some bullies as unempathic, malicious individuals while defining others as empathic individuals. The bully who is capable of empathizing might not have a problem engaging in bullying because he or she does not view the bullying behaviors as malicious or as harmful to the student victim of bullying (Rigby, 1996).

Bullies have been shown to be highly emotional in comparison to less aggressive children or adolescents. Children and adolescents demonstrating high emotionality and a high amount of physical activity might also be lacking in self-control. Collectively these issues could lead to peer rejection, aggressive behaviors, and socialization with other aggressive peers. Bullies find it possible to build reciprocal relationships with other peers whom are bullies, but are typically met with rejection by the majority of their nonbullying peers (Pellegrini, Bartini, & Brooks, 1999). Cairns et al. (1988) suggested

that an adolescent might turn to aggressive peers after meeting rejection by nonaggressive peers, or might choose to associate with aggressive peers because it becomes easier to gain acceptance by aggressive peers.

As adolescents build social networks, they might be expected (by adults and peers) to associate with peers whom behave in a similar manner. Some adolescents could be disliked by peers for carrying out aggressive behaviors like bullying, but this dislike might not develop into complete social rejection. Socially aggressive adolescents, which include bullies, have been found to maintain meaningful relationships that include acts of reciprocity and friendship similar to that experienced by many of their nonaggressive peers (Cairns et al., 1998). Interestingly, Cairns et al. suggest that adolescents are not the sole engineers of their social groups, as teachers, other educators, parents, and community members most likely influence the formation of adolescent social groups.

Osborne (2004) posits the idea that students who demonstrate an exceptionally low level of identification with academics could be more prone to violent and aggressive behavior in school. Osborne hypothesizes that this could occur for a number of reasons. First, since the student who does not identify with academics looks outside of academics for sources of self-esteem, this type of student could have replaced academics with maladaptive peer relationships that fuel undesirable behaviors. Second, students who do not identify with academics could become exceptionally frustrated at being forced to attend school. This frustration could result in the student acting out with violent behaviors. Third, students might become frustrated because the school's academic expectations are not attainable due to a gap in aptitude or other academic factors. Fourth, when a student does not identify with academics, and focuses on peer relationships, that

student could become part of a socially excluded group, and this might lead to extreme frustration and violent behavior (Osborne, 2004).

Marsh, Parada, Yeung, Healey (2001) looked at 8th- through 10th-grade students whom fit the constructs of *troublemaker* and *victim*, and discovered both constructs were very consistent over time. Hence, one student demonstrating the troublemaker construct was likely to do this throughout adolescence. Victims and troublemakers were not necessarily separate groups of students, as students identified as troublemakers were frequently identified as victims as well (Marsh et al., 2001). It has been posited that students in their early adolescence might engage in troublemaking behaviors to enhance a weak self-concept. More specifically, engaging in a troublemaking behavior has the potential of garnering positive attention from peers. For example, a bully might pick on another student in a school hallway while a group of bystanders gathers to observe. Quiet observation or outward support of the behavior might both provide positive attention to the student carrying out the bullying, consequently improving the bully's self-concept. This could serve as an explanation of why low self-concept has been associated with aggression in early adolescence. Additionally, victims have been found to have low self-concepts prior to being victimized, and lowered self-concepts following victimization (Marsh et al., 2001).

Over the course of about 20 years, researchers have found that children and adolescents have attributed the cause of bullying to be personal appearance, weakness, small stature, and obesity. Research has shown that bullies typically exhibit aggression, have difficult family experiences, and use bullying as a means of gaining power and influence (Frisen, Jonsson, & Persson, 2007). Frisen et al. surveyed 119 adolescents in

Goteborg Sweden about their thoughts on and experiences with bullying. They asked adolescent participants the following question: “Why do you think children are bullied” (Frisen et al., 2007)? Most, 40%, selected “appearance” of the victim, 36% chose “victims behaviour,” 7% indicated “characteristics of bullies,” 8% identified “social background,” and 5% selected “other.” When asked “why do some children and adolescents bully others,” participants chose from different categories. The results found that most participants thought the bully bullied others because he or she had low self-esteem or because “the bully feels cool.” Most participants who reported being bully-victims stated they were victims prior to bullies (Frisen et al., 2007). Olweus (as cited in Maxmilian, 1996) indicated that 60% of student bullies who were identified between Grades 6 and 9 had one or more criminal convictions by 24 years of age.

Coloroso (2003, p. 20) described bullies as individuals whom,

1. like to dominate other people
2. like to use other people to get what they want
3. find it hard to see a situation from the other person’s vantage point
4. are concerned only with their own wants and pleasures and not the needs, rights, and feelings of others.
5. tend to hurt other kids when parents or other adults are not around
6. view weaker siblings or peers as prey...
7. use blame, criticism, and false allegations to project their own inadequacies onto their target
8. refuse to accept responsibility for their actions
9. lack foresight- that is, the ability to consider the short-term, long-term, and

10. possible unintended consequences of their current behavior
11. crave attention.

Sometimes, adults, schools, and communities are more accepting of bullying within certain groups. Bullying by a school's athletes or student leaders is often seen as being acceptable whereas the same behavior might be deemed unacceptable when carried out by less popular students. Generally, there are not many behaviors that are commonly defined as bullying by schools (deLara, 2003).

Many forces and people outside of school hold the potential to influence how accepting both adults and adolescents are of bullying within the school environment. Media, television, video games, and films might impact tolerance levels for bullying in a school. Plaford (2006) observed that bullying behaviors are glorified in the television and music that adolescents watch and listen to regularly. It seems that adolescents who view substantial amounts of television each school week stand to be most at risk for observing the glorification of bullying on television. Of course, the effect that viewing bullying behaviors has on adolescents will vary between individuals. An annual national administration of the Youth Risk Behavior Surveillance System Surveys found that 35.4% of high school students in the United States sit in front of the television for a minimum of 3 hours per day during most school days (Centers for Disease Control, 2008).

### **The Influence of Environment, Student Mobility, and Peers**

The student body of a school can be viewed as a micro-society that makes its own rules and decides what is important to the society at large. Some students might find it difficult to fit in with this micro society designed by the majority of the student body

while others might easily fit in with the other students. A student's ability or difficulty in becoming part of the student body's micro-society could, in large part, determine whether a student is victimized by bullies, bullies others, or plays the part of both the bully and the victim (Cranham & Carroll, 2003).

Cranham and Carroll (2003) collected qualitative data via interviews with a small group of 14- to 16-year-old students regarding bullying in school. Student participants reported that students who were different, quiet, or who performed better academically than the majority of the student body would be unpopular in school. It was also found that student participants believed students who dressed differently or appeared different than most other students would be excluded by the student body. The student victims of bullying in Cranham and Carroll's study indicated awareness of the unspoken rule that you must appear similar to the student body in order to be accepted, but they either did not fully understand the rule or they did not see the point of conforming to it. In some instances, it could have been that student victims of bullying were not very good at comprehending rules of society (or the micro-society of their school). It seems bullies tend to understand the rules of society or large groups, but find difficulty operating in small groups. Bullies have difficulty cooperating with others, and might have minimal ability to work with others in the small group setting (Cranham & Carroll, 2003).

As a bully carries out bullying behaviors, the bully develops a reputation with the other students. Consequently, each bullying behavior could reinforce the expectations of the bully's peers, which then could further reinforce the bully's reputation as a bully. In order to fulfill the need of acceptance among peers, the bully could inherently seek to meet their expectations. Peer expectations, reputation, and a need for acceptance have the

potential to create a vicious circle for the student engaging in bullying (Cranham & Carroll, 2003).

Today, transportation and technology make it increasingly possible, and sometimes necessary, for families to move to different cities, new states, and unfamiliar countries. Some schools have a student body with a 50% rate of mobility, including entering and exiting students. Urban schools have significantly transient populations, and there has been evidence that students in their early adolescence who move to new communities experience reduced access to friendships for approximately one school year. Intimate friendships can largely diminish after an adolescent's relocation to a new community (Vernberg, Greenhoot, & Biggs, 2008). Students moving from one school to another experience academic decline due to the interruption in learning, and the necessity to acclimate to new classes in an unfamiliar environment. Those who have been moved around and changed schools are less likely to follow school rules. Part of this might result because the student has no meaningful connections with adults or peers when starting in a new school and living in a new community (Plaford, 2006).

The mobile student is likely to be involved in bullying behavior and is also likely to be a student victim of bullying. A student who moves from school to school could learn to use bullying as an effective method of gaining peer acceptance and attention when arriving at a new school. Conversely, students who frequently move tend to be emotionally unstable, lack motivation, lack power in the social network, and are easily targeted by bullies. Since the new student at a school has no social network, there is no meaningful connectedness in school or in the community. Consequently, it is important for a school to address this issue by connecting new students with teachers, students,

community organizations, and school administrators (Plaford, 2006).

### **Bullying Prevention**

Often, educators and school leadership do not admit the presence of bullying in their schools because admitting the existence of bullying is seen as admitting failure. Educators and school leadership are charged with keeping children and schools safe. Thus, the existence of bullying might imply that those responsible for stopping bullying are not fulfilling their responsibilities. However, this is not necessarily true, as most bullying is deliberately conducted out of the sight of school personnel and other adults. Often times, signs of bullying will not present themselves to educators. The hallways, cafeteria, and other hidden locations in a school are areas of a school that help bullies keep their activities covert. Additionally, when bullying does take place in front of an educator, even in the classroom, it might not be recognized because those conducting the bullying behavior could diverge from the stereotypic definition of a bully (Plaford, 2006). A teacher is not expecting to see the president of the student council, the conscientious honor roll student, or the student who is popular with his or her teachers engaging in bullying behaviors. It seems unintuitive, but these seemingly atypical bullies may be the most likely to bully because their status might give them more power than others.

Schools across the globe have implemented programs to prevent and deal with bullying, but prevention efforts have had mixed results (James et al., 2008). Rigby (2002) points out that it is difficult to identify what specific components of bullying prevention programs lead to noticeable decreases in bullying behaviors. Students rarely believe that teachers are capable of dealing with bullying, and thus are hesitant to report incidents of bullying. It has been shown that untrained teachers find it difficult to manage bullying,

and have an inadequate understanding of bullying (Charach et al., as cited in James et al., 2008). Baer et al. (2008) indicate that discussing violence in literature, and using process drama could be excellent tools for teaching students about bullying. It does seem that having high school students read and think about bullying are good methods of proactively dealing with bullying. Having a tool that allows students to read about instances of bullying, and that can assess how students reason about bullying could be a helpful tool for school counselors and other educators who help student victims of bullying.

Jindal-Snape and Miller (2008) indicate that ninth grade students who are more resilient than others typically have positive networks, which include peers, adults and students at school, and family members. Usually students who are resilient have a healthy self-concept and view themselves as competent. Those who are resilient find it easier to handle transitions, such as from eighth grade to ninth grade (Jindal-Snape & Miller, 2008). Consequently, ninth grade students who deal with bullying might particularly have difficulty when they do not build a healthy network of support with peers as well as educators at their high school. Students' relationships with their teachers can "...affect the climate in the school, academic achievement and may impact directly or indirectly on the level of bullying within a school" (James et al., 2008, p. 162). A middle school survey given to students in upstate New York asked them how bullying should be dealt with. Somewhat surprisingly, it was found that 43% of students believed there should be more counseling (Barone, as cited in Green, 2007).

### **School Connectedness**

It is imperative to create an environment at a school where bullying can be openly

discussed among students, teachers, and other educators. All types of students need to be involved in discussions; it is not helpful to only have a small number of students involved in the discussion. Open discussion reveals the prevalence of bullying in a school, which is often hidden from sight. Transparent discussion of bullying informs students and educators about the pain that is caused by bullying and the variety of negative outcomes that bullying can cause. Before bullying can be effectively decreased or addressed in a school, there must be an awareness of bullying in general, its prevalence, and the effects of bullying. Classrooms are ideal forums for bullying discussions because they bring bullying into a public forum, and because a relatively representative group of the school is participating in a meaningful discussion. Educators, bullies, student victims of bullying, and bullying bystanders can be found in a classroom. Talking about actual bullying issues taking place in the school is a positive intervention because it helps lift the veil of secrecy over bullying. If the bully, the student victim of bullying, and the bystander are all spoken to separately and issues are not addressed in public, then the antibullying stance of schools could be unclear to all involved (Plaford, 2006).

Students have reported that schools and parents give minimal support or no support at all to them when dealing with experiences of intimidation, teasing, and physical abuse (Crockett, 2003). In one research study (Frisen et al., 2007), only 14% of adolescent participants reported that the best way to stop bullying would be for teachers to intervene. Thus, it was evident that there was minimal faith in the competence of teachers to intervene. This sentiment probably could have been generalized to all adult staff members in the school building, such as administrators and counselors. When students are left to their own devices to sort through issues of bullying, they might end up

feeling unsafe in school, stop attending school, skip days of school, or turn to drugs or alcohol. In extreme cases, adolescents could decide to deal with bullying by carrying out extensive or severe acts of violence in school (deLara, 2003).

The level of closeness students believe they have in their relationships with peers and educators at school has been called school connectedness (Whitlock, 2006). Higher levels of student perceived connectedness has been shown to have positive effects on students and has been shown to decrease the probability of negative development outcomes, such as aggressive and violent behaviors (Brookmeyer, Fanti, & Henrich, 2006). Whitlock proposed that students who feel connected in school might be more involved at school, and more engaged in academics. One research project (deLara, 2003) documented the thoughts of about 500 students from rural New York on school violence and safety. In answering questions, students revealed that they did not know if adults in the school cared about students as people. deLara indicated that "...the extent to which adolescents desire adult supervision, intervention, and awareness of the interactions of students in the school, on the school grounds, and on the bus may have been underappreciated by adults, according to data from this study" (p. 18).

Mulvey and Cauffman (2001) stated that

preventing violent incidents in school does not require either more sophisticated methods for assessing students individually or a magical, uniform method for intervening with them for a short while after they have been identified. It seems instead to rest largely on developing a positive and supportive organizational climate in a school. (p. 800)

A high degree of connectedness in a school could lead to a decrease in bullying and student victimization behaviors in a school (Iimori, 2003). Bully victimization can impede the progress of students in meeting goals, especially goals related to social

development or peer relationships. Connecting with peers and the social group is one of the most driving forces in adolescence (Plaford, 2006).

Sadly, it has been found that high school students might not feel connected to adults in school. In describing Garbarino and DeLaure's (as cited in Honig, 2002) interviews with adolescents, Honig stated that

One of the saddest findings from the interviews was how little trust adolescents have in adult willingness and ability to resolve bullying situations. Time after time, without the maturity or psychological resources to take care of personally and socially threatening and difficult situations in school, the youths interviewed asserted that because adults did not see or want to see violent and scary interactions or did not know what to do, the kids themselves would somehow have to handle the troubles. And because some of the troubles vividly reported involved sadistic bullying, physical ganging up on a student, or chaotic melees among youth in a cafeteria, or serious alcoholism, drug dealing, and sexual predation (particularly by top athletes) both inside and outside of the schools, it is laughable, or more accurately, sorrowful, to expect that youngsters themselves should be able to solve the problems that make them feel so unsafe and tense about their schools. (p. 458)

You et al. (2008) found that victimized students have a lower level of connectedness than nonvictimized students, and have a more hopeless outlook, which might contribute to lower life satisfaction. Students who are able to foresee possible methods of reaching goals, and who feel they are connected to peers or educators have been shown to report higher life satisfaction (You et al., 2008). Friendship and acceptance by peers could play a protective role against peer victimization. Victims' friendships with nonvictims, including bullies, seem to hold a protective element against victimization. Although the victim might seem like an easy target, a bully might be less likely to target the potential victim when he or she has friends whom would be willing to either stand up to the bully or to report the bullying to the proper authorities (Pellegrini, Bartini, & Brooks, 1999).

Patterns of silence between students and adults may be responsible for many explosive and violent behaviors by students in high school. Students often believe that parents will not be able to help in a situation of peer harassment or peer abuse, and fear telling a teacher could inflame the abuse or harassment. Youths have reported that they do not believe teachers are concerned about problems that occur outside of their personal classrooms. High school students can be viciously targeted with rumors and insults, and there tends to be a climate of homophobia in many high schools (Garbarino & DeLara, as cited in Honig, 2002). Bullying has the potential to create a maladaptive cycle where student victims of bullying avoid help from adults due to the belief that adult intervention will cause the bully to retaliate with more bullying.

When students in a school demonstrate intolerance for bullying, student victimization decreases (Olweus, as cited in Pellegrini et al., 1999). Interestingly, it has been noted that teachers and school personnel also play a role in the prevalence of bullying within school. Teachers and other personnel might bully students by threatening or ridiculing them in school. Additionally, school employees might view bullying as a rite of passage that all students have to deal with themselves (Pellegrini et al., 1999). If educators see bullying as a natural part of adolescence or childhood then those educators are maintaining and possibly promoting its existence.

It is important for students to be positively connected in school because there may not be support or connectedness within the family. The family environment can affect children and adolescents' mental health and possibly lead to emotional and behavioral problems. When a parent or guardian displays violent, physically abusive, or verbally abusive behavior, his or her children's mental as well as physical health might be

adversely impacted. “Besides direct effect on health, such as can be the case with physical abuse, the effects may be mediated and sustained by disruptions in the child’s ability to mount a successful physiologic/neuroendocrine and/or behavioral response to stress, and to acquire appropriate emotional and behavioral self-regulatory skills...” (Repetti, Taylor, & Seeman, 2002, p. 336).

Children who grow up in risky families can show tendencies toward hostility and anger during interpersonal interactions. As a child grows up in a violent home, cognitive structures associated with social behaviors and relationships can develop in a different manner than in a supportive home. Specifically, the child growing up in the violent home could risk becoming notably sensitive to rejection (Feldman & Downey, as cited in Repetti et al., 2002). At-risk families do not adequately train children in how to behave during social interactions, and in how to react within social situations. Being socially competent, in part, helps maintain good mental health in childhood, adolescence, and adulthood (Repetti et al., 2002).

### **Socioeconomic Status**

Student victims of bullying who have low socioeconomic status (SES) might have a particularly difficult time in leading successful academic lives. Malecki and Demaray (2006) found that a significant relationship existed between low SES and low academic performance. Moreover, they discovered that social supports might buffer negative effects of low SES on academic performance for urban middle school students. Level of support from parents, teachers, classmates, close friends, and other educators as well as student SES was significantly related to the grade point average (GPA) of students. Students with low SES and healthy levels of social support had higher GPA’s than those

with low SES and poor social support. It was discovered that social support could lead a student with low SES to a level of academic success comparable to that of a student with high SES (Malecki & Demaray, 2006).

Social, psychological, and physical deprivation have been identified as the main causes of school violence (Malecki & Demaray, 2006). Students from one impoverished county in North Central Florida reported involvement in violent school behavior at an alarming rate. Twelve percent of students in Grades 7 through 12 reported gang involvement, 43% reported threatening a teacher or peer, and 8% reported frequent thoughts of suicide (Pride Questionnaire Report, as cited in Malecki & Demaray, 2006). Research has showed that 12-17 year old students who had parents with higher SES reported less health-risk behaviors than students in the same age group with lower SES. Traditionally, students with high SES have had higher GPA's than their counterparts with low SES. However, social support might have an important mediating effect on the relationship between SES and academic performance. "Research...can help provide further understanding of how social interventions may directly or indirectly be related to the students' academic performance, especially for students of low socioeconomic status" (Malecki & Demaray, 2006, p. 391).

One specific intervention that is cited as being particularly effective for students with low SES is providing them with teachers whom have been trained to provide different types of social supports to students (Malecki & Demaray, 2006). Similarly, training counselors to understand how to provide social support to their students could be noticeably fruitful. Specifically, training counselors to better support low SES student victims of bullying might help enhance the students' academic performances. Moreover,

it could help these students to develop a more healthy, open, and accessible network of support at school.

University of Florida Family Support Service (UF-FSS) is a program that was developed to address violence in Florida schools. The UF-FSS program has a process that places school guidance counselors in a vital role where they are responsible for screening students whom might be at-risk. This determination could be made from a guidance counselor's assessment of a student's psychological needs. It could also be made after reviewing requests from students, parents, or teachers for a particular student to receive psychological services (Evans & Rey, 2001). At-risk youth were defined as those with behavioral, family, or academic problems, as these problems have been cited as indicators of school violence (Maguin et al., as cited in Evans & Ray, 2001).

### **Effects of Bullying**

Littleton Colorado experienced the most extreme case of peer violence in 1999 when two high school students murdered 13 people at their high school, and then committed suicide. Six years later, in 2005, a high school student from Minnesota murdered five students, a security guard, his grandfather, and later committed suicide. It has been suggested that both of these events have links to bullying (Green, 2007).

Garbarino and DeLara (as cited in Honig, 2002) conducted interviews with adolescents and found that bullying, peer harassment, intimidation, teasing, and threats exist in many schools and impede learning while creating an environment of fear. Further these insidious behaviors at school can encourage students to dropout and increase the rate of deviant behaviors in a school. Garbarino and DeLara indicate that 160,000 students actively avoid their schools, and thousands drop out as a result of an overpowering fear of

being in school.

“Education and learning cannot take place effectively when students are fearful, when lessons are disrupted, and when students see no repercussions for deviant behavior” (Osborne, 2004, p. 160). Boney-McCoy and Finkelhor (1996) discovered that victimization of children, including peer victimization, had a significant association with increased symptomatology, such as Posttraumatic Stress Disorder (PTSD) related symptoms and depression symptoms. Even when pre-victimization symptomatology, family life, and other variables were controlled for, symptomatology was still shown to increase after victimization. Baer et al. (2008) point out that bullying can be a life and death issue for some children or adolescents.

Student victims of bullying exhibit heightened rates of internalizing and externalizing behavioral problems (Felix & McMahon, 2006). Peer victimization has been connected with poor attitudes about school and low performance in school across grade levels and throughout adolescence (Schwartz, Gorman, Nakamoto, & Toblin, 2005). All students are at risk of being targets of bullying, and no specific ethnic group is at less risk than others (Graham, 2006). Graham and Juvonen (1998) indicate that bullying among adolescents takes place in cities, small towns, and across all grade levels with no particular boundaries, such as race or gender.

Peer problems can lead to adjustment issues for students, and therefore, there is a need for school-based prevention that is directed at improving the “social-problem solving skills” of students (Farrell et al., 2006, p. 185). Horne et al. (2008) found that children who report high rates of bullying or aggression have been shown to experience an extensive array of problems, including: depression, low self-esteem, headaches,

stomach-aches, poor sleeping cycles, and bed wetting. It has been suggested that low self-esteem could lead to social problems while high self-esteem may not be associated with such problems (Crocker & Wolfe, 2001).

Bullying can be unpredictable and traumatic for student victims of bullying, which could facilitate anxiety and anxiety disorders. Mineka and Zinbarg (2006) note that a perceived lack of control and inability to predict stressful events can cause anxiety. Clearly, student victims of bullying might perceive a lack of control over the bully's actions, and find it difficult to predict when the bully will decide to carry out bullying behaviors. Also, it could be difficult for the student victim of bullying to predict what types of bullying behaviors the bully might carry out at a given time (Mineka & Zinbarg, 2006). "Unpredictability, novelty, low sense of control, and threat to the ego" are causes of stress (Plaford, 2006, p. 75).

Both bullied girls and boys have reported being suicidal more than their nonbullied peers (Kerlikowske, 2003). The association of depression and suicidality to bullying has been shown to vary by gender. Female victims of bullying have an increased risk of depression, suicidal ideation, and of attempting suicide when victimized by peers at a low to moderate frequency. However, males have been shown to have increased risk in these areas when frequently victimized (Brunstein & Klomek et al., 2007). Kerlikowske found that bullied girls were about three times more likely to report depression than nonbullied girls, and bullied boys were about five times more likely to report depression than nonbullied boys. Male students are more likely than female students to be bullied due to religious affiliation or race, and are more likely to experience physical bullying, such as punching. Female students are more likely to

experience bullying in the form of rumors, sexual jokes, inappropriate comments or gestures, and bullying over the Internet. Female students who are teased or put down by bullies because of their appearance or the way they speak have been shown to have a greater chance of becoming depressed, experiencing suicidal ideation, or actually attempting suicide (Klomek et al., 2008).

Park et al. (2006) conducted a study at six high schools in South Korea and discovered that being a victim of bullying behavior and sexual orientation could be predictive of suicidal ideation in female students. Feder, Levant, and Dean (2007) stated that:

The data on youth violence - regarding both acts of destruction against others and self -are disturbing, and there has been much discussion of contributory factors. These include availability of weapons...teasing and bullying, family factors, and learning problems. All have been extensively documented as significant risk factors. (p. 386)

Individuals who present as suicidal might also be at-risk of behaving in an aggressive manner against others. Conversely, individuals presenting as homicidal could be at-risk of carrying out aggressive behaviors against themselves (Hillbrand, 2001). Therefore, it could be prudent for school counselors to remain cognizant of the relationship that exists between aggressive behaviors or thoughts directed at the self, and aggressive behaviors and thoughts directed at others.

Student victims of bullying who are deliberately and constantly targeted by a bully might find their attempts to avoid or prevent the bullying to be completely unsuccessful. Repeated failure to prevent the bullying might lead to a sense of hopelessness or a belief that nothing can be done to stop the bullying. Consequently, the student victim of bullying could discontinue efforts to stop the bullying. Student victims

of bullying are less apt to trust their peers, and thus more likely to have a low level of connection to peers in school (You et al., 2008). Peer acceptance is one of the most basic human motivators (Baumeister & Leary, 1995), and it has been found that college students subjected to teasing tend to have lower self-esteem and a more difficult time in developing close interpersonal relationships than those not subjected to teasing (Feder et al., 2007).

