LOCUS OF CONTROL AND OVERT AGGRESSION

IN SECONDARY SCHOOL STUDENTS

by

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ABSTRACT

The purpose of this study was to examine the relationship between locus of control and overt aggression in secondary school students. It was anticipated that students with locus of control profiles with higher scores in the two external subscales of Levenson's I, P, and C Scales (i.e. "powerful others" and/or "chance") and lower internal scores would exhibit more overt aggressive behaviour than would students with lower external and higher internal scores.

Subjects were comprised of 616 secondary school students (298 females and 318 males) between the ages of 13 and 18. Each student completed the Levenson I, P, and C Scales, measuring locus of control, near the beginning of the school year. All students were monitored for overt aggressive behaviour over the course of that same school year. The correlation between individual students' overt aggressive behaviours and their respective locus of control profiles was examined using multiple linear regression as the main statistical analysis.

Results of this study indicate that locus of control had a significant effect in predicting overt aggression. Over 44% of the variance in overt aggressive behaviour was predicted by locus of control scores. ii

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CHAPTER ONE: INTRODUCTION

Youth violence and violence at schools has become the focus of much research in recent years. Studies in violence are certainly not new, but recent, high-profile cases have highlighted what seems to be a disturbing trend toward greater youth violence. Events like the Columbine High School massacre in Colorado in the spring of 1999, the Taber, Alberta shooting of the same year, and the 1996 Reena Virk beating death in Victoria, B.C., though at the extreme upper end of the continuum of violence, have raised awareness of issues that are related to overt aggression in schools. Although there are some researchers, many of them educators, who have argued that these sensational cases are not in any way indicative of the general level of safety in schools, and that schools are in fact safer than ever, there is evidence that schools are places where violence exists (Fitzclarence, 1995). Most violence at schools is less extreme than in the examples mentioned above; however, it is serious enough to be concerned about and causes many to wonder if schools are breeding grounds for worse kinds of violence. Furthermore, adolescents are generally over-represented in violent crime statistics. In Canada in 1996, persons under the age of 19 committed 42% of the violent crimes that year (Statistics Canada, 1997). Similarly, in 1995 in the United States, persons under the age of 25 were responsible for 47% of the violent crimes committed (Federal Bureau of Investigation, 1996).

According to a study conducted by Sibylle Artz at the University of Victoria, out of 1,466 high school students who answered a survey, 51.9% of the male respondents and 20.9% of the female respondents indicated that "in the past year they had beaten up another kid once or twice" (Artz and Riecken, 1994, p. 27).

This sort of evidence is likely the cause for the rapid growth of the body of research in the area of violence, and specifically youth violence, in the past several years. The bulk of this research has been in pursuit of understanding the roots of violent behaviour. School environments, brain anomalies, social learning from parents, television, video games, socioeconomic factors, nutrition, genetics, hormones and other body chemicals have all been investigated as causes of youth aggression. However no strong cause-and-effect relationships have emerged (Sylwester, 1999).

Most researchers in this area have agreed that whatever the immediate cause of violent behaviour, there is an underlying psychological profile that makes the aggressor tend toward violence (e.g. Neufeld, 1998; Berkowitz, 1989). For example, Robert Sylwester, brain development specialist, says that developing brains with "mature frontal lobes that can differentiate between ... ridicule and genuine physical danger and that have developed non-aggressive strategies for dealing with social disapproval and feelings of alienation" (Sylwester, 1999,p. 5) is key to dealing effectively with youth aggression. He continues to say that even though this may seem

like a biological goal, it likely has a psychological root. Rather than seeing aggression as an immediate reaction to an immediate stimulus, or as the result of a certain kind of brain development, it is suggested that we must look at aggressive behaviour as having a root that goes much deeper than any immediate cause-and-effect relationship.

Harriette Johnson, in a literature review of research examining youth violence as related only to single factors, concluded that factors interact and that no single factor can be viewed as the key to the cause of violent behaviour (Johnson, 1996). Johnson's conclusions also support the notion that immediate factors themselves, even when in combination, do not predict aggression; rather, the way those factors are perceived by a person dictate whether or not that person will resort to violence (Johnson, 1996).

This study emerged from the notion that there could be a psychological precondition, which, when combined with one or more of the many factors which correlate with youth aggression, makes aggression more likely. Because schools are places where aggressive behaviour on the part of youth is easily observable and arguably quite prevalent, it was decided that aggression at school would be the focus of this paper. It was hoped that, if some underlying root of aggression could be ascertained, schools would also be the places where addressing the youth aggression problem might best be initiated.