In schools, social experiences have been observed as being less than constructive for students (Deutsch, 1993). Schools often provide an environment promoting student competition, high academic achievement, high-class rank or status, popularity with teachers, substantial extracurricular involvement, and acceptance into the most prestigious postsecondary schools. Fueling this student competition could create conflict between students and lead to destructive solutions to peer conflicts. Deutsch stated that,

In recent years, it has been increasingly recognized that schools have to change in basic ways if we are to educate children so that they are for rather than against one another, so that they develop the ability to resolve their conflicts constructively.... (p. 510)

Furthermore, Farrell et al. (2006) discovered that the quantity of problem situations experienced by students in school has a positive relationship to aggression, delinquency, depression as well as anxiety, and has an inverse relationship to self-worth.

Youth in inner cities who are exposed to a considerable amount of violence might experience psychological desensitization to violence as well as demonstrate tendencies toward aggressive behaviors (Ng-Mak, Salzinger, Feldman, & Stueve, 2004). Mrug, Loosier, and Windle (2008) point out that the effects of violence exposure could vary depending on the context surrounding the violence. Violence in the house tends to cause more internalizing problems than externalizing problems because a child or adolescent

might feel personally responsible for violence taking place in the house. Additionally, violence at home may not offer opportunities for the victim of violence to retaliate or to exhibit externalized behavioral problems (Mrug et al., 2008).

Exposure to violence in school could have a stronger connection with externalizing problems because the school setting offers more opportunities for a child or adolescent to retaliate against others and to lash out with physical violence. Mrug et al. (2008) determined that 78.2% of adolescents in their study reported observing threats or violence in school, and 22.3% reported being a student victim of threats or violence. Overall, 80% of adolescents reported some degree of exposure to violence in school while 34% reported some exposure in the community, and 13% indicated exposure at home (Mrug et al., 2008).

Mrug et al. (2008) identified a significant positive relationship between violence exposure and level of anxiety, depression, and fantasies about acts of aggression. When exposure to violence reached extreme heights, anxiety leveled off, and depression decreased, which could be a result of adaptation to violence. Exposure to violence in school, community, and at home is positively related. Consequently, it is important to assess an adolescent's exposure to violence in all settings- even if the adolescent only presents exposure in one setting. Emotional desensitization to violence might lead to coping, but it could cause problems over the long-term or possibly be an indicator of Posttraumatic Stress Disorder (Mrug et al., 2008).

Social exclusion can be difficult for the student being left out, it can be psychologically painful, and it might even be physically painful. MacDonald and Leary (2005) proposed that losing social connections has a deep seeded negative effect on a

human being. Social animals have depended on social inclusion for safety and survival, and consequently threats to one's social connections, could be processed as safety threats. Shame, jealousy, embarrassment, and guilt can all be reactions to being devalued by peers. Absolute exclusion has potential to cause pain, and having one's value within a group diminished can also cause pain to an individual. Social pain and physical pain "operate via shared mechanisms" (MacDonald & Leary, 2005, p. 203). MacDonald and Leary "...propose that social exclusion cues accessed threat-defense responses by stimulating the same painful feelings associated with physical injury" (p. 204). Overall people seem to view social exclusion as a harmful experience. Kaplan and Bratman's (2000) research found that people believe a doctor-assisted suicide is more moral and justifiable if a patient is in emotional pain as well as physical pain. It has been shown that the thought of pain from social exclusion could be viewed as worse than pain from physical injury in many circumstances (Williams, as cited in MacDonald & Leary, 2005). Social pain and physical pain are both related to anxiety, depression, and other emotions associated with defensiveness to threat (MacDonald & Leary, 2005).

Being victimized by peers has been identified as one of the most salient predictors of school disengagement for gay students, lesbian students, and students uncertain of sexual orientation (Murdock & Bolch, as cited in Espelage et al., 2008). Homophobia has a presence in schools, and has been found to lead to instances of peer victimization or bullying. Sexual minority children and adolescents are especially in need of supports from schools and parents because they might be more susceptible to negative consequences in the peer group or school than students identifying as heterosexual (Espelage et al., 2008). Interestingly, Espelage et al. (2008) compared some of the

distinctions in bullying outcomes between student victims of bullying of different sexual orientations, and student victims of bullying questioning their sexual orientation. The relationship between sexuality and bullying is unclear, but it is evident that more studies are needed to better understand this relationship. Lesbian, gay, and bisexual students reported a higher amount of homophobic teasing in comparison to heterosexual students, but the experience of victimization was similar amongst both groups. It is not clear whether or not there are actually differences in victimization experiences depending upon sexual orientation (Espelage et al., 2008).

### **Bullying Laws & Students With Disabilities**

The Individuals with Disabilities Education Act (IDEA) requires that public schools in the United States allow students with disabilities a free and appropriate education (FAPE). A student suspected of having a disability must be tested, individually, according to the regulations in IDEA. If the student is evaluated and the outcome finds the student is mentally retarded, has a hearing impairment, a speech impairment, a language impairment, a visual impairment, a serious emotional disturbance, an orthopedic impairment, autism, traumatic brain injury, a specific learning disability, multiple disabilities, or another significant health impairment, then that student might qualify for services under IDEA.

Although IDEA of 2004 defines disability, each state government also has some leverage in defining precisely what categories of students with disabilities qualify for services under IDEA within a particular state. Thus, a student might be identified as suffering from a disability covered under IDEA in some states while not in others. If it is found that a student is identified as having a disability per the definition within IDEA,

then the student does not automatically receive special services. It also must be deemed that the student's disability requires special education services, so the student can receive a free and appropriate education. Special education is when teaching and instructional methods are adapted for a student whom has unique learning needs due to an identified disability.

Advocates for students with disabilities argue that students covered by IDEA, should be afforded more comprehensive, effective protections against bullying. They argue that if students covered under IDEA are bullied to an extent that the bullying interferes with their right to a FAPE, and then legal recourse should be available. Bullying is based on a power imbalance and can bring physical or emotional harm to a student victim. Thus, students who have disabilities are prime targets for bullies because their disabilities often make them weaker (socially, physically, or cognitively) than their peers, or at least noticeably different from their peers. In some environments, people with disabilities have been found to be approximately twice as likely to indicate being frequently bullied. Historically, discrimination against those with disabilities has been given less weight than discrimination against non-disabled persons, as those with disabilities have historically been denied human rights (such as FAPE). The U.S. Department of Education has officially identified the bullying of students with disabilities as a serious issue in schools by stating the following in a memorandum (Ferster, 2008):

Given that disabled students already are at high risk for depression, anxiety, and poor school performance, the increased prevalence of bullying of disabled students is troubling. The anti-bullying legislation and character education programs are unlikely to successfully eliminate the bullying of disabled students, making legal remedies a more appealing option. If schools can be held legally accountable for failing to prevent bullying, they may be motivated to develop more successful programs, and victims of bullying may find relief. (p. 3)

Section 504 of the Rehabilitation Act might provide legal recourse in the courtroom for student victims of bullying with disabilities who experience peer harassment. However, if a student victim files a claim under Section 504, then the student must show that school administrators were deliberately indifferent, and that the bullying was severe plus persistent - much like students filing claims under Title IX for sexual harassment. Students with disabilities who qualify for services under IDEA are required to have Individualized Education Programs (IEP). Assuming an IEP is created in a way that is correct and provides a FAPE for a student with a disability, then any bullying preventing the student from meeting goals on the IEP might prevent that student from receiving a FAPE (Ferster, 2008).

If a meaningful benefit cannot be derived from an IEP due to bullying, it might be proven that the bullying directly denies the student of that meaningful benefit. First, it would have to be shown that the bullying was persistent, and not simply a single act of harassment. Second, the Rowley standards must be applied. There must be an investigation to determine whether or not the IEP contained a component to protect the student with a disability from bullying, or included a component that promoted development of healthy peer social relationships. Then, it must be shown that a student's disability prompted the bullying or that the disability made the student particularly vulnerable to becoming a victim of bullying. Bullying has been connected to increased drop-out rates, depression, and suicide. Thus, it is plausible that a student with a disability could have a more difficult time dealing with bullying than the average student, and that bullying could have a substantial negative impact on academic performance as well as social development (Ferster, 2008).

Before a parent or guardian has a right to file a civil action against a school or public school district under IDEA, that parent or guardian must show he or she pursued all administrative avenues within the school or district. Under IDEA, it might be possible for a plaintiff to be awarded a compensatory education or private school tuition through the courts, but, generally, public schools are not in jeopardy of experiencing extreme financial liability, such as might be possible under Title IX. This is one reason why the court has more flexibility with IDEA than Title IX. Unlike under Title IX, if a judge rules against a school or school district, it is not probable that a school will be found liable for a sum of money large enough to adversely impact the overall operations of an entire school or district (Ferster, 2008).

### **Neurobiology of Bullying**

The effects of bullying on neurobiological processes have not been studied extensively, but there is a significant body of animal and human research that shows early exposure to stress can lead to neurobiological changes (Vaillancourt et al., 2008). Vaillancourt et al. found that students who were victimized by peers had lower morning cortisol levels than non-victimized students. The pattern of hyposecretion of cortisol that was found by Vaillancourt et al. is in accord with the child maltreatment literature (Vaillancourt et al., 2008). Specifically, verbal bullying was associated with lower cortisol secretion in girls; however, boys sometimes experienced higher secretion of cortisol after verbal bullying. This could have been a result of differences in how males and females react to bullying. Since females value social relationships more than males, females could be more reactive to verbal bullying than males.

Bullying often produces stress, which leads to the release of the neurotransmitter

cortisol and the inhibition of serotonin. This results in the fight-or-flight response. The hippocampus, part of the limbic system, is responsible for handling stress, emotion, and emotional driven memories. It has been observed that those with PTSD have a hippocampus with less volume than those not suffering from PTSD. One commonly held belief has been that the volume of the hippocampus decreases as a result of substantial exposure to cortisol during a period of stress, such as war. However, more recently, it has been hypothesized that ongoing stress during childhood impedes the development of the hippocampus, which decreases the capability to handle stress later in life. This inability to handle stress due to an underdeveloped hippocampus could be the cause of PTSD (Plaford, 2006).

### **Longterm Effects of Bullying**

Smith, Singer, Hoel, and Cooper (2003) found that adults who have been bullied in school are more likely to be bullied in the workplace. There is a positive correlation between bullying in elementary school and bullying in high school. Moreover, bullying in elementary and high school correlate positively with bullying in college (Smith et al., 2003). Thus, a person who bullies in elementary school is likely to bully in high school, and a person who bullies in high school is likely to bully in college (Chapell et al., 2006). Male college students both physically and verbally bully more than females (Smith et al., 2003). It has been found that the roles of bullies, student victims of bullying, and bully-victims can remain consistent over the course of many years (Chapell et al., 2006).

Dubow et al. (2008) looked at childhood and adolescent predictors of career and educational outcomes in adulthood in Finland and the United States. Exposure to aggression in childhood or adolescence was found to impede success in the career and

education domains in adulthood (Dubow et al., 2008). Therefore, various forms of bullying might affect student functioning during the bullying as well as affect functioning in adulthood in career and education domains. As peer harassment became frequent for middle school adolescents, Rusby et al. (2005) found that antisocial behaviors, aggression levels, affiliation with deviant peers, and types of problem behaviors significantly increased. Frequent peer harassment in middle school predicted future behavioral problems, such as antisocial behavior and alcohol use (Rusby et al., 2005).

In a longitudinal study (Huesmann, Eron, & Yarmel, 1987), it was suggested that aggressive behavior negatively impacts a person's intellectual accomplishments from childhood through middle adulthood. After a child passes the age of 8, it seems that IQ does not have an effect on aggression. Thus, students who demonstrate maladaptive aggressive behaviors are not necessarily behaving in that manner due to a low IQ. Although an aggressive student over the age of 8 does not necessarily behave aggressively due to a lack of intelligence, aggression has been associated with low academic achievement. This could be related to attentional issues, a focus on social cues as opposed to academic cues, or related to a focus on other factors that might result from or precede aggressive behavior.

### **Bullying: A Global Issue**

Green (2007) stated that, "much attention has been placed on the issue of bullying in schools, both in the United States and in foreign countries. Countries like Norway, Sweden, Japan, and Australia have been at the center of attention on issues related to bullying" (p. 333). Bullying is not simply a phenomenon in the United States, as its presence has been well documented across the globe. Aluede et al. (2008) note that a

Pediatrics in Review survey discovered 14% of children in Norway reported being bullies or student victims of bullying, 15% of students from Japan reported being bullied, and children from Australia and Spain reported being bullied 17% of the time. It was estimated that 1.3 million children were involved in bullying (Aluede et al., 2008).

Three male middle school students in Norway committed suicide in 1984, and it was believed that they underwent a substantial amount of bullying by a group of peers (Greenbaum, as cited in Green, 2007). It has been reported by the Japanese government that a 13-year-old student committed suicide after peers and gang members from his school and neighborhood bullied him (Barone, as cited in Green, 2007).

McGuckin and Lewis (2008) indicate that the Department of Education of Northern Ireland implemented specific bullying prevention legislature because it was not sufficient for legislature to require the promotion and sustainability of good behavior without distinctly addressing bullying prevention. Presently, it is mandatory for all schools in Northern Ireland to create and implement bullying prevention policies (McGuckin & Lewis, 2008).

Correia and Dalbert (2008) researched the relationship between the strength of Portuguese adolescents' belief in a just world, and the likelihood of them carrying out bullying behaviors. The participants in this study ranged in age from 12 to 18. It was found that the more these adolescents reported believing in a just world, the less likely it was that they carried out bullying behaviors. It appeared that rule-breaking behaviors in school were decreased when students felt they were being treated fairly (Correia & Dalbert, 2008). Thus, adolescents who feel they are treated unjustly and that the world is unfair might be prone to rule-breaking and bullying behaviors in school. A high school

with a large number of students who think they have been treated unjustly in the world, or in school specifically, might have a high rate of bullying.

### **Reasoning and Cognitive Structure**

“To think, means, above all, to understand; and to understand means to arrive at the transformations, which furnish the reason for the state of things” (Piaget, 1961, p. 275). Jean Piaget was an exceedingly important researcher in the area of developmental psychology (Commons et al., 2005). Piaget (1961) defined the essential part of the act of thinking as the action of the dynamics as opposed to contemplation, and outlined the two main parts of thought. He described the first part as perception, mental imagery, and other imageries, and the second part as the dynamic aspect, which involves transformations. Piaget (1961) believed that “...only transformations make us understand the state of things” (p. 275). Transformation can be described in terms of physical phenomenon, such as manipulating the parts of a machine to find out how it operates. As an individual cognitively develops, transformation becomes the more prevalent method of understanding. A thought action is the combination of different thought operations and the integration of objects into dynamic transformation systems. Creating a logical cognitive structure demands building on a more basic logical structure, which means that the person creating a logical cognitive structure must perform a coordinating activity (Piaget, 1961).

Piaget believed that “...logical reasoning provides the sufficient and necessary means by which adaptive interpersonal understandings are constructed” (Mayer, 2005, p. 364). According to Piaget (as cited in Feldman, 2004), individuals have a desire to know about the world in a figurative and operative sense. A desire for figurative knowledge is a

desire to find out about the world “as it is,” and the desire for operative knowledge is a desire to use mental structures to analyze and interpret the world. Piaget believed logic and reasoning facilitate psychological and social equilibriums (as cited in Mayer, 2005). He thought entire (or parts of) psychological, biological, and social systems are naturally disrupted, and that this continual destabilization can lead a whole (system), and the pieces upon which it was built, to reconfigure itself into a more complex, advanced, and adaptive system or whole. With respect to psychology, Piaget defined a whole as a reciprocal system of cognitive operations, and an individual cognitive operation was defined as a component of the whole. Much of Piaget’s research method was based in a desire to explain the distance between a child and an adult’s reasoning ability (Mayer, 2005).

A baby from 4 to 18 months will build his or her first *invariant*, which is the “schema of a permanent object” (Piaget, 1961, p. 276). This means a baby will recognize that an object that has escaped from perception, such as something being placed behind a wall, has not permanently ceased to exist. Piaget (1961) indicated that the child under 7 years of age usually constructs incomplete cognitive structures that are deficient in logic. As the child reaches 7 or 8 years of age, the child might become capable of understanding complete dynamic structures, which include classes, relations, and numbers. These complete dynamic structures are concrete in nature. Concrete refers to an actual object that might be manipulated, or to imagined manipulation of an actual object. Around 11 or 12 years of age it typically becomes possible to hypothesize and to utilize logic. Learning about logic is very different than learning about a physical property like the weight of objects because logical structures are built on other more basic logical structures. These

structures are not exclusively based on an individual's experience (Piaget, 1961).

### **Cognitive Developmental Stage and Stage Theory**

Theories of cognitive developmental stage and reasoning involve "...an ordered sequence of stages through which individuals progress as their reasoning matures" (Davison et al., 1980, p. 121). With regard to developmental stages of moral reasoning Snarey, Reimer, and Kohlberg (1985) indicated that stage sequence should be invariant, move upward, progress gradually, be sequential, and not regress more than can be accounted for by expected scoring errors. As an individual progresses through stages, no stage should be skipped.

"Structural wholeness is a critical empirical criterion of construct validity" (Snarey et al., 1985, p. 4). Kohlberg (as cited in Snarey et al., 1985) emphasized the importance of structural wholeness, and viewed it as the "...generality of stage usage across moral issues and dilemmas within the interview" (p. 8). More specifically, it could be said that stage of moral reasoning is not necessarily dependent on the moral issue or topic that an individual is reasoning about. Snarey et al. found that each subject they interviewed in their study on moral developmental stage performed at the highest stage in the last interview, and progressed through previous stages in sequential order without skipping stages.

Davison et al. (1980) noted that the changes in reasoning described within cognitive developmental stage theories are specifically labeled developmental because such changes in reasoning are internal to the individual, irreversible, include acquiring better cognitive structures, and are directional. Moving from a lower stage to a higher stage involves structural change, which is the reorganization of cognitions. Lower stage

thought processes become part of high stage processes, so when a person moves up one stage of development, the lower stages do not disappear; they are all part of the higher stage. Stages are not only in sequence, but each stage in the sequence is achieved or reached without the omission or skipping of any stages. Most stage theories are complex and do not simply indicate that a person functioning at a certain stage will function at that stage across all domains in all situations. Davison et al.'s "...stage sequence model preserves the concept of ordered, developmental stages without assuming that subjects reason at the same stage regardless of the situation."

Piaget (Inhelder & Piaget, 1958) defined the following four major stages of cognitive development: sensorimotor, preoperational, concrete operations, and formal operations. The sensorimotor stage has to do with reflexes, primary circular reactions, secondary circular reactions, coordinating secondary schemes, tertiary circular reactions, and the transition to symbolic thinking. Piaget identified the sensorimotor stage as taking place between birth and 24 months, the preoperational stage as taking place between 24 months and 6 years of age, the concrete stage as taking place between 6 and 12 years of age, and the formal stage as taking place between 12 years of age and above (Feldman, 2004).

The preoperational stage of cognitive development is when the individual has developed operational symbolic systems and is capable of symbolic thought. Piaget found that children at the preoperational stage had minimal ability to take the perspectives of others (Feldman, 2004). The concrete stage of cognitive development involves the introduction of an awareness of the empirical reality of experience. The beginning of logical operations appears and makes the formation of hierarchies and classes possible

(Ginsburg & Opper, as cited in Feldman, 2004). Concrete operations allow the individual to consider the perspective of others (Feldman, 2004; Inhelder & Piaget, 1958).

The formal stage of cognitive development was the most advanced stage defined by Piaget (Kitchener et al., 1993), and thus represented the most complex reasoning capabilities defined by Piaget. Specifically, the formal stage of operations, as defined by Piaget, is a cognitive stage where complex cognitive systems emerge, process information, and determine how the individual perceives the world (Feldman, 2004). Making an inference based on “if-then” relationships is called conditional reasoning, which is one type of reasoning found in the formal stage of cognitive development (Inhelder & Piaget, as cited in Feldman, 2004). It has been found that the formal stage is not in accord with the stage of cognitive development at which many adults operate (Commons, 2004; Niemark, 1979, as cited in Kitchener et al., 1993). Kitchener et al. indicate that this finding led to the belief of the existence of stages beyond the formal stage. Moreover, many neo-Piagetian models of cognitive development were developed, such as that of Richards and Commons (1984).

Piaget realized his stages of cognitive development would probably not survive unless they were modified in some manner. Piaget’s stages of cognitive development create functioning systems of rules as well as constraints for the mind. If a specific system of cognitive development is part of a child or adolescent’s mind, then it is said to exist as a whole. The child or adolescent might demonstrate a certain cognitive system (or stage) of operation, but the stage might not be demonstrated consistently or efficiently at all times (Feldman, 2004).

As cognitive stages increase, more elements are coordinated, leading to

increasingly complex functioning units as cognitive stage progresses. Piaget (Bringuier, as cited in Feldman, 2004) indicated that intellectual changes do not happen suddenly, but are gradual developing changes that suddenly reach consciousness (when a new mental structure is formed); Piaget (as cited in Inhelder & Piaget, 1961) called this seizing of consciousness. When the individual seizes consciousness of a functioning mental system or new stage of cognitive development, it means that the new mental system is available and operational to the individual (Feldman, 2004).

Piaget's theory is conceptually and empirically supported by the sciences of complexity, which include evolutionary robotics (ER) as well as artificial life (Alife) sciences. "In ER's and Alife's theorizing and empirical research, the cognitive agent, through its activities in the world, develops a set of emergent behaviors through differentiation of very basic initial activity, of sensorimotor activity patterns" (Feldman, 2004, p. 190). Aside from the sensorimotor stage of cognitive development, which is constructed from a foundation of simple reflexes, each cognitive stage is constructed of previously constructed cognitive stages. Feldman points out that biological and maturational processes are factors in cognitive developmental change in addition to psychological processes (Feldman, 2004).

### **Tasks Measuring Cognitive Developmental Stage**

Piagetian tasks measure reasoning ability without imposing time restraints on tasks. Thus, in order to perform well on a Piagetian task, reasoning ability and logic is integral while the time needed for task completion is relatively inconsequential. Piaget would only consider a response correct if the child participant could adequately justify why the response was identified as being correct. Items in a Piaget task are ordered

hierarchically (Flieller, 1999). Flieller found that Piagetian tasks, similar to intelligence tests, are susceptible to the Flynn effect, which is when test scores become inflated over time. Thus, the pace of cognitive development might be increasing as time passes. For example, today cognitive development might be progressing at a greater speed than 30 years ago (Flieller, 1999).

Davison et al. (1980) designed a set of responses where each category of response represented qualitatively different types of reasoning. Response types were developmentally ordered by scale values, and their model showed a mapping of discrete response categories on a “continuous, developmental dimension of individual differences in reasoning” (Davison et al., 1980, p. 122).

Demetriou and Kyriakides (2006) studied the cognitive development of five domains of reasoning and then assessed the construct validity of a test that was created to measure cognitive development from adolescence through adulthood. When discussing cognitive development, Demetriou and Kyriakides indicate that the stage transitions of an individual can take place at different points in time depending on the type of task. They further confirmed that

The findings of confirmatory factor analysis generally support the theory upon which the comprehensive test of cognitive development (CTCD) was developed. That is, the validation of the first-order factor structure of CTCD justifies the use of test scores for making inferences about cognitive abilities in five distinct domains of thinking, represented by tasks addressed to each of them. (p. 235)

Demetriou and Kyriakides (2006) indicated that, “...the mind is a hierarchical system involving three main levels” (p. 209). Rasch analysis (see Rasch analysis section for further explanation) was used to find out if performance on the test items of the CTCD were part of the same developmental scale. Further, Rasch analysis was used to

determine if the performance of participants taking the CTCD, and the difficulty of all items on the CTCD were on a single continuum.

### **Hierarchical Complexity and Task Difficulty**

“Tasks are defined as sequences of contingencies, each presenting stimuli and requiring behaviors that must occur in some non-arbitrary fashion” (Commons & Miller, 2001, p. 226). Difficulty of a task can be measured by actual properties of that task as well as by properties that are not part of the task. Some measures of difficulty cause task and non-task properties to become indiscernible to a degree, which muddles the clarity of what is being measured, and makes the meaning of the measurement difficult to interpret. Properties of a task can refer to the following: the type of information within a task, the presentation of the information within a task, and the operations required for task completion (Commons & Miller, 2001).

Hierarchical complexity is a task property and one type of task difficulty. Generally speaking, hierarchical complexity has been described as the number of concatenation operations within a task. Concatenation is when two or more, lower-order tasks are nested within higher-order tasks. New task required actions are one order higher in complexity than the lower task required actions that they are derived or built from. Historically, horizontal complexity, code complexity, position effects, and cognitive load have been the types of task difficulty measurements that have been researched. Horizontal complexity can be defined as the number of stimuli that must be addressed (individually) within a task as well as the number of response types required for task completion. Horizontal complexity can be analyzed objectively and measured quantitatively; one manner of measuring horizontal complexity would be to measure the

information bits of a task. Horizontal complexity does not have a mechanism that considers variation in difficulty of different types of tasks (Commons & Miller, 2001).

Hierarchical complexity is based in mathematics and must include one or more actions. Task complexity increases as more actions are combined together, and thus “...refers to the number of concatenation operations a task contains” (Commons & Miller, 2001, p. 229). “The Model of Hierarchical Complexity (Commons & Miller, 1998; Commons & Richards, 1984a, b; Commons, Trudeau, Stein, Richards, & Krause, 1998) equates stage of performance on a task to the order of the hierarchical complexity of the tasks that the stage of performance successfully addresses” (Commons & Pekker, unpublished, p. 6). Order of hierarchical complexity of any task is defined by the location of a task within a task sequence. A recursion is when lower-order actions become input or building blocks for higher-order actions. “The order of hierarchical complexity is measured by the number of recursions that the coordinating actions must perform on a set of primary elements” (Commons et al., 2008, p. 183). Commons and Pekker indicate that The Model of Hierarchical Complexity is based on the hierarchical complexity found in mathematical models and in information science.

Commons et al. (2005) compare the properties of the MHC to the properties of mathematical distribution, such as the following mathematical operation:  $2 \times (3 + 4)$ . Distribution, like the MHC, assesses the actions, the elements of those actions, and the relationships between the elements:

To begin with, the simplest elements are numbers, 2, 3, and 4. These numbers are coordinated, or nested, in two multiplicative lower-order actions  $(2 \times 3) = 6$  and  $(2 \times 4) = 8$ . The actions of  $(2 \times 3)$  or  $(2 \times 4)$  are both considered more complex than any of the numbers by themselves. Furthermore, when using distribution, these two lower-order actions are coordinated within the higher-order action  $(2 \times 3) + (2 \times 4) = 6 + 8$ , by the action of adding. This coordinating operation is considered

more complex than  $(2 \times 3)$  or  $(2 \times 4)$  by themselves. This example demonstrates the hierarchical nature of the complexity within the task: The simple elements are nested within the lower-order actions, which are in turn nested in the higher-order actions of distribution. Thus, there are a number of lower-order tasks within the task of solving  $2 \times (3 + 4)$  with distribution that must be addressed. (Commons et al., unpublished, p. 8)

### **Rasch Analysis**

The Rasch model is "...a well-established psychometric model that is particularly well-suited for examining patterns of performance in developmental data" (Dawson-Tunik et al., 2005, p. 164). When an individual develops a new concept, cognitively, hierarchical integration is involved, which is when a new concept is built (at a new level) through the coordination of conceptual elements from the previous level (Dawson-Tunik et al., 2005). A new concept is more hierarchically complex than an older concept because the newer concept integrates "...earlier knowledge into a new form of knowledge" (p. 165). Considering stages are successive hierarchical integrations, developmental stage sequence must progress without the omission of stages. The Rasch model examines "hierarchies of person and item performance, displaying both person proficiency and item difficulty estimates along a single interval scale (logit scale) under a probabilistic function" (Dawson-Tunik et al., 2005, p. 172).

A Rasch analysis can be used to determine if specific items or scores of participants are in accord with a theoretically specified hierarchical sequence (Dawson-Tunik et al., 2005; Bond & Fox, 2001). A Rasch analysis is a particularly beneficial method of assessing developmental stage data because cognitive abilities develop in a hierarchical sequence, and group as well as individual effect can be assessed (Dawson-Tunik et al., 2005). Rasch analysis can be used to analyze a unidimensional attribute, such as a specified type of human development, and it transforms ordinal data into

interval data by calculating the natural logarithms of raw data. This leads to a more accurate measurement of a single attribute than the analysis of raw data (Bond & Fox, 2001).

For example, if a teacher would like to assess students' understanding of fractions, then the teacher might give students an exam on fractions. If there are ten questions, and two students answer five questions correctly, then the teacher might assess the raw data and find the two students of equal ability. However, the difficulty of the questions answered by each student might be very different, and thus indicate different levels of ability even though the raw scores were identical. Therefore, it is beneficial to estimate item difficulty for each individual item. Rasch analysis also determines whether questions on an exam or items on an instrument measure the same attribute. If a teacher wants to know about fractions, but includes a question about multiplication in an exam, the question interferes with the measurement of the intended attribute (Bond & Fox, 2001).

Age and education attainment can be predictive of cognitive developmental stage. From childhood to early adolescence, age is especially predictive of stage, but in later adolescence and adulthood educational attainment is a better predictor. An assessment of developmental stage can be easily labeled as being biased if the assessment is heavily reliant on a specific domain (Dawson-Tunik et al., 2005). Thus, assessing developmental stage with a methodology that could be used across domains, and that is not simply relevant to a single domain can be beneficial.

After a Rasch analysis is conducted, item difficulty and participant performance estimates are arranged along an equal interval scale. The equal intervals on the scale are called logits. With Rasch analysis software packages, item and participant or person

estimates are given error estimates. Rasch analysis software calculates infit statistics, which identifies whether an item or person's performance is consistent with the sequence of other performances and items along the scale (Bond & Fox, 2001; Dawson-Tunik et al., 2005).

### **The Model of Hierarchical Complexity (MHC)**

“It is important that any ‘stage’ theory and the accompanying scoring scheme have a mathematically and logically developed basis” (Brown, as cited in Commons, Miller, Goodheart, & Danaher-Gilpin, 2005, p. 1). The MHC is a quantitative behavioral developmental theory. It allows cognitive developmental stage of performance to be related to the “...order of hierarchical complexity of tasks” (p. 12). The MHC developmental theory is heavily based in task analysis, and, as mentioned previously, a task is a sequence of contingencies that present stimuli requiring a sequence of behaviors to be carried out non-arbitrarily. Two large contributions made by Piaget were his findings that: (a) stages of development progress along an invariant pathway and (b) and that this invariant progression is universal - or not particular to certain cultures or content areas (Commons et al., 2005).

Commons, Trudeau, Stein, Richards, and Krause (1998) argue that in order to effectively determine a person's developmental stage, a developmental theory should address: (a) the hierarchical complexity of the task being solved by that person and (b) the psychology, sociology, and anthropology of the task performance and how the performance develops. The MHC defines stage analytically, and defines stage as the “highest order of hierarchical complexity on which there is successful performance” (Commons et al., 1998, p. 238). Specifically, the MHC analytically measures the power

necessary to perform a task or to find a solution to a problem. Stage sequence can be determined by analyzing tasks, identifying the hierarchical complexity of those tasks, and then sequentially ordering them. This process can be referred to as scoring items or tasks. The order of hierarchical complexity of a task directly corresponds with the stage of performance required to accomplish the task. Consequently, the MHC defines cognitive developmental stage as the performance required to accomplish a task of a specific order of hierarchical complexity as defined by the MHC (Commons et al., 1998). Using Rasch (1980) analysis, Commons, Goodheart, and Dawson (1995) found that hierarchical complexity of a given task (that is completed) predicts stage of a performance, the correlation being  $r = .92$  (Commons et al., 2005).

The MHC defines 15 orders of hierarchical complexity and the cognitive developmental stages that correspond to the orders of hierarchical complexity. Stages in the MHC are represented by the numbers 0 through 14. The MHC shows that Piaget's substages are hard stages, and it also includes the addition of three postformal stages. Stages 0-4 in the MHC could be compared to Piaget's sensorimotor stage that typically describes the performance of infants and young children. The MHC stages 4-6 could be compared to Piaget's preoperational stage. Stages 6-8 are comparable to Piaget's concrete operations stage, and Stages 9-11 correspond to Piaget's formal operations stage. Piaget's stages are defined as mental representations while MHC stages are defined by the hierarchical complexity of corresponding tasks. Consequently, the highest stage achieved under Piaget's model is based on mental representations and in intellectual maturity while the highest stage achieved under the MHC model is based on successful performance of a task at the highest order of hierarchical complexity (Commons et al., 2005).

The following 15 stages of cognitive development (and their corresponding numbers of hierarchical complexity) are identified in the MHC: calculatory stage (0), sensory and motor stage (1), circular sensory and motor stage (2), sensory-motor stage (3), nominal stage (4), sentential stage (5), preoperational stage (6), primary stage (7), concrete stage (8), abstract stage (9), formal operational stage (10), systematic stage (11), metasytematic stage (12), paradigmatic stage (13), and the (14) crossparadigmatic stage (Commons et al., 2005).

Calculatory (0) stage actions are very simple actions that a machine could perform. The sensory and motor stage (1) is when infants are able to see and touch shapes; infants might also demonstrate babbling vocalizations. Circular sensory and motor stage (2) actions include reaching and grasping while sensory-motor (3) actions are actions associated with vocalizations. The nominal stage (4) is defined by single word formations, and the sentential stage (5) is when sentences plus phrases are formed. Preoperational stage (6) behavior is defined by the ability to speak a paragraph-length number of sentences or phrases, but the primary stage (7) is when actual storytelling begins and spoken stories can be matched to reality. At the concrete stage (8), two primary operations are coordinated, and at the abstract stage (9) stereotypes, variables, personalities, and traits emerge. The formal operational stage (10) is when the individual is capable of logical discussions and can provide empirical support. At the systematic stage (11) elements of abstract systems can be coordinated, and at the metasytematic (12) stage of operations formal systems can be coordinated. The paradigmatic stage (13) is when a new field is built from several metasystems; this stage is rarely achieved by adults. In the crossparadigmatic stage (14), new paradigms are coordinated (Commons et

al., 2005).

### **Scoring Stages with the Model of Hierarchical Complexity (MHC)**

Commons et al. (2005) have developed instruments and interview techniques to assess cognitive developmental stage (as defined by the MHC). With regard to assessing stage, Fischer and Bidell (1998) indicated that it is sensible to create a sequence of tasks where each individual task requires a specific stage of performance. Consequently, stage of performance could be determined by identifying the highest staged task completed by a participant.

For the purposes of this researcher's study, a series of tasks/instrument (Commons, 2006) was adapted to assess high school students' performance in reasoning about bullying. In order to adapt the instrument, many rules had to be followed. Generally speaking, three sets of vignettes, each vignette in a set representing a different level of hierarchical complexity (and corresponding cognitive developmental stage), was built by the same rules as instruments built and used by Commons in past studies (e.g. Commons et al., 2006).

Commons et al. (2005) have designed and used reliable and valid instruments to assess cognitive developmental stage of performance (on a task or tasks) in many research studies (e.g. Commons et al., 2006; Dare Institute, 2009). One type of instrument they have used to assess cognitive developmental stage instructs the participant to read six vignettes, and then to rate how well or how poorly the person portrayed in each vignette reasons about a specified situation. The participant provides ratings on a scale of 1-6, each number representing a different level of reasoning (worst to best reasoning). The vignettes and instrument may be adapted to analyze cognitive

developmental stage in different domains, but adapted vignettes must be developed according to a standardized set of rules.

If the axioms and premises of the MHC are followed, tasks that assess cognitive developmental stage can be carefully built. First, the domain, general task, and purpose of the task must be defined. Next, three sets of vignettes (items) must be created. One item for each stage must be present in all three sets, meaning each vignette should represent a single stage of cognitive developmental stage and its corresponding order of hierarchical complexity (Commons et al., 2005).

It is important to understand how the MHC defines stages. When a person reasons at the preoperational stage of cognitive development, the person will be capable of paragraph long utterances, and at the primary stage stories can be told and matched to reality. There are no variables present in the preoperational or primary stages. At the concrete stage of cognitive development, a person understands instances, which is to say a person can think about specific times when an event happened, specific actors (or people) involved, specific places involved, and specific events themselves. Generalization does not occur yet, so a person's use of logic is relegated to specific people, places, times, and events. At the abstract stage of cognitive development there are variables, such as stereotypes, which are based in concrete variables. In the formal stage of cognitive development, there is one operative relationship or coordination between variables; other unrelated variables might also be present, but are not coordinated. At the systematic stage there are two or more coordinations between variables (that create a system). At the metasytematic stage there are two or more relationships between variables creating systems, and there is a relationship between the systems (Commons et

al., 2006; Commons et al., 2005; Commons et al., 1998).

When creating a set of staged or ordered vignettes, a sequence of five to seven should be developed. The higher order task must be defined in terms of the lower order task, the lower order actions should be organized by the higher order actions, and organization of lower order items must be nonarbitrary. Thus, the higher order/stage vignette should be defined in terms of the lower order/stage actions present in the lower order vignette. If there is increasing variability among tasks, variability must be increased systematically (Commons et al., 2005).

Each vignette must have an invariable lead in portion, the variable elements, and then an invariable outcome. Therefore, the beginning and end of the vignettes in a set are controlled (or contain very similar elements across vignettes), and the middle portion of the vignette varies, with each variation representing a different order of hierarchical complexity. Length of the vignettes, language in the vignettes, gender of the person portrayed in the vignettes, and name-length of the person portrayed in the vignettes must be controlled (Commons et al., 2005).

All vignettes in one set should have very similar word counts, varying by a maximum of about five words. The language should be relatively simple (approximately 6th-grade reading level), consider the targeted group of participants, and sentences should be brief. The sex of the person portrayed in the vignette should not be revealed, and thus only last names should be used to refer to the persons portrayed in the vignettes. All of the last names that are used should have the exact same letter count, and gender-specific pronouns must be avoided. Typically, Old English last names have been used in vignettes of past instruments (Dare Institute, 2009). Here is one example of a vignette from a

previously used instrument in a research study on counselor informed-consent (Dare Institute, 2009):

Counselor Bowers offers a treatment that has been studied and is shown to work well. Bowers shares the fact that not everyone has had a positive outcome from the treatment. Bowers then reads a description of the treatment and its risks from a colleague's book. Bowers points out that any treatment will have risks. Bowers asks the patient if they understand the treatment and its outcome possibilities. After thinking carefully, Bowers patient feels comfortable that Bowers is capable clinician. Feeling that Bowers knows best, the patient prepares to undergo treatment (Dare Institute, 2009).

The same number of answer choices must be used with each assigned task. For example, if a participant is asked to rate how well the person portrayed in each vignette reasons about something, then one rating method must be used consistently (such as using a rating scale from 1-6). Tasks or items must be made as simple as possible, considering the relevant order of hierarchical complexity. After tasks are first assembled, they should be piloted with at least 30 participants, and then a Rasch analysis should be conducted. As noted earlier, each cognitive developmental stage corresponds with an order of hierarchical complexity (e.g., Systematic stage of operations is 11; Abstract stage is 10; Concrete stage is 9). The proposed order of hierarchical complexity of each item/vignette should be noted accordingly, so data on each item can be tracked in the Rasch analysis to assess item reliability and validity (Commons et al., 2005).

The Rasch analysis results will indicate whether or not the proposed and intended order of hierarchical complexity of items/vignettes is in the correct sequence. If the proposed orders of complexity are not in sequence or are found to be incorrect, then potential problems with the out-of-sequence items must be identified. After making adjustments, the items should be piloted again with at least 30 participants. Once the Rasch analysis shows that the items or vignettes are ordered as intended, the instrument

will be ready to administer, and should be formatted as in past studies (e.g. informed consent page, demographics page, instructions, items/vignettes, rating scale, open-ended questions; Commons et al., 2005).

### **Brain Biochemistry and Emotions**

Human adolescence is defined as the period from age 12 through the age of 25. Brain maturation takes place at a significant rate during this time span of human growth. Brain remodeling could be the foundation of developmental plasticity, which is when neurological circuits change to become more adaptive to the environment that bridges adolescence with adulthood. Adolescents particularly experience an extensive reorganization in the prefrontal cortex and the limbic system. This consists of the hippocampus, amygdala, nucleus accumbens (NAc), prefrontal, frontal and orbital frontal cortices, and the hypothalamus (Crews, He, & Hodge, 2007). Crews et al. (2007) indicated that adolescent brain remodeling "...could also make the adolescents more vulnerable to external insults and other psychiatric disorders" (p. 190). They further stated that,

Between 10 and 25 years there are major changes in synaptic receptors and density as well as myelination of frontal cortical areas important for impulse control, goal setting, motivation, interpersonal interactions, reasoning, assessment of rewards and punishments in evaluating actions and other complex brain functions. (Crews, He, & Hodge, 2007, p. 196)

Cognitive developmental stage affects an individual's ability to experience certain emotional stages. As cognitive development progresses across the lifespan, an individual's interpretations of external or internal change evolves, and thus stage of cognitive development is related to human emotions. Emotions experienced by adults could be qualitatively different than those experienced by adolescents if the adults are at a

higher stage of cognitive development. Kagan (2001) indicates that a toddler might demonstrate the same state as an adult when encountering a bear at first. However, after a few seconds, the cognitive evaluation of the adult will differ from the toddler, and consequently the experience of emotions will differ (Kagan, 2001).

Children or adolescents in the same age group do not necessarily operate at the same cognitive developmental stage. Feldman (2004) indicated that ages associated with each cognitive developmental stage are estimates, and that "...substantial variation in individual children is assumed" (p. 184). Research has shown that environmental factors have an effect on cognitive skills in children, but there is little research on how environmental factors affect adolescent and adult cognitive performance on neo-Piagetian developmental tasks. Fischer (1980; Fischer, Bullock, Rotenberg, & Raya, 1993) identified seven different skill levels among people between the ages of 2 and 30. Fischer indicated that environment affects skill level (or development), and consequently that a person could be at different developmental stages or skill levels depending on the environment. Contextual support is the prompting of a certain skill, and can lead to high levels of performance while absence of contextual support could decrease performance. Many factors may increase or decrease reasoning performance within a group of people in the same age group. Commons et al. (2005) have noted that it is possible for some adolescents to function at the same cognitive developmental stages as adults.

Considering Piaget's definition of the formal stage it could be concluded that preadolescents cannot logically reason in response to verbal propositions. It has been proposed that information-processing constraints and long-term memory affect the performance of preadolescents on classical conditional reasoning tasks (Markovits et al.,

1996). The manner in which information is processed and retrieved from memory could, in part, determine differences in cognitive development between children and adolescents of various ages. Specifically, younger children have more difficulty both activating and retrieving information from memory (Janveau-Brennan & Markovits, 1999).

### **Bullying and Cognitive Developmental Stage**

Schools are in an outstanding position to promote youth development, and a safe environment can lead to opportunities for students to grow socially and academically (Farrell et al., 2006). Moreover, urban schools are excellent environments for analyzing social and cognitive mediators that bridge peer victimization and adjustment of the victimized student (Graham, 2006). It is important for students to be prepared to control behavior in addition to emotions during social interactions (Jensen-Campbell & Malcolm, 2007). Mayock et al. (2009) reported that the President of Ireland, Mary McAleese, stated "...we could and should decommission attitudes that encourage bullying of all sorts and in particular attitudes that are deeply hurtful to those who are homosexual" (p. 7).

Typically, educators perceive physical cases of bullying to be more serious in nature than verbal bullying or teasing. However, students see teasing and verbal bullying as being just as problematic as physically aggressive forms of bullying (Newman & Murray, 2005). Clearly, physical aggression tends to be easier for educators to detect in the school setting while unwanted teasing or verbal bullying can be more difficult to observe. All types of bullying should be taken seriously, and thus it is important to assess the ability of students to reason about and understand instances of bullying.

How does a student's ability to reason and take varying perspectives allow him or

her to respond to bullying? Smetana, Campione-Barr, & Yell (2003) stated “There has been a great deal of recent interest in children's judgments of provocation, because how children evaluate and respond to provocation may have implications for their social development and adjustment” (p. 209). Students sometimes respond with submissiveness to unreasonable peer demands or behaviors when “they do not know how to respond more assertively” or they fear the ramifications of opposing a peer (Shaw & Wainryb, 2006, p. 1050).

Most of the research on bullying has focused on reducing and preventing it (Black & Jackson, 2007; Craig & Pepler, 2007; Frey et al., 2005; Horne, Stoddard, & Bell, 2007; Srabstein, Berkman, & Pyntikova, 2008). In addition, much of the literature on bullying has focused on the effects of bullying on the involved students with regard to psychological and academic consequences (Cassidy & Taylor, 2005; Felix & McMahon, 2006; Jantzer, Hoover, & Narloch, 2006; Sweeting, Young, West, & Der, 2006). There has been little research focusing on the bullied student's ability to reason about an instance of bullying.

### **Cognitive Developmental Stage and Antibullying Policy**

When developing policies to deal with bullying, it could be useful to consider cognitive developmental stage. The legal system treats teenagers differently than adults due to the gap in social as well as cognitive development, so it makes sense that school policies should consider cognitive (and social) development. “Teenagers exhibit different psychosocial, physical, and neurological traits than do most adults” (Drobac, 2007, p. 2). Further, new research has discovered that cognitive development continues into a person's 20s. Executive functioning is not fully developed until the mid- or late-20s, and

the brain's executive functioning deals with emotional regulation, planning, impulse control, and decision-making abilities (Drobac, 2007).

Social control theorists, such as John Lock and Jean Jacques Rousseau, thought children were incompetent because they lacked an adequate ability to reason, and had few knowledge building experiences. Modern research has shown that adolescents certainly have the ability to reason, but it is at varying levels, and older adolescents could be capable of reasoning at the level of many adults. Generally speaking, the fact that adolescents are still developing in many ways, in comparison to adults, does make them a group with less power than adults (Drobac, 2007).

The powerless are not able to access resources, policies, or laws that might help them when they are not provided with an outlet to do as much. Sexual harassment law provides an outlet for adolescents, and anti-bullying policies could do the same. Adolescents have always been given a lower political and legal status than adults, and are not viewed as equals, legally speaking. This lower status, in many circumstances, has served as a legal protection over adolescents, like children, but the lower status might also make adolescents more vulnerable if adults are not providing the appropriate protections (Drobac, 2007).

### **Summary**

It seems particularly practical to research bullying from a developmental stage perspective, as it allows the researcher to consider the cognitive capacity of students to reason about bullying. Of course, it is also important to look at how bullying is related to socioeconomic status, cultural background, gender, ethnicity, and other factors. However, regardless of these factors, it will not be possible to help a student deal with a

bullying problem unless the student is helped in a way that is in accord with his or her cognitive developmental stage or reasoning ability.

Many urban classroom teachers teach highly diverse, multicultural classrooms. Although an urban classroom math teacher might be very knowledgeable about the cultural and socioeconomic backgrounds of students, the teacher will probably not be most effective if he or she does not know how well a particular student or a particular group of students can be expected to reason through a certain math problem. Similarly, a counselor's knowledge about the factors, such as socioeconomics, that might affect bullying will most likely not be useful to the counselor when he or she attempts to help the bullied student if the counselor does not at least have a general understanding of how a bullied student reasons about bullying. The counselor should be more effective when he or she assists a bullied student in a manner that is in accord with the student's developmental stage.

Stage theory is a temporal representation of behavior change, which occurs as an individual evolves. Behavior change has been viewed as a small time period of disequilibrium that is coupled with rapid change that occurs between larger periods of equilibrium. Often times, psychotherapy focuses on stable constructs, such as maladaptive attitudes that lead to unwanted or unhealthy behaviors. Understanding stable constructs that lead to maladaptive behaviors does not necessarily lead to the creation of effective interventions (Velicer & Prochaska, 2008).

Developmental stage behavior models can lead to effective development of interventions because an understanding of how an individual changes over time and consideration of dynamic variables that affect behavior are instrumental in the creation of

an effective behavior change intervention. “Stage models of behavior change have served as a basis for the development of numerous effective interventions” (Velicer & Prochaska, 2008, p. 77). Some researchers have designed bullying interventions that meet the needs of patients at different stages (Velicer & Prochaska, 2008). Moreover, Wasserman (Fastov, Glenwick, & Wasserman, 1991) pointed out that it is important to consider level of cognitive development when using cognitive behavioral techniques to treat children with behavior disorders.

School administrators should consider cognitive developmental stage when building and implementing antibullying policies. It is logical to conclude that antibullying policies could serve as school-wide interventions, which might be more effective if cognitive developmental stage is considered.

## Chapter 3: Methodology

### Participants

There were 176 adolescent and 77 adult volunteers in the Northeastern United States who participated in this study. More specifically, adolescents from an urban school district, teachers from the same urban school district, and college professors and college students from the Northeastern United States participated in this research study. A convenience sample of adolescents enrolled in mainstream English classes was taken, and included: 6th- through 12th-grade students. However, 7th-grade students were omitted because they were not available at the time of the study. Students in each grade came from all academic levels, including: college preparatory, honors, pre-advanced placement, and advanced placement. There were 86 female student participants, and 90 male student participants. Student participants had 19 countries of origin, and nine states of origin within the United States. Approximately 34% of student participants indicated English as their second language. Those enrolled in special education classrooms and English language learner classrooms were excluded, as students in these classrooms most likely could not read or understand the instructions of the Student-Bully Problem (see Appendixes A and B).

A convenience sample of 77 middle school teachers, high school teachers, college professors, and college students volunteered to participate in this study. The high school as well as junior high school teachers who volunteered to participate were from the same urban school district as student participants. College professors and college student participants were from a college in the Northeastern United States. There were 63 public middle school and high school teacher participants. Additionally, there were five college

professors and nine college-student participants. In total, there were 24 adult male participants, and 53 adult female participants. Excluding some college student participants, adult participants at least held a Bachelor's degree, and approximately 45% indicated holding a master's degree or certificate of advanced graduate study. Nine adult participants indicated holding a doctorate of philosophy or education.

The selected high school has students ranging from Grades 9 through 12. Most students are between 14 and 18 years of age, but ages of students may range from 13 to 21 years of age. The high school has 1,500 students and serves an urban community of approximately 50,000 people. Roughly 33% of these high school students either enroll or withdraw from the school over the course of 1 school year. The student body is very diverse with respect to culture and SES. Over 50% of the families of students qualify for the free or reduced lunch program, which indicates they are low-income households. The student body is composed of students whom speak 49 different languages, and 56% of the student body is classified as minority. Over 40% of students speak English as a second language, and 6.3% of the total student body is classified as having limited English language proficiency. Most out-of-country transfers emigrate from parts of South America, Central America, and Southeast Asia. Additionally, a notable number of out-of-country transfers are from the Middle East, Bosnia, Mexico, and Africa.

The student body is made up of: 4.4% African American students, 8.4% Asian students, 33.5% Hispanic or Latino students, 2.7% multiracial students, .7% Native American students, .1% Native Hawaiian or Pacific Islander students, and slightly under 50% White students. There are 51.3 % male students and 48.7% female students. Over the last 5 years, the student body has become more diverse with respect to race and

ethnicity, and the percentage of minority students has increased. It is anticipated that this trend will continue as the community the high school serves becomes more diverse.

Adolescents were also selected from a junior high school in the same urban district, which contains 429 students, mostly ranging from 12 to 14 years of age. The student body consists of: 59.4% White students, 32.2% Hispanic or Latino students, 3.5% African American or Black students, 2.3% Asian students, 1.9% multiracial students, and .7% Native American students. Approximately 58% of students are classified as low-income students.

### **Instruments**

Paying attention to the axioms and premises of the MHC, an instrument containing scored or staged vignettes was carefully adapted from the Counselor-Patient Problem (Commons, 2006) to assess cognitive developmental stage of performance in reasoning about bullying. First, the domain, general task, and purpose of the task were defined. Next, two groups of vignettes, and three sets of seven vignettes per group were created. Seven vignettes that represented the seven cognitive developmental stages that were assessed in this research study were present in each set of vignettes, meaning each vignette was created to represent a single cognitive developmental stage and its corresponding order of hierarchical complexity as defined by the MHC (Commons et al., 2005).