CHAPTER TWO: REVIEW OF THE LITERATURE

This literature review includes definitions of key terms and comprehensive descriptions of the main threories which formed the basis for this study. Recent and relevant research concerning locus of control, aggression, youth aggression, attribution, the frustration-aggression hypothesis, and peer-oriented society will be summarized and critically analyzed. These concepts have combined to lay the theoretical groundwork on which the rationale for this study was based. An attempt will be made to show the link between locus of control and aggression, through the frustration-aggression hypothesis and, to a lesser extent, attribution theory. Studies which have already examined the link between locus of control and violence or aggression have also been included here.

Locus of Control

The original internal-external locus of control construct, created by Julian Rotter in 1966, was a measure of the extent to which one saw outcomes in one's life as contingent upon one's personal behaviour, or as a result of external forces, outside oneself. The former was named "internal," while the latter was named "external." This measure of perceived control has been used extensively in psychological study since its introduction.

Locus of control data have been correlated with a multitude of societal behaviours and states of mind. For example, a number of studies have

shown that people with a higher external locus of control are "less satisfied with their jobs, more often absent, less involved in their work, and more compliant and willing to follow directions" (Knoop, 1995, p.41) than are people with a higher internal locus of control. It has also been shown that the ability to get along with others and generally more highly developed social skills are both strongly related to high scores of internality and low scores of externality (Lefcourt, Martin, Fick & Saleh, 1985).

In a study on perceived locus of control, Markman, Gavansky, Sherman & McMullen (1995) found that counterfactual thinking – reflections on "what could be and what could have been" (Markman et al., 1995, p. 588) – increases with increased perceived internal control. Specifically, someone who is more internal has a greater ability to imagine more and better possible outcomes in a given situation. The ability to think counterfactually allowed strongly internal people in the study by Markman et al. to imagine "a better possible world, or at least solutions to problems, thus helping them to avoid frustration" (Markman et al., 1995, p. 589). Similarly, Taylor, Lichtman and Wood (1984), in their study of the relationship between perceived control and social comfort, found that a greater sense of internal control on the part of subjects led to better coping skills, particularly in social situations.

More recently, a multidimensional approach to locus of control has begun to replace Rotter's original two-dimensional model. Reasons for this change in direction came, in part, from Rotter himself who showed concern

regarding researchers who used the locus of control construct without truly understanding its psychological base. Rotter commented on how some research was showing, erroneously, internality and externality more as fixed personality types rather than as psychological tendencies. This error led to the labelling of people as either "internal" or "external" in a very general sense, often disregarding the fact that all people are a combination of both, with only a tendency to be more dominant in one or the other. That is, while people are generally dominant in one of either external or internal locus of control, they are not solely or exclusively one or the other.

Furthermore, Yates, Hecht-Lewis, Fritsch, and Goodrich (1994), in researching locus of control in severely disturbed adolescents, found that "some of the directions in which locus of control factors correlated with other measures added further support to [the] contention that it may be useful to break locus of control down into multiple dimensions" (Yates et al., 1994, p. 312).

Hanna Levenson has generated some of the most comprehensive work supporting a multidimensional approach to measuring locus of control. Levenson's own three-dimensional locus of control construct, "Internal, Powerful Others, and Chance Scales (I,P, and C Scales)," broke locus of control down into three polarities: "internal," "powerful others," and "chance." Internal locus of control remained a single dimension, while externality was divided into the other two parts: "powerful others" and "chance." A "powerful other" is any person or organisation of people whom

the subject feels has control over outcomes which affect the subject's life. "Chance" refers to the extent to which the subject believes that outcomes in his life are affected by chance, luck, or fate, entirely separate from any person-based control (Levenson, 1981). This splitting of Rotter's External subscale into "powerful others" and "chance," combined with the "internal" subscale which remained essentially unchanged from Rotter's original definition, made a three-dimensional set of scales known as the I, P, and C Scales.