The Counselor-Patient Problem (Commons et al., 2006; Dare Association, 2009) was used by Commons et al. to assess cognitive developmental stage of performance in reasoning about counselor-patient informed consent. After participants completed the Counselor-Patient Problem instrument, results were recorded, and a Rasch analysis was

conducted. The Rasch analysis was conducted to empirically determine participants' cognitive developmental stage of performance in reasoning about counselor-patient informed consent, and to quantitatively determine whether or not the intended order of hierarchical complexity of each vignette was accurate. For example, it determined whether or not the vignette intended to be at the 8th order of hierarchical complexity (corresponding with the concrete stage of cognitive development) actually was at the 8th order. Commons et al. (2006) indicated that the Rasch analysis showed:

The order of hierarchical complexity of the informed consent vignettes predicted the Rasch-scaled responses to those vignettes extremely well. This empirically confirmed that the vignettes accurately reflected the order of hierarchical complexity for which they were designed. Participants found it increasingly difficult to differentiate informed consent quality as the vignette order of hierarchical complexity increased. (p. 434)

Results of the Rasch analysis were significant, showing that the hierarchical complexity of a vignette was predictive of the Rasch scaled score (e.g. " $r(8)=.879$ "; Commons et al., 2006).

This researcher gained permission to adapt Commons et al.'s Counselor-Patient Problem instrument in order to assess cognitive developmental stage of performance in reasoning about school bullying. The adapted instrument, which includes different versions, was titled the Student-Bully Problem. Two groups (Assigned Seat & Pushing) of vignettes, with three sets of seven vignettes per group, were adapted for the purposes of the proposed research study. The first adapted group of vignettes consisted of three slightly different sets of seven vignettes regarding an instance of covert or psychological bullying. Specifically, the bully takes another student's assigned seat. Students portrayed in each set of vignettes in this group are intended to demonstrate reasoning about bullying at varying orders of hierarchical complexity before reacting to the bullying. The second

adapted group of vignettes also consists of three slightly different sets of seven vignettes involving an instance of bullying, but in this second group, the bullying is overt physical bullying. The bully pushes a student for no reason, and students described in the vignettes are intended to demonstrate reasoning about the bullying at varying orders of hierarchical complexity before reacting to the bullying.

When adapting the vignettes, many steps from Commons et al.'s (2005) Hierarchical Complexity Scoring System were followed. Domain is defined as performance in reasoning about school bullying. General task is to read vignettes regarding student reasoning about school bullying (representing various cognitive developmental stages/orders of hierarchical complexity) and rate how well or poorly the student portrayed in each vignette reasons (on a likert scale of 1-6. Purpose of the task is to identify the cognitive developmental stages that participants, in general, operate at when performing a reasoning task about school bullying (as defined by the MHC).

Each of the three sets of vignettes within a single group (Assigned Seat Group or Pushing Group) of the Student-Bully Problem varied slightly from the other sets within the group. Each vignette in a set represented a different level of hierarchical complexity and its corresponding cognitive developmental stage. Thus, each set contained vignettes representing seven levels of hierarchical complexity and their corresponding stages of cognitive development. The stages of cognitive development represented in the Student-Bully Problem differed slightly from the Counselor-Patient Problem. More specifically, the preoperational stage was added to the Student-Bully Problem. This change was made because the Counselor-Patient Problem was used with adults while the Student-Bully Problem was used with mostly adolescents and some adults. The preoperational, primary,

concrete, abstract, formal, systematic, and metasystematic stages defined by the Model of Hierarchical Complexity (Commons et al., 1998; Commons et al., 2006) were included in the Student-Bully Problem.

In the Counselor-Patient Problem, the structure of the vignettes is based in two systems, which are informing and consenting. The two systems in the Student-Bully Problem are the student victim's perspective and student bully's perspective. In the Counselor-Patient Problem, when a counselor-patient vignette was built at one of the MHC stages of cognitive development/orders of hierarchical complexity, the reasoning of the counselor portrayed in the vignette characterized the reasoning ability of an individual at that particular stage of cognitive development.

When a student-bully vignette was built for the Student-Bully Problem, the reasoning of the student victim of bullying portrayed in the vignette was also characteristic of the reasoning ability of a person at a particular stage of cognitive development. For example, in a preoperational vignette, the student simply reacts or yells at the bully, as there is minimal reasoning at this stage. The primary stage reaction is less reflexive. At the concrete stage, the student portrayed in the vignette considers and acts on information regarding an instance from the past, which is given to the student by someone close, such as a parent or friend. Since stereotypes and classifications are part of the abstract stage, the student in vignettes representing this stage is able to generalize about groups of people and to stereotype people. For example, instead of thinking about an instance where a specific teacher acted a certain way (concrete stage), the person at the abstract stage might generalize by identifying common behaviors shared by all teachers. In the formal stage vignettes, the student uses "if/then" reasoning, as this is the

cornerstone of formal operations, and demonstrates one relationship or coordination between abstract variables. The systematic stage vignettes contain two or more coordinations or relationships between variables, and the metasytematic stage vignettes contain the coordination of two different systems (Commons et al., 2005).

Like the Counselor-Patient Problem vignettes (Commons et al., 2006), the vignettes adapted for the Student-Bully Problem contain similar word counts (within five words), simple language, and brief sentences. Last names with the same letter count identify students in the vignettes, and the sex of the student is not revealed. Each vignette in a set has a similar lead in portion or beginning and a similar outcome or ending. The middle portion of the vignettes is varied to represent different orders of hierarchical complexity in reasoning about bullying and their corresponding cognitive developmental stages.

**Structure of Vignettes at Each Stage for the Student-Bully Problem.** When reading the description of how vignettes were structured at each particular stage (below), it is important to note the following: “c” for concrete instance or event, actor, place, “v” for variable, and “R” for relationship (or coordination).

**Preoperational Stage/Order 6.** At the preoperational order, minimal or no thought process precedes behavior. Simple, impulsive reactions follow social conflict. There is no capability for true counting (true counting is the ability to accurately attach number words to sets of randomly ordered objects). However, sets of ordered objects can be counted.

**Primary Stage: Order 7.** It is reality based, and a single perspective might be presented at one time. True counting, simple deduction, and simple one operation

arithmetic and logic can be conducted.

**Concrete Stage: Order 8.** One may specify and talk about the variable producing concrete instances, events, places, and actors ( $c_1, c_2, \dots$  these symbols can represent specific events, places, or actors).

**Abstract Stage: Order 9.** Actual variables may be used at the abstract order. This means that words representing variations, such as “most,” or words representing something that varies can be used. Stereotypes and generalizations may be used. For example, a general group of people, like “teachers,” might be referred to at this stage, as opposed to a reference to a specific person such as “my math teacher” ( $v_1, v_2, v_3, \dots$ ).

**Formal Stage: Order 10.** At the formal order, one relationship is operative ( $v_n R_{n+1}$ ), and “If-then” logic may be used. Single variables outside of the relationship may be present.

**Systematic Stage: Order 11.** The systematic order consists of two or more relationships between variables, which form a system ( $v_1 R_1 v_2, v_3 R_2 v_4$ ). Single variables may be present outside of these relationships between variables ( $v_1 R_1 v_2, v_3 R_2 v_4, v_5, v_6, \dots$ ).

**Metasystematic Stage: Order 12.** The metasystematic order consists of a relationship between two distinct systems, which are composed of relationships between variables. Single variables may be present outside of these relationships  $\{(v_1 R_1 v_2) R_3 (v_3 R_2 v_4), v_5, v_6, \dots\}$ .

**Creating the Student-Bully Problem.** After the first group of vignettes (three sets of “Assigned Seat”), and the second group of vignettes (three sets of “Push”) were formed, three different versions of the Student-Bully Problem instrument were

assembled. Each version was given one set of the Assigned Seat vignettes, and one set of the Push vignettes along with a 1-6 rating scale, instructions, a demographics page, and a consent page. The instructions asked participants to read a set of seven vignettes and then to rate how good or bad the students' reasons are for how they react to the bullying in the vignettes. The three versions of the survey were titled: Student-Bully Problem (a), 1-1, 2-1 (see Appendix B), Student-Bully Problem (b), 1-2, 2-2 (Appendix C), and Student-Bully Problem (c), 1-3, 2-3. The three sets of the Assigned Seat vignettes were labeled 1-1, 1-2, and 1-3; the first number represents the group, (assigned seat) and the number following the dash represents the specific set of vignettes within the group. Similarly, the three sets of "Push" vignettes were labeled 2-1, 2-2, and 2-3. The intended order of hierarchical complexity and corresponding cognitive developmental stage of each vignette was documented (e.g. order of hierarchical complexity = 9; stage = abstract), so data could be tracked in a Rasch analysis.

Commons et al. (2005) indicate that after vignettes are adapted or written according to the specifications set forth in the Hierarchical Complexity Scoring System, they should be piloted by having 30-50 participants rate the reasoning portrayed in each vignette on a rating scale of 1-6. Then, the data should be analyzed in a Rasch analysis to ensure that each vignette empirically represents the intended order of hierarchical complexity. The Rasch analysis results indicate whether or not the proposed and intended orders of hierarchical complexity of the vignettes were achieved. If the intended orders of hierarchical complexity of the vignettes are predictive of appropriate Rasch-scaled scores (item difficulty), or Rasch-scaled scores demonstrating the vignettes hierarchical complexity are ordered as intended, then the vignettes should be at the correct orders of

hierarchical complexity.

Overall, if the vignettes are ordered correctly, the Rasch analysis should show that the vignette with the highest order of hierarchical complexity (corresponding with the metasystematic stage in this case) is the most difficult for participants to order or to identify as the best reasoning. Conversely, most participants should order the vignette with the lowest order of hierarchical complexity (corresponding with the preoperational stage in this case) as the worst form of reasoning. If the overall Rasch scores are in disagreement with the intended hierarchical complexity of each vignette, then there could be a confounding variable present in some or all of the vignettes, and the pool of participants might not adequately represent the cognitive developmental stages being measured (Commons et al., unpublished).

When the proposed orders of hierarchical complexity are not in sequence or are found to be incorrect, then potential problems with the out-of-sequence items must be identified. For example, if there is an “if-then” statement in a concrete vignette, the vignette becomes too hierarchically complex to be concrete. Therefore, the if-then statement would have to be removed. After making adjustments and correcting errors, the items should be piloted again with 30-50 participants. Once the Rasch analysis shows that the items or vignettes are either ordered as intended or ordered close to the ideal, the instrument will be ready to administer, and should be formatted as in past studies - informed consent page, demographics page, instructions, items/vignettes, and then the rating scale (Commons, unpublished; Commons et al., 2005).

Three versions of the Assigned Seat and Push groups of vignettes were created because errors or confounding variables in some of the vignettes (e.g., errors in writing or

choice of vocabulary) could make it extremely difficult to identify problems with flawed vignettes. Creating several adapted versions of the instrument allows the researcher to “throw out” vignettes that are not representing their intended orders of hierarchical complexity after being piloted, modified, and piloted again.

When the Counselor-Patient Problem was adapted to create the Student-Bully Problem, Dr. Michael Lamport Commons was consulted. Specifically, Commons (personal correspondence, September, 2007; December, 2009) reviewed the adapted sets of vignettes and noted potential problems, and suggested areas in need of revision. In 2009, a pilot was run where 105 adolescent and adult volunteers were administered the three versions of the Student-Bully Problem. After the pilot was completed, the researcher conducted a Rasch analysis and regression analysis for each set of adapted vignettes. The item Rasch scores were regressed against the items’ intended orders of hierarchical complexity; order of hierarchical complexity was the independent variable and item Rasch score was the dependent variable. Commons reviewed data from each analysis that was conducted with the pilot data, and subsequently recommended modifying vignettes that did not quantitatively represent their intended orders of hierarchical complexity. Adequate quantitative representation was determined by Commons via review of Rasch analysis output (for persons and items) and regression analysis output (comparing intended order of hierarchical complexity to Rasch scores for items/vignettes).

After the recommended modifications were made, the researcher conducted a second pilot to reassess the validity and reliability of the adapted instruments. A convenience sample of 90 adult and adolescent volunteers completed the Student-Bully

Problem (about 30 volunteers per version). Subsequently, Commons reviewed the data from the Rasch analysis and regression analysis. Commons recommended throwing out one adapted set of the Assigned Seat and one adapted set of the Push vignettes.

Reliability calculated from a linear regression, which regressed Rasch item scores against intended order of hierarchical complexity, was very low ( $r = .38$ ;  $r = .50$ ), which left the researcher with two versions of the adapted instrument that performed relatively well in the pilot, as evidenced by Commons interpretation of the quantitative analysis. The regression analysis of the better performing versions of the Student-Bully Problem (version a and version b) showed that reliability of each set of vignettes ranged from  $r = .74$  to  $r = .90$ . More participants were utilized in this research study than in the pilot studies, so it was expected that reliability of a linear regression with item Rasch score and item order of hierarchical complexity would improve.

Commons (2009) indicated that people have strong opinions about bullying, which might lead to bias that could cause the student-Bully Problem to be less valid and reliable than the Counselor-Patient Problem. In order to assess whether bias is a significant factor, Commons recommended adding questions that gather information about participants' experiences and views regarding bullying. He also recommended that participants answer these questions by filling in a rating scale. Answers to questions about bullying will be reviewed in an attempt to detect possible bias toward or against bullying.

## **Procedure**

**Design.** This research study is quantitative and descriptive in nature, and was designed to describe at what cognitive developmental stages urban middle school and

high school students reason about bullying in school age youth. Two versions of the Student-Bully Problem instrument (Student-Bully Problem A, 1-1, 2-1 & Student-Bully Problem B, 1-2, 2-2) were administered to 6th through 12th-grade students, with the exception of 7th-grade students, at an urban junior high school and high school in the Northeastern United States. Additionally, junior high school teachers, high school teachers, college professors, and college students (from a midsize college in the Northeast) were administered the Student-Bully Problem. The high school student participants were enrolled in 9th- through 12th-grade college preparatory, honors, pre-advanced placement, and advanced placement English classes. There was a wide range of ages among participants because Commons (personal correspondence, October 20, 2009) indicated a wide range could lead to a better understanding of how high school students perform on the Student-Bully Problem. As suggested by Commons (personal communication, April 11, 2008), a relatively equal number of two slightly different versions of the Student-Bully Problem were distributed to participants in each administration group.

With parental consent and child/adolescent assent, two versions of the Student-Bully Problem instrument (Student-Bully Problem A, 1-1, 2-1 & Student-Bully Problem B, 1-2, 2-2) were administered to 6th, 8th, 9th, 10th, 11th and 12th-grade students at an urban junior high school and high school in the Northeastern United States. Participants were assigned one of the two versions of the instrument. The high school students who consented and assented to participate in the study were assigned a subject identification number. They were assigned sequential subject identification numbers. The even assigned identification numbers were given the Student-Bully Problem (A, 1-1,2-1) Survey, and

the even numbers were given the Student-Bully Problem (B, 1-2, 2-2) Survey. The survey was administered before classroom instruction began, and it took high school participants between 20 and 45 minutes to complete.

A similar process was repeated with middle school students. Middle school students who assented and consented were assigned subject identification numbers. The numbers were sequential and participants with odd subject numbers were given the Student-Bully Problem (A, 1-1, 2-1) Survey. Participants with even subject numbers were given the Student-Bully Problem (B, 1-2, 2-2). The survey was administered before classroom instruction began, and it took middle school participants between 20 and 45 minutes to complete.

At the start of the survey administration for middle and high school students, participants were given a paper copy of the Student-Bully Problem. Then, they were asked to complete a demographics page, and to stop upon completion of the demographics page. Once this was completed, they were asked to read the instructions and vignettes in the Student-Bully Problem Survey, and to answer all questions. Following completion, students handed in the Student-Bully Problem to the principal investigator whom was present during the entire administration.

An informational e-mail about the study was sent to middle school and high school teachers along with a Survey Monkey link to the Student-Bully Problem Survey and the participation letter. The e-mail addresses of the teaching staff were acquired from the school district's administration, and the e-mail addresses were numbered. Those with odd subject numbers were sent a participation letter and a link to the Student-Bully Problem (A., 1-1, 2-1), which allowed them to anonymously submit answers via Survey

Monkey. The same process was followed for teachers with even subject numbers, but they were given a link to Student-Bully Problem (B., 1-2, 2-2).

An informational e-mail about the study was sent to college professors and college students in a midsize college in the Northeast. The e-mail addresses of professors and students were acquired from the college administration. Each e-mail address on the list was assigned a number (consecutively). The e-mail contained a Survey Monkey link to the Student-Bully Problem Survey, including the participation letter. The e-mail addresses that were assigned an odd number were sent a link to the Student-Bully Problem (A, 1-1, 2-1), and the e-mail addresses that were assigned even numbers were sent the link to Student-Bully Problem (B, 1-2, 2-2). Answers were submitted anonymously via Survey Monkey. Adult participants took the survey at their convenience.

After the surveys were collected, the ratings that participants selected for the vignettes were coded and recorded in an excel spreadsheet, which was used as the data source for the Rasch analysis. The data was coded to indicate which group of vignettes (Assigned Seat or Push) it was associated with, which version (Student-Bully Problem A, 1-1, 2-1; or Student-Bully Problem B, 1-2, 2-2) it was associated with, which participant number the data corresponded with, and which vignette (and its intended order of hierarchical complexity) each rating was associated with (M.L. Commons, personal communication, May 7, 2008). Winsteps Software was utilized to execute the actual Rasch analysis.

### **Rasch Analysis**

Ratings of participants were coded in order to correctly associate each rating

with the appropriate vignette, and set of vignettes (Assigned Seat or Push) from which the particular vignette belonged. Once all data was coded and organized in a matrix, a Rasch analysis (Bond & Fox, 2001; Linacre, 2009) was conducted. Rasch analysis obtains objective, fundamental, linear measures that are "...qualified by standard errors and quality-control fit statistics from stochastic observations of ordered category responses" (Commons et al., unpublished, p. 19). Logistic regression is used to minimize errors in item as well as person scores. Rasch analysis puts raw person and item scores on equal interval linear scales. Item scores are representative of item difficulty, and person scores are representative of a person's performance when dealing with an item of a particular difficulty (Commons et al., unpublished):

The linear measures created under the Rasch Model are item-free (item-distribution-free) and person-free (person-distribution-free). This means that the measures are statistically equivalent for the items regardless of which persons (from the same population) are analyzed, and for the people regardless of which items (from the same set) are analyzed. Analysis of the data at the response-level indicates to what extent these ideals are realized within any particular data set. The higher a person's performance score is relative to the difficulty of an item, the higher the probability of a correct response on that item by the participant. When a person's location on the latent trait is equal to the difficulty of the item, by definition, there is a 0.5 probability of a correct response. (p. 20)

Commons et al. (unpublished) conducted an international study where cognitive developmental stage was assessed with the Laundry Problem instrument, which is an isolation of variables problem. After collecting data from the Laundry Problem, Commons et al. found that a Rasch analysis of the combined data produced a participant reliability score of .94. Linacre (2010) indicates that this participant reliability statistic, produced from a Rasch analysis, is "...equivalent to, but can be lower than, a statistic like Chronbach's Alpha" (Linacre, 2010). Commons et al. (unpublished) found the overall

item reliability of the Laundry Problem to be 1.0. “In the context of a Rasch analysis, this means that there is a high probability that items estimated with higher measures do in fact have higher measures than those estimated with lower measures. There is no equivalent traditional measure” (Commons et al., unpublished, p. 20)

### **Stage Scores**

After the person and item Rasch scores were derived from the Rasch analysis, item and person stage scores (as defined by the Model of Hierarchical Complexity) were calculated. This was done because “...the means and standard deviation of a Rasch item score or a Rasch person score are not fixed in the same way the order of hierarchical complexity and stage are fixed” (Commons et al., unpublished, p. 21). Rasch scale parameters were transformed in order to ensure “their scale conformed” to the scale that stage is measured on when defined by the MHC. More specifically, the MHC measures stage on a scale from 0 through 14 where each number represents a distinct, hard stage. With respect to this transformation from Rasch scores to person (or participant) stage scores, Commons et al. (unpublished) state the following:

To find the person performance stage from the adjacent corresponding items’ order of hierarchical complexity, one can only interpolate between the items of adjacent orders hierarchical complexity. This can be done by translating the Rasch scores into stage scores based on the corresponding absolute values of the order of hierarchical complexity of the items. The orders of hierarchical complexity are ordinal and cannot be averaged, summed, or even subtracted. To use regression to do the translation would make assumptions about the size and linearity or equal spacing of any possible gaps between orders. But the interpolation is based on the Rasch scale for which interpolation is fine, because the Rasch scale is a conjoint measure. The Rasch scale is linear between the adjacent orders of hierarchical complexity. This is because a Rasch scale is a conjoint measure. That is, this relationship between the two scales, item Rasch scores and person Rasch scores, allows for the use of local interpolating between two adjacent orders of hierarchical complexity but not across multiple orders. In this way, the arbitrary Rasch scale parameters come to represent the stage of a person’s performance according to the Model of Hierarchical Complexity. After this transformation the

obtained stage of performance scores for persons can be compared both to item scores, and to examine individual and group differences. This is useful in doing a factor analysis. It is also better to compare item stage to the corresponding order of hierarchical complexity of the item rather than Rasch scores which are on a conceptually unrelated scale. (Commons et al., unpublished, p. 21)

The intended hierarchical complexity of each vignette was put in a regression analysis with the item Rasch score of each vignette. If the intended order of hierarchical complexity was correct, then the item Rasch score should be in agreement with the vignette's intended order of hierarchical complexity. For example, the item Rasch score representing the most difficult item should highly correlate with the highest ordered or staged vignettes (12th order of hierarchical complexity/metasystematic stage in this research study), and conversely, the lowest item Rasch score should highly correlate with the lowest ordered or staged vignette (6th order of hierarchical complexity/preoperational stage in this research study). The extent to which the item Rasch scores were in agreement with the vignettes' intended orders of hierarchical complexity defined validity and reliability of the Student-Bully Problem's items. It was expected that the adapted instrument in this study would prove highly valid and reliable since the Counselor-Patient Problem instrument (Commons et. al, 2006), which it was adapted from, proved highly valid and reliable.

Since Rasch analysis measures person performance as well as item difficulty (Bond & Fox, 2001), the analysis also revealed how participants performed on the task of rating how well or poorly students portrayed in the vignettes reasoned about bullying. If a participant rates students operating at higher cognitive developmental stages better than those at lower cognitive developmental stages, then this should be apparent in the Rasch analysis output. It was expected that most high school students would not be able to

differentiate the most hierarchically complex reasoning from the less hierarchically complex reasoning in the vignettes. Thus, it was anticipated that few student participants would reason at the systematic and metasytematic stages of cognitive development, and that most of them would reason at or below the formal stage.

The results could help counselors, social workers, and educators to better understand the cognitive capability of urban middle school and high school students to reason about bullying. If counselors better understand the range of cognitive developmental stages represented by students at their school, and the percentage of the student body operating at each of these stages when reasoning about bullying, then counselors might be better able to help students deal with bullying problems. Moreover, sharing the results of this study should prove beneficial to counselors, students, administrators, and teachers. The results could be used to develop interventions and initiatives that help improve the overall safety and healthy functioning of students. With regard to school counselors, this information could assist in the creation of interventions that help student victims of bullying as well as bullies in urban high schools.

The researcher used an assessment based on the Model of Hierarchical Complexity stage theory because it is quantitative in nature and could be adapted to the relevant area of study: bullying. Therefore, the instrument did not determine cognitive developmental stage based on physics tasks or other arbitrary tasks. This instrument was limited to assess how students performed on a reasoning task about bullying. Knowing how students reason in other contexts, such as physics or in more general contexts, might be helpful to counselors addressing bullying issues, but it should be more helpful to know at what cognitive developmental stages students from their school, in general, reason

about bullying.

### **Limitations**

One major limitation of this research study was that a very specific urban population participated in it. More universal meanings about urban high school students in the United States could be derived from a research study that includes participants from urban high schools spanning a variety of states and districts. Also, the students and adults participating in this study were exposed to a large amount of information about bullying via national media, local media, school administrators, state politicians, and others prior to participation. This was the first research study where the Student-Bully Problem was used to assess adolescents' and adults' performance on a reasoning task about bullying. As far as this researcher knows, this was the first research study when developmental stage of performance on a reasoning task about bullying has been conducted. Additionally, there were no similar studies (in the context of bullying or in other contexts) that attempted to identify the preoperational stage of cognitive development in adolescents or adults. It would have been beneficial if similar studies existed, so this study could be compared and contrasted. Additionally, results would most likely be more comprehensive if adolescents and adults from rural areas in the United States were compared to students from urban areas. Time and resource limitations did not make this possible in the proposed study.

## Chapter 4: Results

### Coding the Data

The collected data was coded, so responses to Student-Bully Problem (a) could be distinguished from responses from Student-Bully Problem (b). Additionally, data was coded, so data from Assigned Seat vignettes could be distinguished from data from Push vignettes. A data matrix was created to organize all participant ratings with their corresponding vignettes and their intended order of hierarchical complexity (see Table 1).

Table 1

#### *Data Matrix of Participant Ratings*

Participants		Participant ratings					
Subject	Preop.	Prim.	Conc.	Abs.	Formal	Syst.	Metasyst.
S1a	3	2	5	4	3	3	3
S2a	1	2	3	6	4	6	6
S3a	1	2	4	6	4	4	5

The column headings above participant ratings in Table 1 represent the intended stage/order of hierarchical complexity (HC) of Assigned Seat items. In order to differentiate Push items from Assigned Seat items, ratings for Push items were listed below the following headings: Preoperational 2, Primary 2, Concrete 2, Abstract 2, Formal 2, Systematic 2, and Metasystematic 2 (2 indicating Push items). This specific organization of the data prepared it to become input for a Rasch analysis with Winsteps software.

### Rasch Analysis With Student Data

All of the student data (6th through 12th grade) from the Assigned Seat vignettes were analyzed in one Rasch analysis, and all of the student data from the Push vignettes were analyzed in a second Rasch analysis. Following the Rasch analysis, output tables

were created with Winsteps software to illustrate item difficulty and person performance. The rank measure tables for the Assigned Seat and Push data were produced to illustrate item difficulty on the Rasch scale. The person measure tables were produced to show person performance on the Rasch scale. Item and person Rasch scores were used to calculate person and item stage (as defined by the MHC), which is described later in the results section.

### **Reliability of the Rasch Analysis**

Rasch analysis output showed that data collected from Assigned Seat vignettes had a person reliability of .48, and an item reliability of .98. The person reliability of the data gathered from the Push vignettes was .71, and the item reliability was .96. Linacre (2010) indicated that approximately .70 and higher is adequate for person reliability. Different circumstances, such as a small number of items or a limited participant sample might decrease person reliability. Person reliability seemed relatively low for the Assigned Seat vignettes, but adequate for the Push vignettes. Lower person reliability could be caused by the small number of items in the Student-Bully Problem or by the limited participant population, which was from two schools in a single school district; adding items to the Student-Bully Problem might increase person reliability. The item reliability was quite high, which indicated that the item Rasch score (taken from the rank measure table in Winsteps) accurately reflected the difficulty of an item. However, some of the items were out-of-order, which was demonstrated when the item difficulty (item Rasch score) of some items (vignettes) was higher or lower than expected considering the intended order of hierarchical complexity (HC) of those items. This likely indicated the intended order of HC of some of the items was not adequately achieved. Item Rasch

scores are discussed further in the person stage section of the results.

### **Stepwise Regression**

Rasch item scores were regressed against the items' intended orders of HC. One regression was conducted for the Assigned Seat vignettes and another was conducted for the Push vignettes. HC was set as the independent variable, and Rasch item score was set as the dependent variable in the linear regression, which was conducted with SPSS software. With the Assigned Seat vignettes, order of HC was shown to be a significant predictor of Rasch item score or item difficulty. More specifically, the results of the linear regression showed the following:  $r = .877$ ,  $r^2 = .77$ ,  $p < .05$ . With respect to the Push vignettes, it was also shown that order of HC was a significant predictor of Rasch item scores, as the linear regression results showed:  $r = .872$ ,  $r^2 = .712$ ,  $p < .05$ .

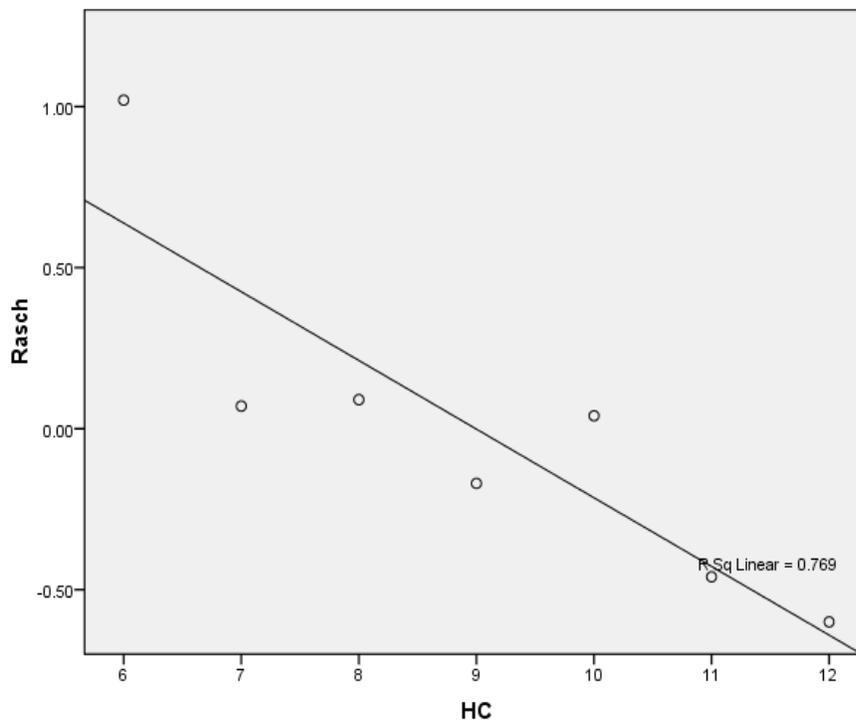
After running the regression analyses, scatter plots with best-fit lines were generated, and can be found below (see Figures 1 and 2). The scatter plot for Assigned Seat vignettes shows that the abstract (Order 9) and primary (Order 7) vignettes were substantially more difficult (or complex) than intended. Similarly, the scatter plot for the Push vignettes shows the abstract vignette was significantly more difficult (or complex) than intended. When viewing graphs with item Rasch scores, it is important to note that higher Rasch scores indicate easier items and lower scores represent more difficult items.

### **Item Stage Scores**

Item stage scores were calculated from the item Rasch scores by using the item stage formula defined by the MHC (Commons et al., unpublished). In the item stage formula shown below, Stage Mean<sub>1</sub> is the mean of item Rasch scores representing items at the single order of HC being scored for item stage, and Stage Mean<sub>2</sub> is the mean of item

Rasch scores representing items at the single order of HC immediately higher than the item being scored. For example, if the preoperational item is being scored, then the mean of preoperational items' Rasch scores is Stage Mean<sub>1</sub>, and the mean of the primary items' Rasch scores is Stage Mean<sub>2</sub>. In this case, there were only two items to average at each order of hierarchical complexity (Assigned Seat & Push). For example, there was an item Rasch score for the preoperational Assigned Seat item, and a Rasch item score for the preoperational Push item. Item Rasch Score is the item Rasch score of the specific item for which Stage of Item is being calculated. "Item HC" refers to the intended order of hierarchical complexity of the relevant item. Item stage scores are compared to the intended orders of HC and their corresponding stages of cognitive development in Table 2. The stage of an item is calculated with the following formula (Commons et al., unpublished):

$$Stage\ of\ Item = \frac{Item\ Rasch\ Score - StageMean_1}{StageMean_2 - Stage\ Mean_1} + Item\ HC$$



*Figure 1.* Assigned Seat Linear Regression Scatter Plot (Students)

*Note.* In Figure 1 “Rasch” is an abbreviation of “item Rasch scores,” and lower Rasch scores represent higher item difficulty (e.g. -0.5 represents higher item difficulty than 1.0). “HC” is an abbreviated form of “order of hierarchical complexity.” The preoperational stage has an HC of 6, primary stage has an HC of 7, concrete stage has an HC of 8, abstract stage has an HC of 9, formal stage has an HC of 10, systematic stage has an HC of 11, and metacognitive stage has an HC of 12.

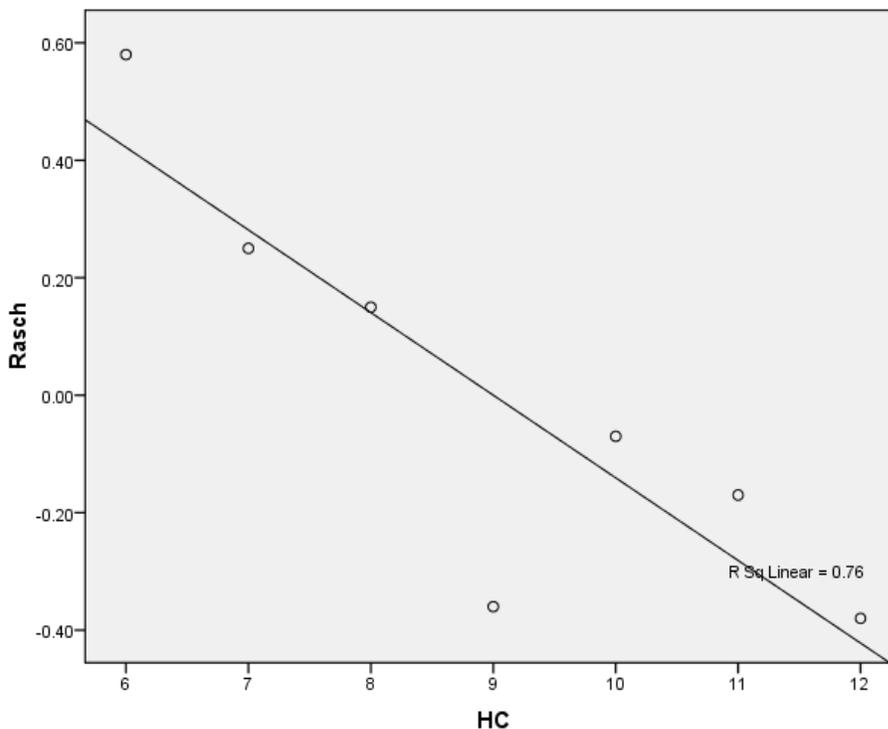


Figure 2. Push Linear Regression Scatter Plot (Students).

Note. In Figure 2 “Rasch” is an abbreviation of “item Rasch scores,” and lower Rasch scores represent higher item difficulty (e.g. -0.5 represents higher item difficulty than 1.0). “HC” is an abbreviated form of “order of hierarchical complexity.” The preoperational stage has an HC of 6, primary stage has an HC of 7, concrete stage has an HC of 8, abstract stage has an HC of 9, formal stage has an HC of 10, systematic stage has an HC of 11, and metasystematic stage has an HC of 12.

### Person Stage Scores

Each participant’s stage, as defined by the MHC (Commons et al., 1998) was calculated with the following formula (Commons et al., unpublished):

$$\text{Stage of Person} = \frac{\text{Person Rasch Score} - \text{StageMean}_1}{\text{StageMean}_2 - \text{Stage Mean}_1} + \text{Item HC}$$

The “Person Rasch Score” is the Rasch score or measure given for each participant in the “Participants Rank Measure” output table in Winsteps (which can be produced after completing a Rasch analysis). Another output table from Winsteps is the Rank Measure

table, which provides the item Rasch score (item difficulty) for each item given to participants. Stage Mean is the average of all Rasch item scores at a particular order of HC. For example, if an instrument has five items at the 9th order of hierarchical complexity (Abstract stage), then the stage mean would be the average of their item Rasch scores. Stage Mean<sub>1</sub> is the item Rasch score mean (of items at a particular order HC) that is immediately lower (in Rasch measure) than a participant's person Rasch score. Stage Mean<sub>2</sub> is the item Rasch score mean that is immediately higher (in Rasch Measure) than the participant's Rasch score. Since it is unintuitive, it is important to note that higher Rasch measure is represented by a lower number. For example, if a Rasch scale ranges from +1 to -1, persons and items scoring near or at -1 on the Rasch scale are higher performers and more difficult/complex items than those scoring near or at +1 on the Rasch scale.

Table 2

*Item Stage Scores*

	Pre-op.	Prim.	Concrete	Abstract	Formal	Systematic	Metasystematic
Intended order of HC	6	7	8	9	10	11	12
Assigned seat stage of item score	5.66	9.25	8.08	9.4	9.8	11.82	11.89
Push stage of item score	6.34	4.75	7.92	8.64	10.17	10.12	12.11

Person stage was calculated once with Rasch analysis output from the Assigned Seat data, and a second time with Rasch analysis output from Push data. Thus, person

stage calculation did not actually require the calculation of a mean because there was only one item Rasch score at a single order of HC for Assigned Seat vignettes, and there was only one item Rasch score at a single order of HC for Push vignettes. Consequently, in this study, Stage Mean<sub>1</sub> equals Stage<sub>1</sub> (or item Rasch score 1), and Stage Mean<sub>2</sub> equals Stage<sub>2</sub> (or item Rasch score 2).

Ideally, the item Rasch score for each item/vignette would represent the intended order of hierarchical complexity of that item/vignette and create linearity of stages. When this ideal is achieved, the Rasch analysis of data should produce decreasing item Rasch scores that are ordered from the lowest intended order of HC to the highest intended order of HC – without the mixing of orders. It is important to remember that the item at the lowest order of HC should have the highest Rasch score, as the highest Rasch score indicates the least item difficulty. This linearity, or ideal of item Rasch scores representing items' intended orders of HC, is necessary to calculate person stage scores. If there is mixing of stages/orders of HC, some items must be collapsed into multistage items to establish the linearity needed to calculate person stage. If stage mixing demonstrates most items' intended orders of HC were not achieved, then it would be impossible to create linearity by collapsing some items into one or more multistage items. In this research study, there was some mixing of item orders of HC. However, item Rasch scores represented the items' intended orders of HC to a degree allowing for collapsing of out-of-order items into multistage items, which created the linearity of orders necessary to calculate person stage scores.

### **Person Stage Scores for Student Assigned Seat Data**

The expectation was that the intended HC of all items would be represented or

supported in the item Rasch scores; however, this did not occur for each item in the Assigned Seat vignettes or in the Push vignettes. When there is a mixing of orders of HC, item Rasch scores indicate some items are less or more difficult than they should be considering their intended order of HC. Mixing of item orders of HC could indicate an issue or issues with the items, themselves, or could be indicative of issues with the participant sample. Rasch analysis of the Assigned Seat data demonstrated that the Primary Stage: Order 7 item jumped over the Concrete Stage: Order 8 item. It also showed that the Abstract Stage: Order 9 item jumped over the Formal Stage: Order 10 item. Table 3 illustrates how the item Rasch scores did not reflect the ideal, or intended orders of HC.

Table 3

*Assigned Seat Vignettes*

Assigned seat item Rasch score	Order of HC (stage name)
1.02	6 (Preoperational)
0.09	8(Concrete)
0.07	7 (Primary)
0.04	10 (Formal)
-0.17	9 (Abstract)
-0.46	11 (Systematic)
-0.6	12 (Metasystematic)

The primary and concrete items had to be collapsed into a multistage item (Primary-Concrete), and the abstract and formal items had to be collapsed into a multistage item (Abstract-Formal). Transforming two items into a multistage item restored the ideal linearity with intended item orders of HC, but it made it impossible to assess primary, concrete, abstract, and formal items individually as intended.

Consequently, results and calculations regarding these stages were less specific than desired, but still useful. A collapsed multistage category was created by averaging the participants' raw ratings that corresponded with the staged/ordered items being collapsed into one multistage category. Participants rated items with a 1-6 rating scale, so some of the ratings had to be rounded up or down, as the rating representing the multistage category had to be 1, 2, 3, 4, 5, or 6 and could not be any other number. For example, in order to create a multistage category for the concrete and abstract stage items with the participant's data listed below (see Table 4), the concrete and abstract ratings were averaged. In the case of the example below, the ratings 5 and 4 were averaged to 4.5, and then the average was rounded to 5. Abstract and formal items were also collapsed into a multistage item in the example below. The item headings of the multistage categories indicate the rating under the heading represents two different stages and not just a single stage item (see Table 5).

Table 4

*Ratings for Assigned Seat Vignettes*

Subject	Preop.	Prim.	Concrete	Abstract	Formal	Systematic	Metasystematic
S1a	3	2	5	4	3	3	3

Table 5

*Ratings for Assigned Seat Vignettes With "Collapsed" Multistage Categories*

Subject	Preop.	Prim.-Concrete	Abstract-Formal	Systematic	Metasystematic
S1a	3	4	4	3	3

After the out-of-order items were collapsed into multi-stage categories, another Rasch analysis was conducted, and its output displayed the linearity necessary to

calculate person stage (see Table 6).

Using the person stage formula listed earlier in this section, person stage was calculated for each participant whom at least received a person Rasch score equal to the lowest order item (Pre-operational: Order 6). Some participants' scores were less than the lowest order item and had to be eliminated (Richards, personal correspondence). It was possible to calculate person stage for 168 participants, and eight participants were excluded, as their person Rasch scores did not fit the model (falling below the preoperational item Rasch score). It was found that 21 participants performed at the preoperational stage, 88 participants (in total) performed at the primary and concrete stages, 28 (in total) performed at the abstract and formal stages, 20 performed at the systematic stage, and 11 performed at the metasystematic stage.

Table 6

*Assigned Seat Vignettes With Collapsed Multistage Items*

Assigned seat item Rasch score	Order of HC (stage name)
1.02	6 (Preoperational)
0.08	7-8 (Primary-Concrete)
-0.07	9-10 (Abstract-Formal)
-0.46	11 (Systematic)
-0.6	12 (Metasystematic)

**Person Stage Scores and Student Push Data**

Next, person stage was calculated from the Push vignette data. The same pool of participants completed the Push vignettes as the Assigned seat vignettes. As indicated earlier, there was mixing of item order of HC with the Push items as well. Rasch analysis

of the Push data demonstrated that the Abstract Stage: Order 9 item jumped over the Formal Stage: Order 10 and the Systematic Stage: Order 11 items (see Table 7). Table 8 illustrates how the item Rasch scores did not reflect the ideal, or intended orders of HC. However, there was enough order present to create linearity by collapsing the out-of-order items into multistage items. The abstract and formal items were collapsed into a multistage item (Abstract-Formal: 9-10), and the systematic and metasystematic items were collapsed into a multistage item (Systematic-Metasytematic: 11-12).

Table 7

*Push Vignettes*

Push item Rasch scores	Order of HC (stage name)
.58	6 (Preoperational)
0.25	7(Primary)
.15	8 (Concrete)
-.07	10 (Formal)
-0.17	11 (Systematic)
-0.36	9 (Abstract)
-0.38	12 (Metasytematic)

Transforming these items into multistage items restored the ideal linearity, but it made it impossible to assess abstract, formal, systematic, and metasystematic items individually, as intended. Therefore, results and calculations regarding these stages were less specific than desired, but still useful. A collapsed multistage category was created by averaging the raw ratings of participants for the items being collapsed into one multistage category, as with the out-of-order Assigned Seat items. After the stages were collapsed into multistage categories, another Rasch analysis was conducted, and its output displayed the linearity necessary to calculate person stage (see Table 8).

The number of participants for whom person stage could be calculated varied slightly from the Assigned Seat data, as some different participants had a person Rasch score below the preoperational item Rasch score. Person stage could not be calculated for 14 participants, which left a total of 159 participants whose person stage could be calculated. Four participants were at the preoperational stage, 13 were at the primary stage, 25 were at the concrete stage, 49 participants (in total) were at the abstract and formal stages, and 68 (in total) were scored at the systematic and metasytematic stages.

Table 8

*Push Vignettes With Multistage Categories*

Push item Rasch scores (with multistage categories)	Push order of HC (stage name)
.69	6 (Preoperational)
0.28	7 (Primary)
.16	8 (Concrete)
-0.52	9-10 (Abstract-Formal)
-0.60	11-12 (Systematic-Metasytematic)

**Stepwise Regression With Collapsed Multistage Categories**

After the mixed or out-of-order stages were given linearity via the collapsing of multiple stages, which were out-of-order, it was possible to view how the data should look, ideally, when vignettes represent the correct orders of hierarchical complexity. When the Assigned Seat vignettes with multistage categories were regressed against item Rasch scores, the results showed:  $r = .946$ ,  $r^2 = .895$ ,  $p < .05$  (see Figure 3). The Push intended orders of HC (including multistage categories) were regressed against item Rasch scores and results showed:  $r = .963$ ,  $r^2 = .927$ ,  $p < .05$  (see Figure 4). Table 9

illustrates the person and item reliability of Assigned Seat and Push data with collapsed multistage categories.

Table 9

*Reliability with Multistage Categories (for Student Data)*

Reliability of assigned seat and push data with collapsed multistage categories	Person reliability	Item reliability
Assigned Seat	.39	.99
Push	.59	.98

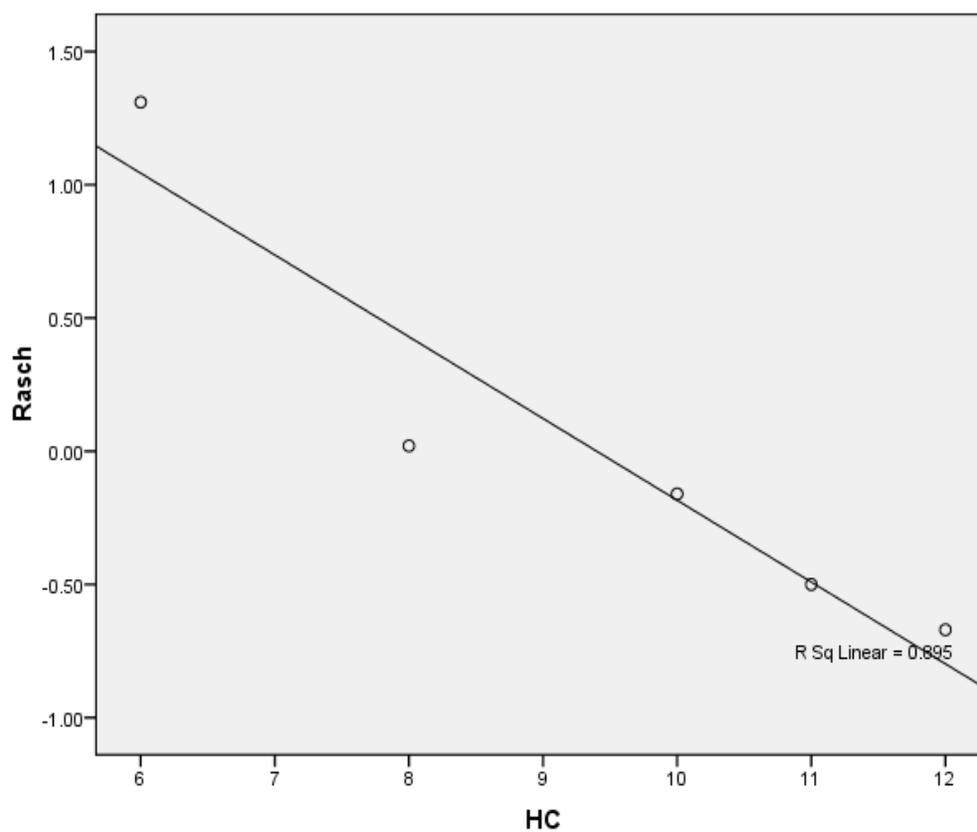


Figure 3. Assigned Seat Linear Regression Scatter.

### **Student Rasch Variable Maps for Assigned Seat**

After a Rasch analysis for student participants was conducted for Assigned Seat and Push vignette data (with multistage categories), and person stage scores were calculated, two variable maps were produced (with Winsteps) in order to illustrate where person stage scores were placed on the Rasch scale in comparison to items. The first variable map showed where students' person stage scores calculated from Assigned Seat data fell on the Rasch scale in comparison to the items (see Figure 1 in Appendix D). This variable map made it clear that after out-of-order items were combined into multi-stage categories (Primary-Concrete; Abstract-Formal), person stage scores were distributed without much mixing of stages/orders of HC. Preoperational person stage scores were grouped together near the end of the Rasch scale indicating lowest item difficulty, and they were followed by the Primary-Concrete multistage person stage scores. Next, the Abstract-formal multistage person stage scores were grouped together. Then, the systematic person stage scores were grouped together, and finally, the metasytematic person stage scores were grouped at the end of the Rasch scale representing highest item difficulty. There was slight mixing of person stage scores, as one Primary-Concrete person stage score fell before the preoperational person stage scores, and two systematic person stage scores fell after the metasytematic person stage scores. Single stage and multistage items were ordered in a linear fashion from least to most item difficulty (preoperational through metasytematic) as expected given the item orders of HC.

### **Student Rasch Variable Map for Push**

Similar to with the Assigned Seat data, when person stage scores were calculated from the Push data, single stage and multistage person stage scores were grouped in a

linear fashion - without much mixing. Preoperational person stage scores were grouped at the end of the Rasch scale representing low item difficulty, and the highest person stage scores were grouped at the end of the Rasch scale representing high item difficulty in a linear fashion (see Figure 2 in Appendix D). With the Push data, the highest person stage score was a person multistage score (systematic-metastematic).

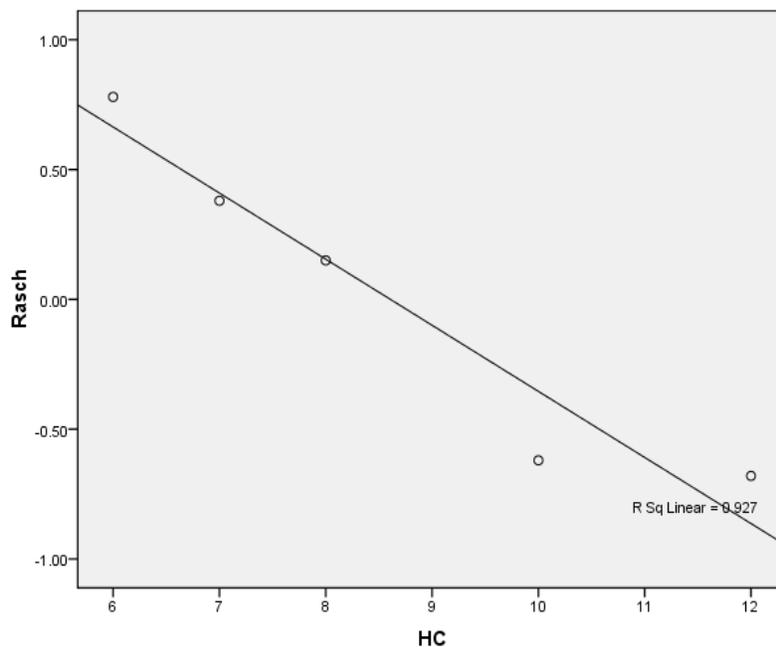


Figure 4. Push Linear Regression Scatter Plot With Multistage Categories

### Univariate ANOVA Scatter Plots: Participant Grade Level and Person Rasch Score

A univariate ANOVA was conducted to assess the interaction of person Rasch scores with education level for Assigned Seat data (see Figure 5) as well as for Push data (see Figure 6). Results from this analysis were unexpected, as they demonstrated no significant relationship between grade level and Rasch person score. A scatter plot of ANOVA results for Assigned Seat data, and a scatter plot of ANOVA results for Push data can be found below. It is evident that student participants at each grade level are grouped

together in strikingly similar ranges of Rasch scores. No data is displayed above 7th-grade level because 7th-grade students from the middle school were not available to participate in the study.