The I, P, and C Scales were designed to differ from Rotter's Internal-External Scale in a number of important ways:

- They are presented as a Likert Scale, instead of a forced-choice format, so that their three dimensions are more statistically independent of one another than are the two dimensions of Rotter's Scale.
- 2. The I, P, and C scales make a personal-ideological distinction. All statements are phrased so as to pertain only to the person answering. They measure the degree to which an individual feels he or she has control over what happens, not what the person feels is the case for "people in general."
- 3. The items in the scales contain no wording that might imply modifiability of the specific issues [....]
- Table 1 The I, P, and C Scales are constructed in such a way that there is a high degree of parallelism in every threeitem set"

(Levenson, 1981)

Levenson, like Rotter, also warned that the accurate interpretation of

the I, P, and C Scales, is important (1981). High scores on any of the

subscales indicate only higher expectations by the subject that control lies in

a particular source, while low subscale scores indicate low expecations bγ the individual.

When using any locus of control construct with a school-age population, it is important to take developmental changes into consideration. Though there are no "simple linear developmental changes in contingency, competence, or control beliefs that can be discerned ..." (Compas, Banez, Malcarne, & Worsham, 1991, p. 25), there is a general assumption that is supported by the literature: "by about age 11 ...[children] show a decrease in attributions to external factors such as luck and powerful others" (Compas et al.). According to Compas and his colleagues, this would indicate that one can expect more high scores on the I subscale and more low scores on the P and C subscales for children over the age of 11.

Because of the significant change at the age of eleven, the age of first year high school students in much of B.C., twelve or thirteen years old is generally agreed upon as the earliest suitable time to administer Levenson's I, P, and C Scales. In observing general developmental shifts, Skinner concluded that "by age 11 to 13, judgements about chance and skill-based tasks are clearly distinguished, and ability and effort are differentiated, introducing the possibility of perceiving an internal uncontrollable cause ... for the first time" (1995, p.70). By the age of thirteen, children are more likely to be able to answer accurately how they feel about their beliefs in internal control, the control of powerful others, and the control of chance in their lives.

Overt Aggression

Locus of control and aggressive behaviour have been examined as correlates in a number of studies involving institutional populations. For example, Bayse, Allgood and VanWyk (1992) found that inmates who could "accept responsibility for their own actions, instead of blaming them on luck or the influence of powerful others, were involved in fewer disciplinary problems during incarceration and experienced reduced recidivism rates (Bayse et al., 1992).

Gilligan, a medical doctor, in a long-term study of violence (1996) found that a key precondition for violence is met when a person finds no non-violent means of having power in social, cultural, or economic realms. Violence is seen by Gilligan as a last resort to gain power that is perceived as having been lost, or to acquire power that is perceived as never having existed for that person. Gilligan says that a percieved lack of personal power or control, and the resulting shame it causes, is a "necessary but not a sufficient cause of violence" (p. 110-111). Although factors other than perceived lack of power and the resulting shame must be present if violence is to result, if perceived lack of power and shame are not present, violence will not occur. The only exception for Gilligan is defensive violence, where a person is threatened by violence and can only defend him/herself by violent means.

Defining the words "aggression" or "violence" accurately has always been difficult, but it is perhaps even more difficult when observed in the context of a school. Many definitions are either too vague or simply not complete enough. For that reason, overt aggression, a more specific type of violence, became the focus of this study.

An operational definition of overt aggression is "an act carried out with the intention of, or perceived as having the intention of, hurting another person. The injury does not need to be physical; it can be symbolic or material, as well" (Straus, 1979). It must be made clear that "violence" in this study does in fact refer to overt aggression. The word "overt" limited the study to only those acts of aggression which were aimed at objects or at people other than the aggressor.

Measuring overt aggression is an area of study in and of itself. For the most part, scales used to measure aggressive behaviour are tailored specifically to certain contexts. For this reason, the greatest body of literature of this nature comes from prisons and psychiatric hospitals, two places where violence is often a very real concern, and where monitoring behaviour is already being carried out as a matter of course.

Yudorfsky, Silver, Jackson, Endicott, & Williams (1986) developed a scale to measure overt aggression among pschiatric patients, but the terms used in the scale are broad enough to be applied to other populations. They place aggressive behaviours into four categories: verbal agression, physical aggression against objects, physical aggression against self, and physical

aggression against other people. These four categories contain within them a subscale of behaviours, listed in order of escalating severity. The four categories themselves are in order of escalating severity, with the exception of the third and fourth -- against self and against others -- which are equal in severity. Yudorfsky et al. recommended that this scale could be used to compare aggressive behaviours between subjects in terms of both characteristics and severity of aggressive behaviour. It was also noted in the study that, because the four categories are self-contained and do not overlap, single categories could be studied independently or in different combinations, depending on the focus of the study (Yudorfsky et al., 1986).

Frustration-Aggression Hypothesis

Berkowitz (1989) divides interpersonal aggression into two types: hostile aggression and instrumental aggression. Hostile aggression is the deliberate attempt to hurt someone. Instrumental aggression is the attempt to attain some other benefit, besides the injury of the other person (Berkowitz, 1989). This notion of aggression as a means to an end, rather than just necessarily and end unto itself, is supported further by Elliott (1988) in a study on the biosocial roots of violence, where it was found that aggression for some may actually be an interpersonal problem-solving strategy. Elliot stated that his theory stemmed from the strongly supported belief, originating in the 1930's, that violent behaviour, or overt aggression, and frustration were closely connected. Frustration was defined by

Berkowitz, the originator of the Frustration-Aggression Hypothesis, as "the result of being kept from achieving a desirable and expected goal or outcome" (Berkowitz, 1989, p. 60). That an outcome is both desirable and expected by the subject is key in Berkowitz's hypothesis. In other words, frustration, according to Berkowitz (1989), does not occur only as the result of failing to realize a desired goal. The inability to realize that goal must be accompanied by a strong belief that the goal was, in fact, attainable in the first place. According to Berkowitz, "privations, like poverty, though they may keep people from getting what they want out of life, are only frustrating inasmuch as something better is both wanted and expected" (Berkowitz, 1993). This concept was supported in an earlier study by Dollard, Doob, Miller, Mowrer, and Sears (1939, cited in Berkowitz, 1989). This group's theory was the first to assert that aggression resulted from frustration. Later, attribution theory added that whatever it was that people regarded as the source of their frustration (i.e. the barrier to attaining an expected and desired goal) determined how they would react to that frustration. Berkowitz (1993) explained this by offering, "the thwarted person will become angry with the individual who thwarts his goal attainment, ... especially if he feels that it was within that person's power and will to thwart him" (Berkowitz, 1993, p. 35).

Dollard and his colleagues (1939, in Berkowitz, 1989) went on to say that, once aggression becomes the chosen way for a frustrated person to react, the target of the aggression is most often the person or thing to whom

the frustration is attributed. Furthermore, aggression is more likely to occur if the frustrated person believes that his/her frustrator was at fault or in control, whether or not s/he believes there was any malevolent intention on the part of the frustrator (Averill, 1982; Zillman, 1979; Johnson and Rule, 1986; Worchel, Arnold, and Harrison, 1978). Consistent with this notion, the student who is frustrated in a social situation and who sees a classmate (a powerful other) as the source of his frustration, may act aggressively toward that classmate. Once in the aggressive mode, the aggressor substitutes a new goal for the unattainable one. The new goals may include coercion, power, dominance, or a change of reputation (Berkowitz, 1993). Willis (1977) adds that a goal of the aggressor may be a simple one: just to create dissonance. He asserts that violence is the ultimate way of breaking a flow of meanings which are unsatisfactory, imposed from above, or limited by circumstances.

More recently, Neufeld (1998) supported the frustration-aggression connection. Specifically, he found that "attacking impulses were generated by frustration" among his adolescent subjects, but that that frustration is often mistakenly missed as a root of violence. He stated that people tended to view frustration as an anger problem or a learning problem and quite separate from overtly aggressive behaviour. Neufeld saw that violence itself was being focused on without looking at the underlying frustration which caused it. Neufeld is in agreement with Berkowitz in differentiating between aggression and the anger which usually accompanies it. Berkowitz held that

aggression "has to do with behaviour that deliberately attempts to achieve a particular goal." Anger, by contrast, "doesn't necessarily have any particular goal and refers only to a particular set of feelings - the feeling we usually label 'anger'" (Berkowitz, 1993).

Neufeld added that, not only is frustration the primary source of violent behaviour, but also that a growing aberrant "peer-oriented" society for today's children supports the use of violence by children. Neufeld holds that attachment to child peers -- people who have not yet learned how to act in a "civilized" manner in socially frustrating situations -- and detachment from potentially positive-influencing adults have combined to create a more violent school-age population (Neufeld, 1998).