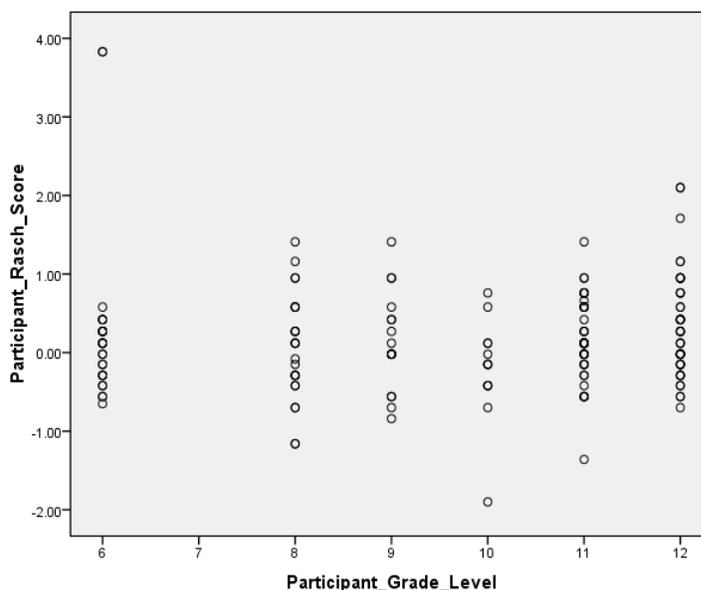


Figure 5. Assigned Seat Scatter Plot: Education Level.

### Adult Data

Originally, it was thought that including adult participants and expanding the age range of participants would strengthen the results, and allow for a better understanding of how middle school and high school students reasoned about bullying (Commons, personal correspondence). Results from the adult data were much different than expected. There was more mixing of item orders of HC than with student data (see Table 10 and Table 11), person Rasch scores were not significantly higher than student person Rasch scores, and it was not possible to calculate person stage scores by collapsing items. When combined with student data, adult data made it more difficult to collapse out-of-order stages and calculate person stage scores. Adult data also weakened the output from the

linear regression when item Rasch scores were regressed against the items' intended orders of HC. Consequently, adult data is reported separately in this section of the results.

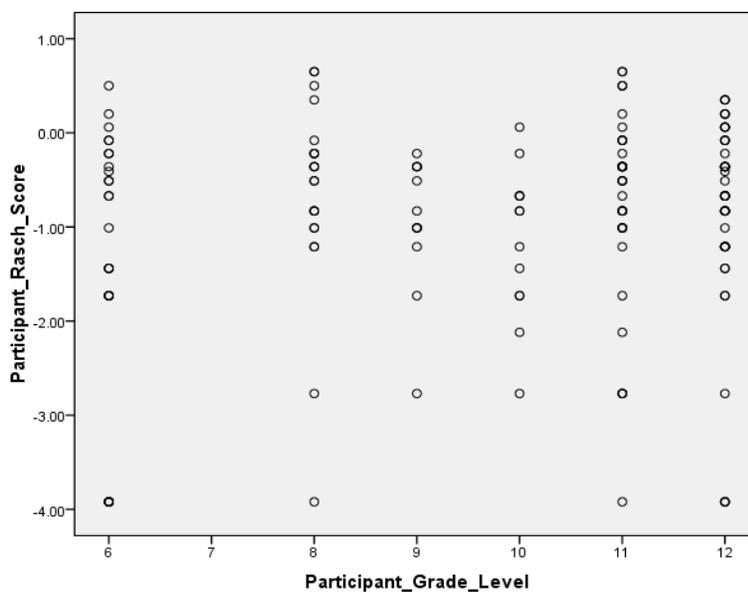


Figure 6. Push Scatter Plot: Education Level.

Table 10

*Adult Assigned Seat Item Rasch Scores*

Adult assigned seat item Rasch scores	Order of HC (stage name)
1.38	10 (Formal)
0.26	8 (Concrete)
0.24	6 (Preoperational)
0.01	9 (Abstract)
-0.14	7 (Primary)
-.70	11 (Systematic)
-1.04	12 (Metasystematic)

Adult Assigned Seat item Rasch scores showed that almost all items were out-of-order with the exception of the systematic and metasystematic items (see Table 10). A stepwise linear regression was conducted with adult data for the Assigned Seat vignettes,

and it showed that the intended item order of HC was not a good predictor of Rasch item score or item difficulty. More specifically, with order of HC as the independent variable and item Rasch score as the dependent variable, the results of the linear regression showed the following:  $r = .381$ ;  $r^2 = .145$ . There was no significance detected in the relationship between order of HC and item Rasch score. With respect to the Push vignettes, it was also shown that order of HC was not a good predictor of Rasch item score, as the linear regression results showed:  $r = .458$ ;  $r^2 = .210$ . As with adult Assigned Seat data, no significant relationship was found between order of HC and item Rasch score with the adult Push data (see Table 11).

Table 11

*Adult Push Item Rasch Scores*

Adult push item Rasch scores	Order of HC (stage name)
1.02	10 (Formal)
0.40	6 (Preoperational)
0.11	7 (Primary)
-0.07	8 (Concrete)
-0.23	11 (Systematic)
-0.29	9 (Abstract)
-0.95	12 Metasystematic)

**Personal Opinion and Experiential Questions**

After participants rated vignettes, they answered opinion and personal experience questions regarding the topic of bullying. The questions and the average ratings are listed in Tables 12 and 13. Overall, responses showed that the participant sample was strongly against bullying, as clearly evidenced by Question 8 ratings. Responses to the other questions indicated participants had minimal involvement with bullying - whether in the

role of the bully or student victim of bullying. Given the regional and national reports of bullying, it is likely this minimal level being reported was not an accurate depiction of the entire school population. Student participants, in general, indicated they either never or close to never enjoyed seeing another student being teased or physically attacked. The prevalent antibullying responses across participants were not completely unexpected. During the time period when participants were completing the Student-Bully Problem, the national and local media were frequently covering two cases of bullying, which involved suicide and serious physical injury. Classroom teachers, school administrators, and parents were talking about bullying with students. It was expected there would be a general bias against bullying, bullies, or anything resembling bullying behavior.

Table 12

*Ratings of Experiential and Opinion Questions about Bullying*

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Student Mean Ratings	1.84	1.36	1.9	2.12	2.19	1.77	1.84	5.06
Adult Mean Ratings	1.16	1.03	1.30	1.76	2.26	1.24	2.06	5.29

Table 13

*Experiential and Opinion Questions*

Q1: How much do you like to watch someone calling a person names or teasing them? Not At All 1 2 3 4 5 6 Very Much
Q2: How much do you like to watch someone getting physically pushed around? Not At All 1 2 3 4 5 6 Very Much
Q3: How often did you push someone around physically? Never 1 2 3 4 5 6 Many Times
Q4: How often did you call people names trying to upset them or trying to get people to laugh? Never 1 2 3 4 5 6 Many Times
Q5: How often have you been upset because someone pushed, kicked, or hit you for no reason? Never 1 2 3 4 5 6 Many Times
Q6: How often have you pushed, kicked, or hit someone first? Never 1 2 3 4 5 6 Many Times
Q7: How much were you or are you bullied in school (circle one)? 1) Never 2) 1 Day 3) 1-4 Weeks 4) 2-12 Months 5) 1-2 Years 6) 2 years or more
Q8: How bad is bullying? Not Bad At All 1 2 3 4 5 6 Totally Bad

Adult participants' ratings were similar to students and demonstrated the same bias, which could have also been, in part, due to negative media regarding bullying. Also, most teachers have been trained by supervisors and college professors to view bullying as a negative phenomenon in school. The adults, like the student participants, reported very low levels of experience with bullying. It is possible that some adults were bullied as children, but failed to recognize the bullying events as bullying.

## Chapter 5: Discussion

This study explored at what stages of cognitive development (preoperational, primary, concrete, abstract, formal, systematic, and metacognitive) students at an urban high school reasoned about bullying when performing a reasoning task about bullying, the Student-Bully Problem. It attempted to identify the percentage of student participants whom performed at each identified stage of cognitive development when completing the Student-Bully Problem. Further, this study sought to determine the effectiveness of the Student-Bully Problem, a reasoning task about bullying that was adapted from Commons et al.'s (2006) Counselor-Patient Problem, at measuring cognitive developmental stage in adolescent students.

Data was collected with the Student-Bully Problem survey in the spring and summer of 2010. Two slightly different versions of the Student-Bully Problem were created: Student-Bully Problem (a), and Student-Bully Problem (b). Each version of the instrument contained two sets of seven vignettes. Each vignette within a set represented an order of hierarchical complexity (6-12) and their corresponding cognitive developmental stages as defined by the MHC. Student-Bully Problem (a) contained the following two sets of vignettes: Assigned Seat (a), and Pushing (a). Student-Bully Problem (b) consisted of the following two sets of vignettes: Assigned Seat (b) and Pushing (b). Although language between the different sets of Assigned Seat vignettes and language between the different sets of Push vignettes was slightly different, it was recommended per consultation with Dr. Michael Lomport Commons (personal communication, December 11, 2007) that two slightly different sets of each group of vignettes (Assigned Seat and Push) were utilized for this study in order to minimize

confounding variables in the vignettes that could be created by language.

One research question in this study is the following: At what stages of cognitive development (preoperational, primary, concrete, abstract, formal, systematic, and metacognitive) do students at an urban high school reason about bullying? The Assigned Seat vignettes and the Push vignettes of the Student-Bully Problem were analyzed separately, so this question was answered separately for each group of vignettes.

### **Assigned Seat Vignettes and Student Data**

Person stage was calculated with the Student-Bully Problem's Assigned Seat data for 168 middle school and high school participants. It was found that adolescent participants performed at the preoperational, primary, concrete, abstract, systematic, and metacognitive stages of cognitive development. The percentages of students performing at each stage (or multistage category) of cognitive development seemed to be representative of past research about cognitive developmental stage in some respects (Commons et al., 1998; Commons et al., unpublished; Inhelder & Piaget, 1958). For instance, the lowest percentages of participants scored at highest and lowest stages while the highest percentages of participants scored at the multistage categories containing the concrete and abstract stages. More precisely, 13% of student participants were scored at the preoperational stage, 52% (in total) were scored at the primary and concrete stages, 17% (in total) were scored at the abstract and formal stages, 12% were scored at the systematic stage, and 6% were scored at the metacognitive stage. Since some items had to be collapsed into multi stage items (primary-concrete and abstract-formal) in order to calculate person stage, it was impossible to clearly differentiate student participants

scoring at the primary stage from those scoring at the concrete stage, and to differentiate student participants scoring at the abstract stage from those scoring at the formal stage.

To the best of this researcher's knowledge, this is the first time adolescents were assessed for preoperational reasoning on a reasoning task involving a social conflict or problem. Interestingly, some, although a minority, of middle school and high school students were scored at a preoperational stage of performance on a reasoning task involving the social problem of bullying. As noted in the method section of this paper, the preoperational item or vignette in the Student-Bully Problem portrayed a student reacting with minimal or no thought preceding that reaction or behavior. Yelling, screaming, or an immediate need to "get the student back" highlighted the portrayal of the student functioning at a preoperational stage in the preoperational vignettes. Generally, research has associated the preoperational stage with young children, and counselors do not provide interventions considering adolescents might operate at a preoperational stage when reasoning through a social problem. However, data analyses conducted on the data obtained from the Student-Bully Problem's Assigned Seat vignettes demonstrated that 13% of participants operated at the preoperational stage when completing the Student-Bully Problem task involving Assigned Seat vignettes. This should be considered when counselors deal with bullying problems, as a student reasoning about bullying at a preoperational stage will have a difficult time understanding interventions geared towards students operating at higher stages.

The data analyses conducted on the Student-Bully Problem's Assigned Seat data also demonstrated that some of the middle and high school participants were operating at the systematic and metasytematic stages when reasoning about bullying. This indicated

that some students could reason about bullying by coordinating variables from a single system (such as the student victim's perspective). Moreover in a small number of cases (6% of student participants), students demonstrated the ability to coordinate two systems, such as the bully's perspective and the student victim of bullying's perspective in this study. Clearly, most students were reasoning at the primary and concrete stages (52%); however, since the data from the primary and concrete Assigned Seat items were combined into a multistage category in order to create the linearity needed to calculate person stage, it was not possible to differentiate primary from concrete person stage scores. The researcher would expect most of this group would have been scored at the concrete stage if the primary and concrete Assigned Seat items did not have to be collapsed into the multistage category, but this remains uncertain. The second largest percentage of student participants (17%) was reasoning at the abstract and formal stages. Similar to the primary and concrete items, the abstract and formal items had to be collapsed into a multistage item, in order to allow for the linearity of items needed to calculate person stage scores. Consequently, it was impossible to differentiate participants reasoning at the abstract stage from those reasoning at the formal stage. However, as might be expected, a relatively large portion of participants scored at these stages compared to the highest and lowest stages.

Although the data analysis of the Assigned Seat data made it difficult to identify the percentage of students operating at some of the individual stages as intended, the results clearly showed that adolescent participants could reason about bullying anywhere from the preoperational to the metacognitive stage of cognitive development.

## **Push Vignettes and Student Data**

Person stage scores were calculated for 159 adolescent participants from the data gathered with the Push vignettes. The percentages of students performing at each stage (or multistage category) of cognitive development was not as representative of past research about cognitive developmental stage as the Assigned Seat vignettes (Commons et al., 1998; Commons et al., unpublished; Inhelder & Piaget, 1958). For instance, the highest percentage of participants scored at the systematic-metasytematic multistage category, which is unlikely considering the systematic and metasytematic vignettes were the highest staged/ordered vignettes. It was expected that there would be a higher percentage of concrete, abstract, and formal stage scores. After analysis of data from the Push vignettes, it was found that 2.5% of student participants scored at the Preoperational stage, 8.8% scored at the Primary stage, 15% scored at the Concrete stage, 30.8% scored at the Abstract and Formal stages (in total), and 42.8% scored at the systematic and metasytematic stages (in total). Similar to Assigned Seat items, some Push items had to be collapsed into multi-stage items (abstract-formal and systematic-metasytematic) in order to calculate person stage. Thus, it was impossible to clearly differentiate student participants scoring at the abstract stage from those scoring at the formal stage, and to differentiate student participants scoring at the systematic stage from those scoring at the metasytematic stage.

Overall, the Rasch variable map for the Push data demonstrated the Push vignettes did not work as well as the Assigned Seat vignettes. The overly large number of participants who were scored at the systematic-metasytematic person multistage could indicate the highest stage items actually represented lower order/stage vignettes. When

item difficulty was calculated for the Push vignettes, it was found that the systematic vignette was slightly lower in stage/order of HC (10.12) than the formal vignette (see Table 2). Consequently, the systematic vignette operated more like a formal vignette with the student participant sample than like at the intended systematic stage (Order 11). In part, this could account for the overly large number of participants scored at the systematic-metasytematic person stage score. In general, the Push data showed an overrepresentation of the high person stage scores and an under representation of lower stage scores. The distribution of person stages on the Rasch variable map for Push data demonstrates overcrowding of participants at the end of the Rasch scale representing high person stages and the most difficult items. Some of the abstract-formal person multistage scores were located below the systematic-metasytematic person multistage scores, indicating a mixing of these abstract-formal person scores.

Additionally, participant bias could have interfered with the Push vignettes, as the vignettes discussed physical bullying as well as physical retaliation by the student victim of bullying, which could have evoked stronger emotional reactions and bias than the Assigned Seat vignettes. Signal detection theory (Tanner & Swets, 1954) indicates that the internal and external state of a person could affect how that person senses and reacts to stimuli. Since the Push vignettes involve physical bullying and physical violence, the same person could have a different degree of bias toward the Push vignettes than toward the Assigned Seat vignettes. Aside from individual participant bias, it is clear that the extensive media coverage and attention given to bullying, during the time and leading up to the time when participants were assessed with the Student-Bully Problem, could have affected participants' views of bullying. In several instances, participants asked the

researcher if the Student-Bully Problem was being administered due to the recent bullying events they heard about or learned about on the news or from teachers.

### **Adult Data**

The results from the adult data were different than expected, as the Rasch analysis showed that most items were not at the intended order of HC, and participants were scoring at all person stages. More specifically, it was expected that the adult data would show items were either ordered relatively closely to their intended orders of HC, but clearly this was not demonstrated. It was expected that person stage scores for adults would be concentrated at the higher stages or at least at higher stages than adolescent participants, but this also was not demonstrated. Person Rasch scores for adults were similar to that of adolescents, and person scores could not be calculated because there was not sufficient hierarchical linearity of items.

There could be many reasons why adults did not perform better or as well on the Student-Bully Problem as students. The Student-Bully Problem is a reasoning task that requires thought, and cannot be completed correctly without sufficiently thinking about the problem, which is a student dealing with a bullying issue or social conflict. Middle school and high school students are accustomed to reading instructions and then solving word problems or completing critical reading tasks. Additionally, students might, in the present, have personal or observational experience with bullying in school. Adults could be thinking about past bullying experiences when they were in school while completing the Student-Bully Problem.

Although this might seem unlikely, there has been evidence that school teachers

sometimes operate at the same developmental stages as students. It is possible that some students could be at higher stages of cognitive development than teachers. Generally, it has been noted that elementary through high school teachers tend to fall between the concrete and formal stages, but it is possible for some teachers to operate at a lower stage than concrete, and for some to operate at a higher stage than formal. For example, a teacher operating at the primary stage in the classroom would teach in a purely authoritative manner, and would not consider the student perspective or have the ability to coordinate it with his or her teacher perspective (Commons, 2007). It is possible that this is the reason why some of the middle school and high school teachers had similar person Rasch scores to adolescent students.

Another possibility could be that many middle school and high school teachers completed the Student-Bully Problem at work when they had a lunch break or some extra time, which may have caused them to rush through the Student-Bully Problem even though there is no time limit. Reading the vignettes quickly and then rating them would have made it difficult to effectively rate the vignettes. Participants really need to take the time to carefully read and compare vignettes in order to make educated decisions about ratings. Otherwise, ratings could be based in an undue amount of guesswork that would not have been an issue if the participant took more time. Middle school and high school teachers expend a large amount of energy in a given day when teaching relatively large classrooms of adolescent students. If the Student-Bully Problem was completed during the day, fatigue might have been an issue as well. Successful completion of the Student-Bully Problem does require concentration, and fatigue might make it difficult to complete the reasoning task.

### **ANOVA: Education Level and Person Rasch Score**

Education level is a better predictor of stage than age in later adolescence through adulthood while education is more predictive of stage in childhood through early adolescence (Dawson-Tunik et al., 2005). Approximately 50% of the 6th-, 8th-, and 9th-grade participants were either involved in a pre-advanced placement or honors program, which would raise their education level past grade level. This could, in part, explain why there was no significant difference in person Rasch scores between grade levels.

Additionally, about 60% of the 11th- and 12th-grade students were in college preparatory classes. Some of these students might have been more representative of an educational level below college preparatory, as there were no standard or lower levels of classes offered to students. College preparatory was the lowest class level offered to students at the high school.

### **Student-Bully Problem Effectiveness**

The Student-Bully Problem Assigned Seat items proved to be reasonably effective in assessing at what cognitive developmental stages adolescents performed at on a reasoning task about bullying. Person stage scores were distributed in a logical manner considering the age of the participants (Commons et al., 1998). The majority of participants were scored at stages between primary and formal, and a minority of participants was scored at the highest and lowest stages. Further, person stage scores seemed to be logically distributed in a linear fashion along the Rasch scale variable map. However, the Assigned Seat items could have been more effective. Considering this was the first study using the Student-Bully Problem, it was expected that the items would not be as effective and refined as possible since they were not used and analyzed in prior

studies. The item Rasch scores clearly showed that the primary and abstract ordered Assigned Seat items did not represent their intended orders of hierarchical complexity in this study. Even with these two out-of-order items, order of HC was a significant predictor of item Rasch score ( $r = .877$ ,  $r^2 = .77$ ,  $p < .05$ ).

Rasch analysis output showed that data collected from Assigned Seat items had a person reliability of .48, and an item reliability of .98. The relatively low person reliability could, in part, be attributed to the small number of Assigned Seat items (7 in total), but person reliability might have improved if the primary and abstract items better represented their intended orders of HC. Revisions that could improve the Assigned Seat items are discussed later. Rasch output showed that item reliability was very high, meaning the estimated item difficulty of each item was highly accurate. Therefore Assigned Seat items that had item Rasch scores representing their orders of HC were most likely representing their intended order of HC. Conversely, Assigned Seat items with Rasch scores that did not represent the intended orders of HC most likely did not represent their intended orders of HC.

The Student-Bully Problem's Push items consisted of some items that performed well, but overall, the push items did not seem to assess participants as well as the Assigned Seat items. This was evidenced in the Rasch variable map for Push items, which displayed most participants at the highest stages. Given that an adolescent population was assessed, this result was not expected and could not be explained. Most participants should have been somewhere between the concrete and formal stages while either a minority of participants or no participants at all would have been expected to be scored at the lowest and highest stages. The person reliability of the data gathered from

the Push vignettes was .71, and the item reliability was .96. Since Linacre (2010) indicates that approximately .70 and higher is adequate for person reliability, this seems like a good indication, but the issue here was that some Push items were out-of-order, and the higher stage items, in particular, seemed to be at a lower order of HC than intended. The out-of-order items detracted from the good person reliability indicated by the Rasch output, as person reliability was partly based on person performance on items that did not represent their intended orders of HC. Order of HC was a good predictor of item Rasch score with Push items ( $r = .872$ ,  $r^2 = .712$ ,  $p < .05$ ), but when considering that the systematic and metasytematic item represented lower orders of HC than intended, this significant relationship was not as meaningful as it seemed. However, it does indicate that if Push items are revised in a manner allowing them to better represent their intended orders of HC, then order of HC should be a highly significant predictor of item Rasch score. The abstract item seemed to be the farthest from its intended order of HC; it showed a much higher item Rasch score than expected, which was almost the same as the metasytematic stage item. There will be further discussion about specific Push items later in this section.

### **Limitations**

There were some limitations to this study, which were related to the instrument used for data collection as well as the participant sample. It is difficult to determine exactly how much the participant sample and the instrument limited this study, but if appropriate adjustments are made in these areas in a future research study, it could heighten the meaning and clarity of results gathered from the Student-Bully Problem. Although the adolescent data analyzed from this study seemed to produce useful results,

results of an ANOVA did not demonstrate any significant relationship between education level or grade and person Rasch score.

Education level is a large predictor of cognitive developmental stage in later adolescence and adulthood (Dawson-Tunik et al., 2005). The school district where data was gathered for this study offered pre-advanced placement tracks for middle school students and 9th-grade students. Middle school students in these classes were probably performing at the same level as some of the college preparatory students at the high school, which was the lowest academic level offered at the high school. The majority of high school students were in college preparatory classes. Some 10th-, 11th-, and 12th-grade students were taking advanced placement classes, which might have placed them closer to the education level of a 1st- or 2nd-year college student in some respects. Additionally, some students at each grade level were taking honors classes that were more rigorous than most classes, but not as rigorous as pre-advanced placement or advanced placement classes. The relatively wide variation in the academic levels of classes between participants at the same grade level might have made it impossible to accurately identify the effect of education level on person Rasch score or person stage score.

This study did not have a large enough number of student participants from the college preparatory or standard level middle school classes to conduct a separate analysis. There were too many honors, pre-advanced placement, and advanced placement student participants involved. It was expected that including students from all academic levels within a grade would enhance results, but with respect to the effect of grade level, it appears to have been a limitation. However, it seemed that honors, pre-advanced

placement, and advanced placement students were more interested in volunteering to participate in the study.

Clearly, there were limitations placed on this study by the Student-Bully Problem survey that was used to collect data. Specifically, Rasch analysis demonstrated that some of the items did not represent their intended orders of HC. As a result, some items could not be differentiated from other items and were grouped together as a multistage item. This allowed for the linearity (of order of HC) among items that was necessary to calculate person stage scores, but some of the stage scored were necessarily multistage scores, meaning that a person might have been scored Primary-Concrete. Primary-Concrete stage would simply indicate that the person was scored at either the Primary or Concrete stage, but the specific individual stage the person scored at could not be identified. Understanding the range of stages a person might be scored at can be useful, but the hope was that the Student-Bully Problem could help identify precisely what individual stage of cognitive development a participant performed at.

### **Recommendations for Future Research**

It would be prudent to perform this research study with adolescents at the same academic level. Consequently, in a future study, it would be sensible to recruit a larger number of students from the standard academic level at each grade level (such as college preparatory classes with the high school utilized in this study), and to analyze their results separately. It could be beneficial to expand recruitment to other urban districts in order to increase numbers and to compare and contrast data from different urban school districts. Once a more comprehensive study is done with urban schools, it would be good to assess

some suburban and rural districts in order to see how urban districts compare.

In order for the Student-Bully Problem to more precisely identify what individual stage of cognitive development a participant performs at, the Student-Bully Problem's vignettes could be revised and subsequently used in more research studies. The researcher corresponded with Dr. Michael Lamport Commons in order to gain advice on how to identify possible issues with the items that did not represent their intended orders of HC. Possible revisions with out-of-order items as well as other items are listed after the discussion. According to Dr. Commons, revisions should be made to bring items to their intended orders of HC before the Student-Bully Problem is used again. Most of the suggested revisions are relatively minor, but they could have a positive impact on the items. Since the Student-Bully Problem was adapted from an instrument used with adults, it could require several more administrations and revisions before the Student-Bully Problem functions as well as the Counselor-Patient Problem. Additionally, it is possible that bullying is a heated topic that elicits more emotion and bias from participants than the Counselor-Patient Problem, and this could cause it to be less effective than the Counselor-Patient Problem (M.L. Commons, personal communication, October 13, 2010).

### **Clinical Implications**

This study explored a new area of research, which is the relationship between cognitive developmental stage of adolescents and bullying. The findings of this study could help improve current counselor interventions with student victims of bullying as well as bullies. Additionally, this study could lead to further exploration of the

relationship between cognitive developmental stage and bullying. More specifically, this study might further this researcher's goal of improving bullying interventions by considering the cognitive developmental stage of student victims of bullying as well as bullies.