Specifically in the school setting, there is research which supports the link between frustration and aggression. For example, children who are identified to be at-risk for conduct problems often "exhibit low tolerance for frustration in early childhood. They tend to be more impulsive and angry when their wishes are not met in social situations" (Cole, 1996, p. 110). Furthermore, these frustrated children often overperceive hostility in other students and tend to blame others for their frustration. Reactions on the part of these students are almost always non-verbal and often aggressive (Cole, 1996). Cole goes on to say that frustration on the part of students seems to be a result of a lack of skills in social situations. Not only does the lack of social skill not allow the student to achieve a desired social goal, which is frustrating in itself, but also the feeling of powerlessness that the

student has when that student realizes that s/he is not able to do what is appropriate in a social situation, often resulting in isolation, ridicule, or punishment (Cole, 1996).

Control and Aggression

In line with the frustration-aggression hypothesis are findings by Worchel, Arnold and Harrison (1978). Worchel and his colleagues found that acts of aggression against others were often committed as a means of restoring power. This was supported in part by the fact that most aggressors felt that anonymous acts of violence did little to restore power in their victims' eyes, as the attack would not be identified as retaliation from that person. Most aggressors acted in a way that their victims would know the identity of their attackers. (Worchel et al., 1978).

According to Katz's (1988) research with violent adolescents in New York state, a sense of moral righteousness stemming from the need to restore power often results in remorseless violence. Katz found that the "emotions that seem to be most potent in fuelling the assailant's sense of moral righteousness are frustration, humiliation, and shame" (1988, p. 112). Sybille Artz (1998), in her study of violent girls at school, found that attempts to restore power in perceived imbalance situations was the source for a good number of violent episodes among female high school students in Victoria, British Columbia. If the "power-tripper," as one student in the study calls anyone who holds power over her, is one who cannot be challenged directly, violence against another, more accessible victim becomes a symbolic restoration of power, especially if the "power-tripper" is affected indirectly by the violent act. For example, one violent girl stated that her school's vice-principal was a real "power tripper ... but you know, if there's somebody you really hate and they're in higher authority than you, you can't really say anything, So the hatred just built and built." Eventually, the same girl committed a violent act on another girl at school to show the vice-principal her disapproval as a means of restoring her own power, however indirectly (Artz, 1998). The girl did not necessarily want to hurt another student; she likely use the aggression, purposefully, as a means of restoring power, which she sees as residing mainly with her school's viceprincipal. Worchel et al. (1978) would add that aggression is not necessarily a conscious plan to restore power, nor does the aggressor "necessarily have a conscious understanding that power has been diminished" (Worchel et al., 1978, p. 45).

Locus of control, as it relates to frustration and aggression, was also found in a study of spousal abuse (Prince & Arias, 1994). They concluded that men who had committed acts of violence on their spouses were found to be more likely to have lower scores of perceived internal control than were non-abusive husbands. Much of the men's aggressive behaviour was the result of their frustration with this perceived lack of control, or with their attempts to restore power that they saw as missing outside the home, by behaving aggressively inside the home (Prince and Arias, 1994). Similarly,

Eugene Kanin (1967) found that male sexual aggression (referring mainly to rape in his study) was related strongly to both long-term unemployment and the inability to marry.

Though it has been shown that a person with a predominately external locus of control likely has poorer social skills and is prone to violent or aggressive behaviour in certain situations (Knoop, 1995), Levenson's I, P, and C Scales allow us to examine in greater detail the external profile. At first thought, it might seem logical that those whose scores are high on the "chance" subscale would be most frustrated, as the world to them is entirely random and neither controlled nor controllable by anyone, including themselves. However, after considering the research showing that aggression resulting from frustration is often targeted at the person or persons perceived as responsible for the thwarting, a strong "powerful others" might be just as likely to act aggressively toward another person.

In a study by Nunn and Parish (1992), the relationship between locus of control and at-risk students (i.e., at risk for academic failure in school) was examined. They concluded that at-risk students were externally oriented and, as a result, were anxious and frustrated in a typical school setting. Experiences at school for at-risk students appeared to be "filtered through a belief system which included a marginal sense of personal empowerment for effecting change, coupled with a devaluing sense of personal competence and deflated confidence." (Nunn & Parish, 1992) It should be no surprise, therefore, to find that these at-risk students are over-

represented in aggression-related misbehaviours at school (Nunn & Parish, 1992; Wood, Chapin, & Hannah, 1988). Berkowitz showed that competition could be a source of frustration, often resulting in competitors becoming hostile toward one another, sometimes even trying to hurt each other (Berkowitz, 1989). It is not hard to see that a sense of academic competition exists in school, and how frustration and ultimately violence could result for those students who were not achieving as well as they would like.

At the extreme end of the adolescent aggression spectrum, locus of control and aggression are also related. Kumchy and Sayer (1980), in their study of chronically violent adolescents, found that the probability of a given adolescent being violently delinquent is correlated with low internal locus of control scores on the Nowicki-Strickland Scales (Kumchy and Sayer, 1980).

Summary and Conclusions

A link between locus of control and aggression, via the frustration-aggression relationship, seems plausible. If perceived lack of internal control on the part of a subject predisposes one to feeling frustrated, aggressive behaviour may follow. Aggression could result as a reaction to frustration for a subject lacking any other coping strategy, especially an adolescent who is living in a peer-oriented society. Aggression could also be a means of restoring power in cases where another person or where an entire system is perceived as responsible for the frustration felt by the subject. In a school where a

perceived powerful other person could be seen as the cause of one's frustration, or as a symbol of that cause, aggression toward that person could result.

Research Question

Based on research of the psychological roots of aggression among youth, it is apparent that there is no single cause of overt aggressive behaviour. Rather, multiple contributing factors must be present when predicting aggression. It does seem, however that perceived lack of control on the part of the aggressor plays a role. When there is no perceived control or where there has been a perceived loss of control, the Frustration-Aggression Hypothesis tells us that aggression may result due to the frustration inherent in having no control over outcomes in one's life. This feeling of no control is best described by locus of control language. Levenson's I, P, and C Scales (1981) would say that people who feel that the control over their lives lies outside themselves are likely to attribute outcomes to chance or to the influence of powerful other people rather than to their own influence.

According to attribution theory, aggression may even become a means by which an aggressor attempts to regain internal control from the individual or entity which is perceived as having taken away the aggressor's control, according to attribution theory. The question becomes clear: what is the strength of the relationship between aggression and locus of control? This question, combined with an understandably growing concern regarding aggression among youth at school, led quite naturally to this study's research question:

Do high school students with locus of control profiles containing high external scores (powerful others, chance) and/or low internal scores predict overt aggressive behaviour among those students while at school?

Hypothesis

Because a predictive relationship between locus of control and overt aggression

is anticipated, the null hypothesis would state, therefore, that locus of control

does not predict aggressive behaviour in secondary school students.

 H_{o} : $\beta_{i} = \beta_{j}$ where l, j = 1, 2, or 3 and where $i \neq j$

 $H_1: \beta_i \neq \beta_j$

CHAPTER THREE: METHOD

Overview

The purpose of this study was to determine to what degree locus of control predicts overt aggressive behaviour among high school students while at school. Based on a review of the literature, it was expected that locus of control profiles with certain characteristics would likely be found to be more strongly related to overt aggression than other profiles. Specifically, a profile with higher externality and low internality - that is, high scores on the "powerful others" and/or "chance" scales and/or low scores on the "internal" scale on Levenson's I, P, and C Scales for locus of control – was thought to predict overt aggression more than would a profile with higher internality and lower externality. This expectation was based mainly on the frustration-aggression hypothesis and studies which support it. The frustration aggression hypothesis says that overt aggression is likely to occur in a person when that person feels that s/he lacks the power required to have an effect on the realization of an expected and desirable goal. Furthermore, if the frustrated person attributes this lack of power to the taking of that power by another person, the target for the aggression is likely to be that powerful other person.

In order to determine to what degree locus of control predicts overt aggression among high school students, a study was constructed where both locus of control and aggressive behaviour could be measured

separately, and then analysed together to see if there was any predictive relationship between the two variables.

Participants

The participants for this study were secondary school students from a grade 8 to 12 secondary school in British Columbia's central interior. All students taking Career and Personal Planning (CaPP) classes, a required course in British Columbia's provincial curriculum, were included. At the school where the study was done, students in Grades 8 to 11 were taking CaPP classes that included learning outcomes in their respective curriculae which could be satisfied by a study of locus of control. Grade 12 CaPP students were not included in this study as their CaPP curiculum was solely based on work experience and not personal exploration.

The Levenson I, P, and C Scales locus of control instrument (Levenson, 1981) was included as part of the CaPP curriculum at that school as a way of approaching the concept of individual differences in predicting the future and students' belief in their potential impact on their immediate surroundings. The results from the I, P, and C Scales were recorded by the school as a part of its annual data collection. Thus, each subject had completed the Levenson I, P, and C Scales before this study was begun.