Schools could develop policies that mandate counseling interventions are appropriate for the relevant cognitive developmental stages of the population they serve. It would be difficult to intervene with a student victim of bullying or a bully who reasons about bullying at a preoperational or primary stage, if the counseling intervention attempts to guide that student with higher level reasoning, such as abstract or formal stage reasoning. However, if the cognitive developmental stage of a student could be identified, then a counseling intervention could address bullying while considering the current cognitive developmental stage of the student or students involved. The Student-Bully Problem showed that it is possible to assess at what cognitive developmental stages students reason about bullying.

School policies and state laws are being created to deal with bullying across the country. Anti-bullying policies and laws should be informed by the stages of cognitive development at which adolescents reason about bullying. Without considering stage, policies and laws might simply lead to more consistent punishment for bullies and improved documentation of bullying events. Research has shown that punishment is not an effective means of behavioral change (Telep, 2009). If bullying interventions are truly to be improved, and antibullying policies and laws are truly to be effective, then they should consider the cognitive developmental stage of adolescents and how it affects abilities to deal with and understand bullying. For example, a comprehensive school

policy could require counseling or psychoeducational seminars for both bullies and student victims of bullying that consider stage of cognitive development in reasoning about bullying. A quick assessment of reasoning could be conducted using a less time consuming, more established version of the Student-Bully Problem.

### **Research Implications**

This study found that middle school and high school students performed from the preoperational stage to the metacognitive stage when reasoning about bullying while completing a reasoning task. As far as this researcher knows, this was the first study that attempted to determine whether or not adolescents might reason about a social problem at the preoperational stage. There was strong evidence that some adolescents reasoned about bullying at a preoperational stage, which should impact future bullying interventions.

The Student-Bully Problem, which was adapted from Commons' (2006) Counselor-Patient Problem, was a useful tool in identifying at what cognitive developmental stages adolescents performed at on a reasoning task about bullying. Item Rasch scores were used to determine if items represented the intended orders of HC, as with the Counselor-Patient Problem (Commons et al., 2006). Although there was some mixing of order of HC, overall, the Student-Bully Problem showed item order of HC was a significant predictor of item Rasch score. This indicated that the Student-Bully Problem was a good assessment tool, but could be improved.

## References

- Baer, A. L., Glasgow, J. N., & Fink L. S. (2008). Take the bullies to task: Using process drama to make a stand. *English Journal*, 97(6), 79-86.
- Bond, T. G., & Fox, C. M. (2001). Applying the Rasch model. Mahwah, NJ: Lawrence Erlbaum Associates.
- Black, S. A., & Jackson, E. (2007). Using bullying incident density to evaluate the Olweus Bullying Prevention Programme. *School Psychology International*, 28(5), 623-638.
- Boney-McCoy, S., & Finkelhor, D. (1996). Is youth victimization related to trauma symptoms and depression after controlling for prior symptoms and family relationships? A longitudinal, prospective study. *Journal of Consulting and Clinical Psychology*, 64(6), 1406-1416.
- Breivik, K., Olweus, D. (2006). Adolescent's adjustment in four post-divorce family structures: single mother, stepfather, joint physical custody and single father families. *Journal of Divorce & Remarriage*, 44(3-4), 99-124.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Gest, S. D., & Garipey, J. L. (1988). Social networks and aggressive behavior: Peer support or peer rejection? *Developmental Psychology*, 24(6), 815-823.
- Cassidy, T., & Taylor, L. (2005). Coping and psychological distress as a function of the bully victim dichotomy in older children. *Social Psychology of Education*, 8, 249-262.
- Centers for Disease Control and Prevention. (2008). Name of article. *Morbidity and Mortality Weekly Report*, 57(4), 1-131. Retrieved from [www.cdc.gov/mmwr](http://www.cdc.gov/mmwr).
- Chapell, M. S., Hasselman, S. L., Kitchin, T., Lomon, S. N., MacIver, K. W., & Sarullo, P. L. (2006). Bullying in elementary school, high school, and college. *Adolescence*, 41(164), 633-648.
- Coloroso, B. (2003). *The bully, the bullied, and the bystander*. New York, NY: HarperCollins.
- Commons, M. L. (2007). Changing stage for students, teachers and schools. *Behavioral Development Bulletin*, 13(Spring), 30-34.
- Commons, M. L., Miller, P. M., Goodheart, E. A., & Danaher-Gilpin, D. (2005). Hierarchical complexity scoring system (HCSS): How to score anything. Cambridge, MA: Dare Association.
- Commons, M. L., & Pekker, A. (unpublished). *Hierarchical complexity and task difficulty*. Available from Dare Institute, Cambridge, MA.

- Commons, M. L., & Pekker A. (2007). Hierarchical complexity: A formal theory. Manuscript submitted for publication.
- Commons, M. L., & Richards, F. A. (2002). Organizing components into combinations: How stage transition works. *Journal of Adult Development*, 9(3), 159-177.
- Commons, M. L., Richardson, M. R., Pekker, A., Ali, I. M., Bernholt, S., Davidson, M. Grotzer, T.A. (unpublished). *How order of hierarchical complexity of items, content and language affect synchrony of performance on isolation of variables problem*. Available from Dare Institute, Cambridge, MA.
- Commons, M. L., Rodriguez, J. A., Adams, K. M., Goodheart, E. A., Gutheil, T. G., & Cyr, E. D. (2006). Informed consent: Do you know it when you see it? *Psychiatric Annals*, 36(6), 430-435.
- Commons, M. L., Trudeau, E. J., Stein, S. A., Richards, F. A., & Krause, S. R. (1998). Hierarchical complexity of tasks shows the existence of developmental stages. *Developmental Review*, 18, 237-278.
- Correia, I., & Dalbert, C. (2008). School Bullying: Belief in a personal just world of bullies, victims, and defenders. *European Psychologist*, 13(4), 248-254.
- Craig, W. M., & Pepler, D. J. (2007). Understanding bullying: From research to practice. *Canadian Psychology*, 48(2), 86-93.
- Cranham, J., & Carroll, A. (2003). Dynamics within the bully/victim paradigm: A qualitative analysis. *Educational Psychology in Practice*, 19(2), 113-132.
- Crews, F., He, J., & Hodge, C. (2007). Adolescent cortical development: A critical period of vulnerability for addiction. *Pharmacology, Biochemistry, and Behavior*, 86(2), 189-199.
- Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review*, 3, 593-623.
- Crockett, D. (2003). Critical issues children face in the 2000s. *School Psychology Quarterly*, 18(4), 446-453.
- Davison, M. L., King, P. M., Kitchener, K. S., & Parker, C. A. (1980). The stage sequence concept in cognitive and social development. *Developmental Psychology*, 16(2), 121-131.
- Dawson-Tunik, T. L., Commons, M., Wilson, M., & Fischer, K. W. (2005). The shape of development. *European Journal of Developmental Psychology*, 2(2), 163-195.
- deLara, E. (2003). Adolescents' perceptions of safety at school and their solutions for enhancing safety and reducing school violence: A rural case study. ERIC Digest # 8 ED471860. The Education Resources Information Center (ERIC), sponsored by the Institute of Education

Sciences of the U.S. Department of Education.

- Demetriou, A., & Kyriakides, L. (2006). The functional and developmental organization of cognitive developmental sequences. *British Journal of Educational Psychology*, 76, 209-242.
- Deutsch, M. (1993). Educating for a peaceful world. *American Psychologist*, 48(5), 510-517.
- DeVoe, J. F., Peter, K., Kaufman, P., Ruddy, S. A., Miller, A. K., Planty, M. G., et al. (2002). *Indicators of school crime and safety: 2002*. Washington DC: U.S. Department of Education, U.S. Department of Justice.
- Drobac, J. A. (2007). I can't to I Kant: *The sexual harassment of working adolescents, competing theories and ethical dilemmas*, 70 Alb. L. Rev. 675.
- Dubow, E. F., Huesmann, L. R., Boxer, P., Pulkkinen, L., & Kokko, K. (2006). Middle childhood and adolescent contextual and personal predictors of adult educational and occupational outcomes: A mediational model in two countries. *Developmental Psychology*, 42(5), 937-949.
- Erb, T. D. (2008). *A case for strengthening school district jurisdiction to punish off-campus incidents of cyberbullying*, 40 Ariz. St. L.J. 257.
- Espelage, D. L., Aragon, S. R., Birkett, M., & Koenig, B. W. (2008). Homophobic teasing, psychological outcomes, and sexual orientation among high school students: What influence do parents and schools have? *School Psychology Review*, 37, 202-216.
- Evans, G. D., & Rey, J. (2001). In the echoes of gunfire: practicing psychologists' responses to school violence. *Professional Psychology: Research and Practice*, 32(2), 157-164.
- Fajemidagba, O. (1986). A study of the Piagetian levels of cognitive development among Nigerian secondary school students. *Ilorin Journal of Education*, 6(1), 17-29.
- Farrell, A. D., et al. (2006). Peer and school problems in the lives of urban adolescents: frequency, difficulty, and relation to adjustment. *Journal of School Psychology*, 44(3), 169-190.
- Fastov, M. E., Glenwick, D. S., & Wasserman, T. H. (1991). The relationship of cognitive developmental level to outcome of self-instructional training in behaviorally disordered children. *Child & Family Behavior Therapy*, 13(2), 15-28.
- Feder, J., Levant, R. F., & Dean, J. (2007). Boys and violence: A gender-informed analysis. *Professional Psychology: Research and Practice*, 38 (4), 385-391.
- Feinberg, T., & Robey, N. (2008). Cyberbullying. *Principal Leadership*, 9, 10-14.

- Feldman, D. H. (2004). Piaget's stages: The unfinished symphony of cognitive development. *New Ideas in Psychology*, 22, 175-231.
- Felix, E. D., & McMahon, S. D. (2006). Gender and multiple forms of peer victimization: How do they influence adolescent psychosocial adjustment? *Violence and Victims*, 21(6), 707-724.
- Ferster, D. E. (2008). Deliberately different: Bullying as a denial of a Free Appropriate Public Education under the Individuals with Disabilities Act. *Georgia Law Review*, 191 (43), 1-29.
- Flieller, A. (1999). Comparison of the development of formal thought in adolescent cohorts aged 10 to 15 years. *Developmental Psychology*, 35(4), 1048-1058.
- Frey, K. S., et al. (2005). Reducing playground bullying and supporting beliefs: An experimental trail of the Steps to Respect Program. *Developmental Psychology*, 41(3), 479-49.
- Frisen, A., Jonsson, A., & Persson, C. (2007). Adolescents' perception of bullying: Who is the victim? Who is the bully? What can be done to stop bullying? *Adolescence*, 42, 749-761.
- Graham, S. (2006). Peer victimization in school. *Current Directions in Psychological Science*, 15, 317-321.
- Graham, S., & Juvonen, A. (1998). Self-blame and peer victimization in middle school: An attributional analysis. *Developmental Psychology*, 34, 587-599.
- Green, G. (2007). Bullying: A concern for survival. *Education*, 128, 333-336.
- Greene, R. W., & Ablon, S. J. (2006). *Treating explosive kids: The collaborative problem-solving approach*. New York, NY: The Guilford Press.
- Grunbaum, J. A., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Lowry, R. et al. (2004). Youth Risk Behavior Surveillance: United States, 2003. *Morbidity and Mortality Weekly Report, Surveillance Summaries*, 53(12), 1-96.
- Health Resources and Services Administration, Stop Bullying Now [HRSA]; taken from [http://www.stopbullying.gov/community/tip\\_sheets/community\\_based\\_prevention.pdf](http://www.stopbullying.gov/community/tip_sheets/community_based_prevention.pdf) on February 2, 2009.
- Higgins-Trenk, A. & Gaité, A. J. H. (1970). Elusiveness of formal operational thought. Proceedings of the 70th Annual Convention of the American Psychological Association, 1-8.
- Hillbrand, M. (2001). Homicide-suicide and other forms of co-occurring aggression against self and against others. *Professional Psychology: Research and Practice*, 32, 626-635.

- Hodges, E. V., & Perry, D. G. (1999). Personal and Interpersonal antecedents and consequences of victimization by peers. *Journal of Personality and Social Psychology*, 76, 677-685.
- Honig, A. S. (2002). High schools can be toxic. *American Journal of Orthopsychiatry*, 72, 456-459.
- Hoover, J. H., & Hazler, R. J. (1991). Bullies and victims. *Elementary School Guidance & Counseling*, 25, 212-219.
- Horne, A. M., Stoddard, J. L., & Bell, C. D. (2007). Group approaches to reducing aggression and bullying in school. *Group Dynamics: Theory, Research, and Practice*, 11, 262-271.
- Huesmann, L. R., Eron, L. D., & Yarmel, P. W. (1987). Intellectual functioning and aggression. *Journal of Personality and Social Psychology*, 52 (1), 232-240.
- Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence*. New York, NY: Basic Books.
- James, D. J., Lawlor, M., Courtney, P., Flynn, A., Henry, B., & Murphy, N. (2008). Bullying behaviour in secondary schools: What roles do teachers play? *Child Abuse Review*, 17(3), 160-173.
- Jantzer, A. M., Hoover, J. H., & Narloch, R. (2006). The relationship between school-aged bullying and trust, shyness and quality of friendships in young adulthood: A preliminary research note. *School Psychology International*, 27(2), 146-156.
- Janveau-Brennan, G., & Markovits, H. (1999). The development of reasoning with causal conditions. *Developmental Psychology*, 35, 904-911.
- Jensen-Campbell, L. A., & Malcolm, K. T. (2007). The importance of conscientiousness in adolescent interpersonal relationships. *Personality and Social Psychology Bulletin*, 33, 368-383.
- Jindal-Snape, D., Miller, D. J. (2008). A challenge of living? Understanding the psycho-social processes of the child during primary-secondary transition through resilience and self-esteem theories. *Educational Psychology Review*, 20, 217-236.
- Juvonen, J., Nishina, A., & Graham, S. (2006). Ethnic diversity and perceptions of safety in urban middle schools. *Psychological Science*, 17, 393-400.
- Kagan, J. (2001). The unmet needs in diagnosis and treatment of mood disorders in children and adolescents. *Society of Biological Psychiatry*, 49, 973-979.
- Keltner, D., Capps, L., Kring, A. M., Young, R.C., & Heerey, E. A. (2001). Just teasing: A conceptual analysis and empirical analysis and empirical review. *Psychological Bulletin*, 127, 229-248.

- Kidd, S., & Shahar (2008). Resilience in homeless youth: The key role of self-esteem. *American Journal of Orthopsychiatry*, 78(2), 163-172.
- Kitchener, K. S., Lynch, C. L., Fischer, K. W., & Wood, P. K. (1993). Developmental range of reflective judgment: The effect of contextual support and practice on developmental stage. *Developmental Psychology*, 29, 893-906.
- Klomek, A. B., Marrocco, F., Kleinman, M., Schonfeld, I. S., & Gould, M. S. (2008). Peer victimization, depression, and suicidality in adolescents. *Suicide and Life-Threatening Behavior*, 38(2), 166-180.
- Klomek et al. (2007). Bullying, depression, and suicidality in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46(1), 40-49.
- Kosse, S. H., & Wright, R. H. (2005). How best to confront the bully: Should Title IX or anti-bullying statutes be the answer. *Duke Journal of Gender Law & Policy* 53(12), p. 1-29.
- Linacre, J. M. (2009). *Winsteps: Multiple-choice, rating scale and partial credit Rasch analysis*. Chicago, IL: Mesa Press.
- Linacre, J. M. (2010). A User's Guide to W I N S T E P S / M I N I S T E P Rasch-Model Computer Programs (Program Manual 3.69.1).
- MacDonald, G., & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological Bulletin*, 131, 202-223.
- Malecki, C. K., & Demaray, A. (2006). Social support as a buffer in the relationship between socioeconomic status and academic performance. *School Psychology Quarterly*, 21, 375-395.
- Marsh, H. W., Parada, R. H., Yeung, A. S., & Healey, J. (2001). Aggressive school troublemakers and victims: A longitudinal model examining the pivotal role of self-concept. *Journal of Educational Psychology*, 93, 411-419.
- Mayer, S. J. (2005). The early evolution of Jean Piaget's clinical method. *History of Psychology*, 8, 362-382.
- McGuckin, C., & Lewis, C. A. (2008). Management of bullying in Northern Ireland schools: a pre-legislative survey. *Educational Research*, 50, 9-23.
- Merrell, K. W., Gueldner, B. A., Ross, S. W., & Isava, D. M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly*, 23(1), 26-42.
- Mineka, S., & Zinbarg, R. (2006). A contemporary learning theory perspective on the etiology of

- anxiety disorders. *American Psychologist*, 61(1), 10-26.
- Mrug, S., Loosier, P. S., & Windle, M. (2008). Violence exposure across multiple contexts: Individual and joint effects on adjustment. *American Journal of Orthopsychiatry*, 78(1), 70-84.
- Mulvey, E. P., & Cauffman, E. (2001). The inherent limits of predicting school violence. *American Psychologist*, 56, 797-802.
- Myers, J. E., Shoffner, M. F., Briggs, M. K. (2002, February). Developmental counseling and therapy: An effective approach to understanding and counseling children. *Professional School Counseling*, 5 (3), 194-202.
- Nansel, T., et al. (2001). Bullying behaviors among U.S. youth: Prevalence and association with psychosocial adjustment. *The Journal of the American Medical Association*, 285, 2094-2100.
- Newman, R. S., & Murray, B. J. (2005). How students and teachers view the seriousness of peer harassment: when is it appropriate to seek help? *Journal of Educational Psychology*, 97, 347-365.
- Ng-Mak, D. S., Salzinger, S., Feldman, R. S., & Stueve, C. A. (2004). Pathologic adaptation to community violence among inner-city youth. *American Journal of Orthopsychiatry*, 74(2), 196-208.
- Olweus, D. (1994). Annotation: Bullying at school: Basic facts and effects of a school based intervention program. *Journal of Child Psychology and Psychiatry*, 35 (7), 1171-1190.
- Olweus, D. (1977). Aggression and peer acceptance in adolescent boys: two short-term longitudinal studies of ratings. *Child Development*, 48, 1301-1313.
- Orpinas, P., Horne, A. M., & Staniszewski, D. (2003). School bullying: Changing the problem by changing the school. *School Psychology Review*, 32, 431-444.
- Orpinas, P., Kelder, S., Frankowski, R., Murray, N., Zhang, Q., & McAlister, A. (2000). Outcome evaluation of a multi-component violence-prevention program for middle schools: The Students for Peace project. *Health Education Research*, 15(1), 45-58.
- Osborne, J. W. (2004). Identification with academics and school violence. *Review of General Psychology*, 8(3), 147-162.
- Park, H. S., Schepp, K. G., Jang, E. H., & Koo, H. Y. (2006). Predictors of suicidal ideation among high school students by gender in South Korea. *Journal of School Health*, 76(5), 181-188.
- Pellegrini, A. D., Bartini, M., & Brooks, F. (1999). School bullies, victims, and aggressive

- victims: Factors relating to group affiliation and victimization in early adolescence. *Journal of Educational Psychology*, 91, 216-224.
- Piaget, J. (1961). The genetic approach to the psychology of thought. *Journal of Educational Psychology*, 52, 275-281.
- Plaford, G. R. (2006). *Bullying and the brain*. Lanham, Maryland: Rowman & Littlefield.
- Repetti, R. L., Shelley, T. E., & Seeman, T. E. (2002). Risky families: Family social environments and mental and physical health offspring. *Psychological Bulletin*, 128 (2), 330-336.
- Rigby, K. (1996). *Bullying in schools: And what to do about it*. London: Jessica Kingsley Publishers.
- Rusby, J. C., Forrester, K. K., Biglan, A., & Metzler, C. W. (2005). Relationships between peer harassment and adolescent problem behaviors. *Journal of Early Adolescence*, 25, 453-477.
- Sacks, J., & Salem, R. S. (2009). Victims without legal remedies: Why kids need schools to develop comprehensive anti-bullying policies, *Albany Law Review*, 72, 147-190.
- Schuster, B., & Maximilians, L. (1996). Rejection, exclusion, and harassment at work and in schools. *European Psychologist*, 1(4), 293-317.
- Schwartz, D., Gorman, A. H., Nakamoto, J., & Toblin, R. L. (2005). Victimization in the peer group and children's academic functioning. *Journal of Educational Psychology*, 97, 425-435.
- Shaw, L. A., & Wainryb, C. (2006). When victims don't cry: Children's understandings of victimization, compliance, and subversion. *Child Development*, 77, 1050-1062.
- Smetana, J. G., Campione-Barr, N., & Yell, N. (2003). Children's moral and affective judgments regarding provocation and retaliation. *Merrill-Palmer Quarterly*, 49, 209-236.
- Snarey, J.R., Reimer, J., & Kohlberg, L. (1985). Development of social-moral reasoning among Kibbutz adolescents: A longitudinal cross-cultural study. *Developmental Psychology*, 21, 3-17.
- Solberg, M. E., Olweus, D., & Endresen, I. M. (2007). Bullies and victims at school: Are they the same pupils? *British Journal of Educational Psychology*, 77, 441-464.
- Srabstein, J. C., Berkman, B. E., & Pyntikova, A. (2008). Antibullying legislation: A public health perspective. *Journal of Adolescent Health*, 42, 11-20.
- Sweeting, H., Young, R., West, P., & Der, G. (2006). Peer victimization and depression in early-

- mid adolescence: A longitudinal study. *British Journal of Educational Psychology*, 76, 577-594.
- Telep, V. (2009). *Discipline and Punishment: What is the difference?* [Brochure]. Virginia Polytechnic Institute, 1-8
- Vaillancourt, T., Duku, E., Decatanzaro, D., Macmillan, H., & Muir, C. (2008). Variation in hypothalamic-pituitary-adrenal axis activity among bullied and non-bullied children. *Aggressive Behavior*, 34, 294-305.
- Velicer, W. F., & Prochaska, J. O. (2008). Stage and non-stage theories of behavior and behavior change: A comment on Schwarzer. *Applied Psychology: An International Review*, 57(1), 75-83.
- Vernberg, E. M., Greenhoot, A. F., & Biggs, B. K. (2006). Intercommunity relocation and adolescent friendships: Who struggles and why? *Journal of Consulting and Clinical Psychology*, 74, 511-523.
- Whitlock, J. L. (2006). Youth perceptions of life at school: Contextual correlates of school connectedness in adolescence. *Applied Developmental Science*, 10, 13-29.
- Wright, B. D., & Stone, M. H. (1979). *Best test design*. Chicago: MESA Press.
- You, S., Furlong, M. J., Felix, E., Sharkey, J. D, Tanigawa, D., & Green, J. G. (2008). Relations among school connectedness, hope, life satisfaction and bully victimization. *Psychology in the Schools*, 45, 446-460.
- Zande, K. (2009). When the school bully attacks in the living room: Using Tinker to regulate off-campus student cyberbullying. *Barry Law Review*, 103 (13), 1-34.

## Appendix A

### Notes on Fixing Item/Vignettes' Order of Hierarchical Complexity

Data was collected with the “Student-Bully Problem” instrument in the spring and summer of 2010. Two slightly different versions of the Student-Bully Problem were created: “Student-Bully Problem (a)”, and “Student-Bully Problem (b).” Each version of the instrument contains two sets of seven vignettes. Each vignette within a set represents an order of hierarchical complexity (6, 7, 8, 9, 10, 11, & 12). Student-Bully Problem (a) contains the following two sets of vignettes: Assigned Seat (a), and Pushing (a). Student-Bully Problem (b) consists of the following two sets of vignettes: Assigned Seat (b) and Pushing (b).

Problems were found with some vignettes after analyzing the data. Possible solutions follow.

#### **Problems with Student-Bully Problem (a) / Assigned Seat (a)**

Concrete Item: The first few sentences are too primary in tone. There should be some perspective-taking added.

#### **Original Concrete Stage / Order 8 (with mistakes)**

**Moore** is surprised the other student took Moore's seat. The other student ignores Moore. Moore thinks about pushing the other student out of the seat. Moore's close friends had told Moore stories of how they got their seats back by telling the teacher what happened. Moore wants to do what the close friends think will work. Moore tells the teacher what happened.

#### **Corrected Concrete Stage / Order 8**

**Moore** is surprised the other student took Moore's seat. The other student ignores Moore. Moore thinks about pushing the other student. Moore knows the other student likes stealing the seat. Moore's close friends told Moore stories of how they got their seats back by telling the teacher what happened. Moore wants to do whatever the close friends think will work. Moore tells the teacher what happened.

Abstract: The abstract vignette’s item difficulty was too high. There were implied “if-then” statements in the vignette, which likely moved the intended abstract vignette to a higher stage. For example, the sentence “The good students usually report problems to an adult...” could imply “If a student reports problems to an adult..., then the student is good.” There are a few other sentences like this.

#### **Original Abstract Stage / Order 9 (with mistakes)**

**Stowe** is surprised the other student took Stowe's seat. The other student ignores Stowe. Stowe thinks about pushing the other student out of the seat. Good students try not to push or hurt other students. Bad students push and hurt other students in school. The good students usually report problems to an adult working in the school. Stowe tells the teacher what happened.

### **Corrected Abstract Stage / Order 9**

**Stowe** is surprised the other student took Stowe's seat. The other student ignores Stowe. Stowe thinks about pushing the other student out of the seat. Sometimes students will push or hit other students in school. Teachers tell students not to push or hurt other students. Teachers want students to tell an adult if they have a problem. Stowe tells the teacher what happened.

Formal: In the formal vignette the abstract variable was left out.

### **Original Formal Stage / Order 10**

**Birch** is surprised the other student took Birch's seat. The other student ignores Birch. Birch thinks about pushing the other student out of the seat. Teachers say pushing other students breaks school rules. If students break the rules, then they should be punished. If Birch pushes the other student out of the seat, Birch should be punished. Birch tells the teacher what happened.

### **Corrected Formal Stage / Order 10**

**Birch** is surprised the other student took Birch's seat. The other student ignores Birch. Birch thinks about pushing the other student out of the seat. Teachers say pushing other students breaks school rules. If students break the rules, then they should be punished. When students push or hit someone in school, they should be punished. Birch tells the teacher what happened.