In this study, informed consent of the participants was not obtained. It was not required, as the I, P, and C Scales were being used by the as a part of the CaPP curriculum for all students in grades 8 through 11. Instead, an application for the release of the I, P, and C Scales locus of control results was submitted after the tests were administered, as the data had already been collected by the school. The school principal, in consultation with the school's Parent Advisory Committee, granted the release of the data for the purpose of this study.

Similarly, as a normal part of the school's own data collection, aggressive acts committed by students were recorded for the purposes of discipline tracking at the school. The release of this intact body of data was also granted for the purposes of this study by the school's principal.

The fact that the Levenson I, P, and C Scales were used as a part of a required course for all students from Grade 8 through Grade 11 at the school meant that a large sample size was possible. The number of subjects to be included in the study were 616 -- 298 females and 318 males. Students' ages range from 13 to 18. There was no selective sampling; these numbers represented all of the students in the school from grade 8 through grade 11.

Locus of Control Instrument

As a member of the faculty at the school where this study was conducted, this author had a hand in the decision to use the Levenson I, P, and C Scales as the instrument we used to measure locus of control in the CaPP classes.

The I, P, and C Scales are in the form of a twenty-four item, 5-point Likert-type questionnaire. The three scales measured by the questionnaire are "internal," "powerful others," and "chance." There are eight items for each scale. "Internal" refers to the extent to which we feel that we control outcomes in our own lives. "Powerful others" refers to the extent to which we attribute outcomes in our lives to powerful other people or organizations. "Chance" refers to the extent to which we attribute outcomes in our lives to fate, luck or chance. Because most people attribute different outcomes in their lives to each of these sources of control to some extent, each person who answers the I, P, and C questionnaire will produce a three-part score. A number value for each of "internal," "powerful others" and "chance" is generated, usually revealing one dominant score. It is important to remember that a person's dominant score (e.g., "internal") does not imply any kind of label for any personality or psychological type. Rather, it is the combination of the three scores and the profile they depict that is meaningful.

The I, P, and C Scales were selected because of their threedimensional breakdown of locus of control, allowing for a richer and more detailed analysis of the results, and because it had been used successfully with other high school student populations (Levenson, 1981). According to a meta-analysis by Levenson, a North American high school student sample can expect a reliability of .64 for the "internal" scale, .77 for the "powerful others" scale, and .78 for the "chance" scale using the Kuder-Richardson

test for reliability yielded .64 for the I Scale, .77 for the P Scale, and .78 for the C Scale. Both convergent and discriminant methods have been used to demonstrate the validity of the I, P, and C Scales. In studies among high school and college students in the United States and among secondary students in New Zealand, Canada, Britain, and Australia. Levenson's Scales were confirmed as having acceptable internal consistency (Levenson, 1981).

A pilot of the I, P, and C Scales was conducted with eight randomly selected Grade 8 and 9 students. The reason for this was to determine whether or not the I, P, and C Scales contained vocabulary too difficult for students, especially those in the lower high school grades, to understand. All eight students completed the questionnaires completely and within the usual amount of time (i.e., 10 to 15 minutes). When interviewed individually, each student said that s/he understood all of the questions asked on the scale. Scores on the Scales were very close to the means found in other studies involving students of the same age group (Levenson, 1981). It was decided that the school would use the I, P, and C Scales.

Overt Aggression Instrument

Aggressive behaviour was recorded using the school's own discipline data collection and storage system, within the *Harts-Windsor School Administration* software system. The *Harts-Windsor* system allows school administrators and counsellors to record and track a large number of student data, including behaviour infractions and disciplinary actions. The infractions

are recorded by category, and the categories can be customized by the school. In this case, some categories were clearly linked with overt aggression. For example, "fighting" is one of the category titles used. Other category titles were not as clear and required further investigation. "Disruptive behaviour" is an example of such a category title.

Fortunately, a part of the *Harts-Windsor* discipline tracking section allows administrators and counsellors to enter very detailed information regarding student behaviour. This school made good use of this option, creating rich and precise descriptions of student behaviour infractions. Even in a category like "fighting," the exact actions that took place within that fight are important if one is to measure accurately the level of severity of an aggressive act. The vice-principal of the school, following each and every act that involved any kind of violence, debriefed both the perpetrator and the victim in order to paint a richer picture of what actually took place. This practice made it easier to convert the data from the *Harts-Windsor* system into Overt Aggression Scale (Yudorfsky et al. 1986) categories of severity.