### **Problems with Student-Bully Problem (a) / Push (a)**

Concrete: The first few sentences are too primary in tone. There should be some perspective-taking added.

### **Original Concrete Stage / Order 8 (with mistakes)**

**Wells** is surprised the other student pushed Wells to the floor. The other student ignores Wells. Wells thinks about pushing the other student back. Wells' friends told Wells the stories of how they pushed back when students pushed them for no reason. The friends said pushing back worked for them. Wells wants to do what the friends think will work. Wells pushes the other student really hard.

### **Corrected Concrete Stage / Order 8**

**Wells** is surprised the other student pushed Wells to the floor. The other student ignores Wells. Wells knows the other student likes stealing the seat. Wells' friends told Wells the stories of how they pushed back when students pushed them for no reason. The friends said pushing back worked for them. Wells wants to do what the friends think will work. Wells pushes the other student really hard.

Abstract: The abstract vignette's item difficulty was too high. There were implied "if-then" statements in the vignette, which likely moved the intended abstract vignette to

a higher stage.

**Original Abstract Stage / Order 9 (with mistakes)**

**Bower** is surprised the other student pushed Bower to the floor. The other student ignores Bower. Bower knows the other student always bullies students in school. Only bad students like to bully other students. Good students try not to bully other students in school. This student is a bully. Bower wants to do something about the bully. Bower pushes the other student really hard.

**Corrected Abstract Stage / Order 9**

**Bower** is surprised the other student pushed Bower to the floor. The other student ignores Bower. Bower knows the other student likes to bully students in school. Teachers have said they do not like to see bullying in school. Teachers are always telling students not to bully other students. This student is a bully. Bower pushes the other student really hard.

**Problems with Student-Bully Problem (b) / Assigned Seat (b)**

Primary: The sentence “Mason doesn’t think the other student will listen” must be modified. Contractions should be eliminated. They increase the difficulty level of reading the vignette. Moreover, the actual sentence, itself, implies an “if-then” statement, which might be elaborated as follows: “If Mason yells at the student, then the student will not listen.”

**Original Primary Stage / Order 7 (with mistakes)**

**Mason** does not know why the other student took Mason's seat. The other student will not move. Mason wants to get the seat back. The teacher told the class to stay in the seats they were assigned for class. Mason wants to yell at the other student, but doesn't yell. Mason doesn't think the other student will listen. Mason tells the teacher what happened.

**Corrected Primary Stage / Order 7**

**Mason** does not know why the other student took Mason's seat. The other student will not move. Mason wants to get the seat back. The teacher told the class to stay in the seats they were assigned for class. Mason wants to yell at the other student, but does not. The other student did not listen last time. Mason tells the teacher what happened.

Concrete: The first few sentences are too primary in tone. There should be some perspective-taking added.

**Original Concrete Stage / Order 8 (with mistakes)**

**Dixon** does not know why the other student took Dixon's seat. The other student will not move. Dixon wants to get the seat back. A friend told Dixon how the friend dealt with a student who stole a seat. The friend told on the other student to the teacher. Dixon wants to do whatever the friend thinks will work. Dixon tells the teacher what happened.

### **Corrected Concrete Stage / Order 8**

**Dixon** does not know why the other student took Dixon's seat. The other student will not move. Dixon knows the other student likes doing this. A friend told Dixon how the friend dealt with a student who stole a seat. The friend told on the other student to the teacher. Dixon wants to do whatever the friend thinks will work. Dixon tells the teacher what happened.

Abstract: There were implied “if-then” statements in the vignette, which could move the abstract vignette to a higher stage.

### **Original Abstract Stage / Order 9 (with mistakes)**

**Mills** does not know why the other student took Mills' seat. The other student will not move. Mills knows that good students do not steal other students' seats. Only bad students take another student's seat without permission from the teacher. This other student must be bad. Teachers should know who the bad students are. Mills tells the teacher what happened.

### **Corrected Abstract Stage / Order 9**

**Mills** does not know why the other student took Mills' seat. The other student will not move. Mills knows teachers tell students not to take other students' seats. Sometimes students do not listen to what teachers say. Teachers ask students to tell them about problems. Teachers should know about students who do not listen. Mills tells the teacher what happened.

Formal: In the formal vignette an abstract variable was left out.

### **Original Formal Stage / Order 10 (with mistakes)**

**Lloyd** does not know why the other student took Lloyd's seat. The other student will not move. Teachers give students their own assigned seats. Students who break the rules get punished in school. Students who steal other students' seats break the school rules. Pushing other students also breaks school rules. If Lloyd pushes the other student roughly, Lloyd will be punished. Lloyd tells the teacher what happened.

### **Corrected Formal Stage / Order 10**

**Lloyd** does not know why the other student took Lloyd's seat. The other student will not move. Teachers give students their own assigned seats. Students who break the rules get punished in school. Students who steal other students' seats break the school rules. Pushing other students out of a seat also breaks school rules. If students push other students roughly, they should be punished. Lloyd tells the teacher what happened.

### **Problems with Student-Bully Problem (b) / Push (b)**

Concrete: It is slightly too high in stage. An abstract word (always) should be removed. There should be some perspective-taking added.

#### **Original Concrete Stage / Order 8 (with mistakes)**

**Evans** does not know the other student who pushed Evans onto the floor. The other student walks down the hall after pushing Evans. Evans' parent told Evans to push other students if they push Evans in school for no reason. Evans wants to do what the parent said. Evans always tries to do what the parent thinks will work the best. Evans pushes the other student really hard.

#### **Corrected Concrete Stage / Order 8**

**Evans** does not know the other student who pushed Evans onto the floor. The other student walks down the hall after pushing Evans. Evans knows the other student liked pushing Evans. Evans' parent told Evans to push other students if they push Evans in school for no reason. Evans wants to do whatever the parent said will work. Evans pushes the other student really hard.

Formal: There are implied "if-then" statements in the vignette, which likely moved the intended abstract vignette higher in stage.

#### **Original Abstract Stage / Order 9 (with mistakes)**

**Flynn** does not know the other student who pushed Flynn onto the floor. The other student walks down the hall after pushing Flynn. Flynn knows that good students try not to push other students for no reason. Good students try not to break rules or cause trouble in school. Bad students cause trouble in school just like this one is. Flynn pushes the other student really hard.

#### **Corrected Abstract Stage / Order 9**

**Flynn** does not know the other student who pushed Flynn onto the floor. The other student walks down the hall after pushing Flynn. Flynn knows that most students try not to push other students for no reason. Teachers tell students not to break rules or cause trouble in school. Some students cause trouble in school just like this one is. Flynn pushes the other student really hard.

Formal: In the formal vignette an abstract variable was left out.

#### **Original Formal Stage / Order 10**

**Clark** does not know the other student who pushed Clark onto the floor. The other student walks down the hall after pushing Clark. The school rules say students who push others in school should be punished. Clark knows the principal has punished students for pushing. Clark thinks the other student should be punished for pushing Clark

to the floor. Clark pushes the other student really hard.

**Corrected Formal Stage / Order 10**

**Clark** does not know the other student who pushed Clark onto the floor. The other student walks down the hall after pushing Clark. School rules say students who push should be punished. Clark knows students are told not to push. Teachers have punished students for pushing. Clark thinks if students push a student for no reason, they should be punished right away. Clark pushes the other student really hard.

Appendix B

Student-Bully Problem (a, 1-1, 2-1)

The Problem: A student leaves class to go to the bathroom. When getting back to class, another student is sitting in the student's seat. The student who went to the bathroom was assigned that seat by the teacher and used the seat all year. The following stories have students who deal with this problem the same way. But, **the reasons they have for how they deal with the problem are different.**

Directions: First, read all seven stories carefully. Then, read each story again and rate how good or bad the students' reasons are for how they deal with the problem. It does not matter if you agree with how the student deals with the problem. **You are only rating how good or bad the students' reasons are for how they deal with the problem.**

**Kents** is surprised the other student took Kents' seat. The other student ignores Kents. Kents wants the other student to move as soon as possible. Students have their own assigned seats for the whole school year. Kents tries to push the other student out of the seat. Kents failed to move the other student. Kents tells the teacher what happened.

**Birch** is surprised the other student took Birch's seat. The other student ignores Birch. Birch thinks about pushing the other student out of the seat. Pushing other students breaks school rules. If students break the rules, they will be punished. If Birch pushes the other student out of the seat, Birch will be punished. Birch tells the teacher what happened.

**Moore** is surprised the other student took Moore's seat. The other student ignores Moore. Moore thinks about pushing the other student out of the seat. Moore's friends had told Moore stories of how they got their seats back by telling the teacher what happened. Moore wants to try that, and hopes it will work. Moore tells the teacher what happened.

**Stowe** is surprised the other student took Stowe's seat. The other student ignores Stowe. Stowe thinks about pushing the other student out of the seat. Good students do not push other students at school. Only bad students push other students in school. The good students always report problems to an adult working in the school. Stowe tells the teacher what happened.

**Riley** is surprised the other student took Riley's seat. The other student ignores Riley. Riley screams and yells out loud at the other student to get out of the seat. Riley cannot push the other student out of the seat. Riley wants the seat back right away. The teacher is on the other side of the classroom. Riley tells the teacher what happened.

**Green** is surprised the other student took Green's seat. The other student ignores Green. Green thinks about pushing the other student. Pushing the other student breaks the school rules. Rules are made so students do not get hurt. Pushing a student could hurt that student and get Green in trouble for breaking the rules. Green tells the teacher what happened.

**Smith** is surprised the other student took Smith's seat. The other student ignores Smith. Smith considers what the other student would think if Smith stole a seat. If Smith broke the seating rule, Smith thinks it would violate another student's rights and the other student would find it fair if the teacher punished Smith. Smith wants to handle this problem fairly. Smith tells the teacher what happened.

Rate how good or bad the students' **reasons** are for how they deal with the problem by circling a number from 1 to 6. Circling "1" means you think the student had the worst reasons. Circling "6" means you think the student had the best reasons. All of the ratings do not need to be used and the same rating can be used for more than one student.

Kents	Worst Reasons	1	2	3	4	5	6	Best Reasons
Birch	Worst Reasons	1	2	3	4	5	6	Best Reasons
Moore	Worst Reasons	1	2	3	4	5	6	Best Reasons
Stowe	Worst Reasons	1	2	3	4	5	6	Best Reasons
Riley	Worst Reasons	1	2	3	4	5	6	Best Reasons
Green	Worst Reasons	1	2	3	4	5	6	Best Reasons
Smith	Worst Reasons	1	2	3	4	5	6	Best Reasons

The Problem: A student is walking down the hallway to class. A larger student pushes the student in the back. The student falls to the floor and school books fall all over the floor. We do not know why the other student pushed the student to the floor in the first place. The following stories have students who deal with this problem the same way. But, **the reasons they have for how they deal with the problem are different.**

Directions: First, read all seven stories carefully. Then, read each story again and rate how good or bad the students' reasons are for how they deal with the problem. It does not matter if you agree with how the student deals with the problem. **You are only rating how good or bad the students' reasons are for how they deal with the problem.**

**Price** is surprised the other student pushed Price to the floor. The other student ignores Price. Teachers tell students it is wrong to push other students during school. Price wants to get the other student back for this. Price is angry and wants to push or kick the other student really hard. Price pushes the other student really hard.

**Corey** is surprised the other student pushed Corey to the floor. The other student ignores Corey. Students who break the school's rules are punished. Pushing is breaking the school's rules. Students who push other students to the floor should be punished. The other student should be punished for pushing Corey to the floor. Corey pushes the other student really hard.

**Wells** is surprised the other student pushed Wells to the floor. The other student ignores Wells. Wells thinks about pushing the other student back. Wells' friends told Wells the stories of how they pushed back when students pushed them for no reason. The friends said pushing back worked for them. Wells wants to try that. Wells pushes the other student really hard.

**Bower** is surprised the other student pushed Bower to the floor. The other student ignores Bower. Bower knows the other student always bullies students in school. Only bad students like to bully other students. Good students do not bully other students in school. This student is a bully. Bower wants to do something about the bully. Bower pushes the other student really hard.

**Speer** is surprised the other student pushed Speer to the floor. The other student ignores Speer. Speer screams and yells at the other student, and does not care how much bigger the other student is. Speer is very mad and can't calm down. Speer wants to push or kick the other student right away, really hard. Speer pushes the other student really hard.

**Jones** is surprised the other student pushed Jones to the floor. The other student ignores Jones. Pushing students is breaking the rules and results in punishment. Teachers give immediate punishment that is effective with students who break the school's rules. There are no teachers around to help, so Jones must punish the student effectively. Jones pushes the other student really hard.

**Burns** is surprised the other student pushed Burns to the floor. The other student ignores Burns. Burns considers what the other student thinks about being pushed. If Burns broke the no-pushing rule, Burns thinks it would violate another student's rights and the other student would want Burns punished. Burns wants the other student punished fairly, but a teacher isn't around. Burns pushes the other student really hard.

Rate how good or bad the students' **reasons** are for how they deal with the problem by circling a number from 1 to 6. Circling "1" means you think the student had the worst reasons. Circling "6" means you think the student had the best reasons. All of the ratings do not need to be used and the same rating can be used for more than one student.

Price	Worst Reasons	1	2	3	4	5	6	Best Reasons
Corey	Worst Reasons	1	2	3	4	5	6	Best Reasons
Wells	Worst Reasons	1	2	3	4	5	6	Best Reasons
Bower	Worst Reasons	1	2	3	4	5	6	Best Reasons
Speer	Worst Reasons	1	2	3	4	5	6	Best Reasons
Jones	Worst Reasons	1	2	3	4	5	6	Best Reasons
Burns	Worst Reasons	1	2	3	4	5	6	Best Reasons

**Please answer the following questions by circling a number on each rating scale.**

How much do you like to watch someone calling a person names or teasing them?  
Not At All 1 2 3 4 5 6 Very Much

How much do you like to watch someone getting physically pushed around?  
Not At All 1 2 3 4 5 6 Very Much

How often did you push someone around physically?  
Never 1 2 3 4 5 6 Many Times

How often did you call people names trying to upset them or trying to get people to laugh?  
Never 1 2 3 4 5 6 Many Times

How often have you been upset because someone pushed, kicked, or hit you for no reason?  
Never 1 2 3 4 5 6 Many Times

How often have you pushed, kicked, or hit someone first?  
Never 1 2 3 4 5 6 Many Times

How much were you or are you bullied in school (circle one)?  
1) Never  
2) 1 Day  
3) 1-4 Weeks  
4) 2-12 Months  
5) 1-2 Years  
6) 2 years or more

How bad is bullying?  
Not Bad At All 1 2 3 4 5 6 Totally Bad

Appendix C

Student-Bully Problem (b; 1-2, 2-2)

The Problem: A student leaves class to go to the bathroom. When getting back to class, another student is sitting in the student's seat. The student who went to the bathroom was assigned that seat by the teacher and used the seat all year. The following stories have students who deal with this problem the same way. But, **the reasons they have for how they deal with the problem are different.**

Directions: First, read all seven stories carefully. Then, read each story again and rate how good or bad the students' reasons are for how they deal with the problem. It does not matter if you agree with how the student deals with the problem. **You are only rating how good or bad the students' reasons are for how they deal with the problem.**

**Mason** does not know why the other student took Mason's seat. The other student will not move. Mason wants to get the seat back. Teachers tell students to stay in the seats they were assigned for class. Mason thinks about yelling at the other student, but doesn't yell. Mason doesn't think the other student will listen. Mason tells the teacher what happened.

**Lloyd** does not know why the other student took Lloyd's seat. The other student will not move. The teacher gives students their own seats. Students who break the rules get punished in school. Students who steal other students' seats break the school rules. If Lloyd pushes the other student roughly, Lloyd will be punished. Lloyd tells the teacher what happened.

**Dixon** does not know why the other student took Dixon's seat. The other student will not move. Dixon wants to get the seat back. A friend told Dixon how the friend dealt with a student who stole a seat. The friend told on the other student to the teacher. Dixon thinks that could work and wants to try it. Dixon tells the teacher what happened.

**Mills** does not know why the other student took Mills' seat. The other student will not move. Mills knows that good students do not steal other students' seats. Only bad students take another student's seat without permission from the teacher. This other student must be bad. Teachers should know who the bad students are. Mills tells the teacher what happened.

**Baker** does not know why the other student took Baker's seat. The other student will not move. Baker screams and yells out loud at the other student to get out of the seat. Baker cannot calm down and threatens to hurt the other student. That is where Baker has sat all year. Baker cannot make the other student move. Baker tells the teacher what happened.

**Heath** does not know why the other student took Heath's seat. The other student will not move. The other student is breaking the seating rule. Students who break rules get punished by teachers. Heath wants to get the seat back without hurting the other student or breaking rules. The teacher is nearby and can help with this. Heath tells the teacher what happened.

**Woods** does not know why the other student took Woods' seat. The other student will not move. Woods considers what the other student thinks about the seating rule. If Woods broke the seating rule, Woods thinks it would violate another student's rights and the other student would find it fair if Woods was punished. Woods wants to handle this fairly. Woods tells the teacher what happened.

Rate how good or bad the students' **reasons** are for how they deal with the problem by circling a number from 1 to 6. Circling "1" means you think the student had the worst reasons. Circling "6" means you think the student had the best reasons. All of the ratings do not need to

be used and the same rating can be used for more than one student.

Mason	Worst Reasons	1	2	3	4	5	6	Best Reasons
Lloyd	Worst Reasons	1	2	3	4	5	6	Best Reasons
Dixon	Worst Reasons	1	2	3	4	5	6	Best Reasons
Mills	Worst Reasons	1	2	3	4	5	6	Best Reasons
Baker	Worst Reasons	1	2	3	4	5	6	Best Reasons
Heath	Worst Reasons	1	2	3	4	5	6	Best Reasons
Woods	Worst Reasons	1	2	3	4	5	6	Best Reasons

The Problem: A student is walking down the hallway to class. A larger student pushes the student in the back. The student falls to the floor and school books fall all over the floor. We do not know why the other student pushed the student to the floor in the first place. The following stories have students who deal with this problem the same way. But, **the reasons they have for how they deal with the problem are different.**

Directions: First, read all seven stories carefully. Then, read each story again and rate how good or bad the students' reasons are for how they deal with the problem. It does not matter if you agree with how the student deals with the problem. **You are only rating how good or bad the students' reasons are for how they deal with the problem.**

**Ellis** does not know the other student who pushed Ellis onto the floor. The other student walks down the hall after pushing Ellis. Pushing someone in a school hallway for no reason is breaking the school rules. Ellis wants to hurt the other student by pushing and kicking the other student. Ellis wants to get the other student back. Ellis pushes the other student really hard.

**Clark** does not know the other student who pushed Clark onto the floor. The other student walks down the hall after pushing Clark. The school rules say students who push others in school should be punished. Clark knows punishment has been given to students for pushing. Clark thinks the other student should be punished for pushing Clark to the floor. Clark pushes the other student really hard.

**Evans** does not know the other student who pushed Evans onto the floor. The other student walks down the hall after pushing Evans. Evans' parent told Evans to push other students if they push Evans in school for no reason. Evans wants to do what the parent said. Evans hopes that pushing the other student back will work. Evans pushes the other student really hard.

**Flynn** does not know the other student who pushed Flynn onto the floor. The other student walks down the hall after pushing Flynn. Flynn knows that good students do not push other students for no reason. Good students try not to break rules or cause trouble in school. Bad students cause trouble in school just like this one is. Flynn pushes the other student really hard.

**Davis** does not know the other student who pushed Davis onto the floor. The other student walks down the hall after pushing Davis. Davis yells at the other student and threatens to get the other student back. Davis is so angry at the other student and is out of control. Davis wants to hurt the other student right away. Davis pushes the other student really hard.

**Allen** does not know the other student who pushed Allen onto the floor. The other student walks down the hall after pushing Allen. School rules state that students who push someone should be punished. Adults working in the school should do the punishing. No adults were around to help, but the student should still be punished for pushing. Allen pushes the other student really hard.

**Brown** does not know the other student who pushed Brown onto the floor. The other student walks down the hall after pushing Brown. Brown considers what the other student thinks about being pushed. If Brown broke the no-pushing rule, Brown thinks it would violate another student's rights and the other student would want Brown punished. Brown wants to be fair, but can't find a teacher. Brown pushes the other student really hard.

Rate how good or bad the students' **reasons** are for how they deal with the problem by circling a number from 1 to 6. Circling "1" means you think the student had the worst reasons. Circling "6" means you think the student had the best reasons. All of the ratings do not need to be used and the same rating can be used for more than one student.

Ellis	Worst Reasons	1	2	3	4	5	6	Best Reasons
Clark	Worst Reasons	1	2	3	4	5	6	Best Reasons
Evans	Worst Reasons	1	2	3	4	5	6	Best Reasons
Flynn	Worst Reasons	1	2	3	4	5	6	Best Reasons
Davis	Worst Reasons	1	2	3	4	5	6	Best Reasons
Allen	Worst Reasons	1	2	3	4	5	6	Best Reasons
Brown	Worst Reasons	1	2	3	4	5	6	Best Reasons

**Please answer the following questions by circling a number on each rating scale.**

How much do you like to watch someone calling a person names or teasing them?

Not At All 1 2 3 4 5 6 Very Much

How much do you like to watch someone getting physically pushed around?

Not At All 1 2 3 4 5 6 Very Much

How often did you push someone around physically?

Never 1 2 3 4 5 6 Many Times

How often did you call people names trying to upset them or trying to get people to laugh?

Never 1 2 3 4 5 6 Many Times

How often have you been upset because someone pushed, kicked, or hit you for no reason?

Never 1 2 3 4 5 6 Many Times

How often have you pushed, kicked, or hit someone first?

Never 1 2 3 4 5 6 Many Times

How much were you or are you bullied in school (circle one)?

1) Never

2) 1 Day

3) 1-4 Weeks

4) 2-12 Months

5) 1-2 Years

6) 2 years or more

How bad is bullying?

Not Bad At All 1 2 3 4 5 6 Totally Bad

Appendix D  
Variable Map Figures

Assigned Seat Variable Map (Participants and Items)

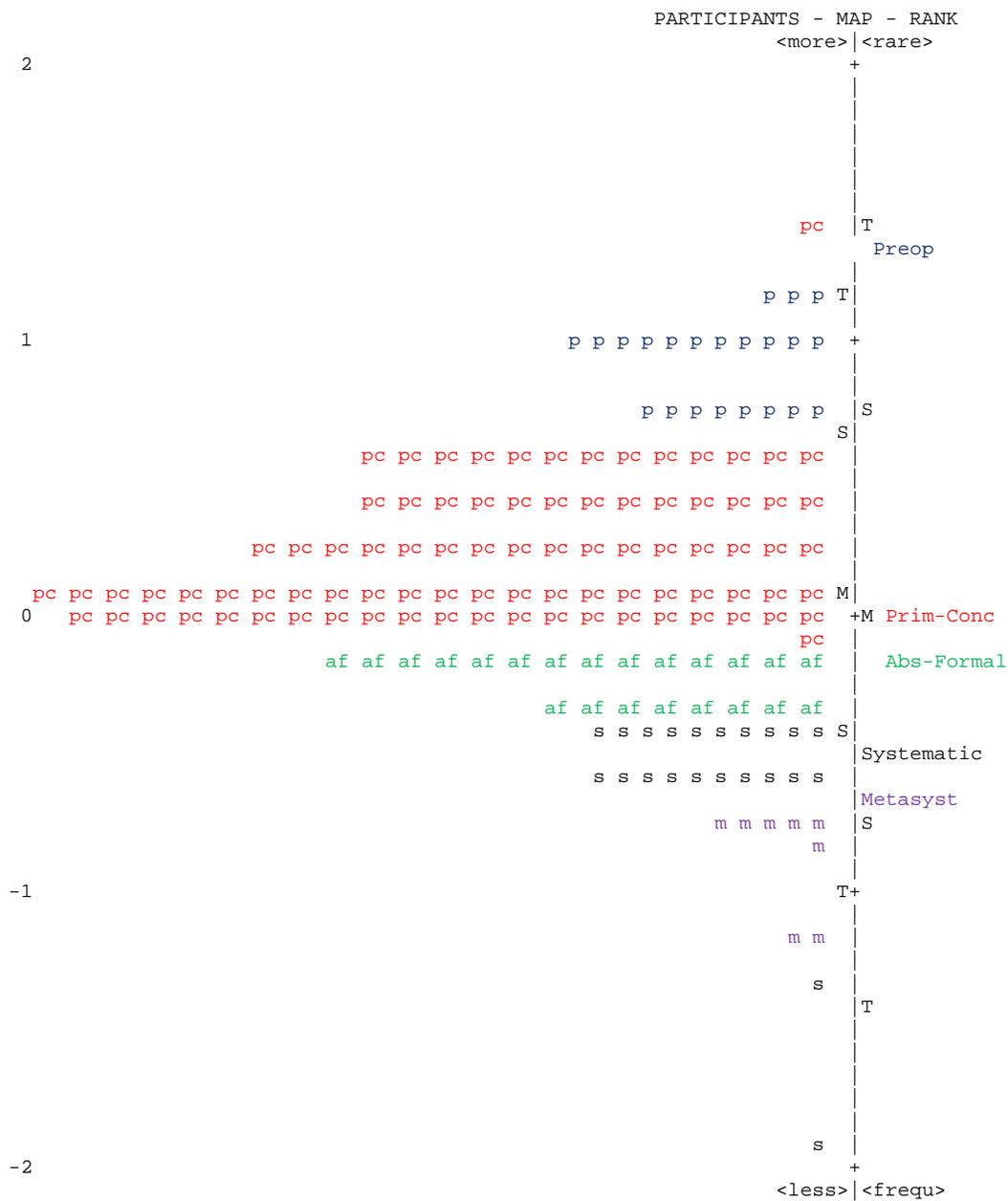


Figure 1. Assigned Seat Person Stage Score Variable Map with Multi-Stage Categories (students)