Only three of the four categories within the Overt Aggression Scale (OAS) were used for the purposes of this study. These were "verbal aggression," "aggression toward objects," and "aggression toward others." The fourth category, "aggression toward self," was not a focus of this study, nor was it supported by data collected by the school. For these reasons, it was not used. Because of the way the OAS was designed, no problems result from using only three of the four categories of aggression.

Each category is discrete, with absolutely no overlap between any two categories. The severity progresses from no aggression (value = 0), to "verbal aggression" (value = 1 to 4), to "aggression toward objects" (value = 5 to 8), to "aggression toward others" (value = 9 to 12). The "aggression toward self" shares the value of the "aggression toward others" category (i.e., 9 to 12), as aggression toward another person is considered by Yudorfsky et al. (1986) to be as severe as aggression toward oneself. Thus, omitting the "aggression toward self" category does not create a gap in the scale values.

The numeric scores resulting from the OAS are linear, but ordinal rather than ratio. Because aggression was the dependent variable in this study, the fact that these data were not ratio does not pose a threat to interpretation when using a technique like multiple linear regression.

Design and Procedure

Phase 1: Administration of the I, P, and C Scales

The school at which the subjects were students chose to include the Levenson I, P, and C Scales as a part of their CaPP curriculum for all students from grade 8 to 11. The teachers of the CaPP classes first were instructed how to administer the instrument including room set-up, amount and type of teacher help allowed, instructions to students, time allotment, and classroom behaviour conditions required.

Next, the I, P, and C Scales were administered to students in regular classrooms in class groups ranging from 18 to 23 students each. All students completed the scales over a period of four days. No student took less than 8 minutes, and no student took longer than 18 minutes. Debriefing of the instrument was not conducted by the teachers with their classes until all students in the school had completed the scales.

Tests which were not completed were not included in the study, nor were tests which were completed incorrectly (i.e., where more than one response per item was given), but students were allowed to redo the scale within the four-day period if they had not done so correctly and completely the first time. There was a total of 9 students to whom the scale was readministered. There was a total of 11 tests which could not be used for this study, due to their having been filled-out incorrectly or incompletely.

Phase 2: Observation of Violent Behaviour at School

Violent behaviour was observed and recorded as a part of the school's established discipline tracking policy. Teachers, students, the principal, the vice-principal, school volunteers, and visitors to the school were all able to make reports of violence they may have witnessed while at the school. Included were all acts of violence committed on any part of the school property, including the buildings, playing fields, lawns, and parking lots, and only when off school property if at a school-sanctioned field trip or community event. All violent acts were recorded by the vice-principal, along

with all other undesirable behaviours, in a school administration software application called the *Harts-Windsor School Administration System*. Misbehaviour data were recorded within the Harts-Windsor system according to misbehaviour categories determined by the school.

Phase 3: Translation of Aggression Data

The data included in this study were those which were collected between Sept. 7, 1996 and June 27, 1997. All recorded student behaviours from that time period were printed as hard copy. Included were the detailed anecdotal notes that went with each violent behaviour record. Using the detailed information provided, all overt aggressive acts were segregated from all other types of misbehaviours. These data were then translated into categories as defined by the OAS. These four categories, "verbal aggression," "physical aggression against objects," "physical aggression against self," and "physical aggression against other people," each contain a four-point severity subscale. Descriptors for behaviour in each category and at each level of severity were highly detailed and allowed for simple categorisation of data collected by the school. Because violence committed by subjects against themselves was not a part of this study, nor was it a part of the school's data collection, no data were recorded in the category "physical aggression against self."

In order to ensure rater reliability in the task of translating the school's recorded misbehaviours into OAS terms, two other school administrators
from two different schools were given the raw data and asked to translate them into OAS categories. The original translation process for this study and the two independent translations had a very high level of agreement. That is, there was almost no difference in the way the behaviours were translated from rater to rater. Table 1 shows the inter-rater agreement in terms of percentages. Out of a total of 267 misbehaviours recorded, the thesis author and the first independent rater (i.e., Independent #1) translated 265 of them from the school descriptions into exactly the same OAS categories as one another. The two behaviours that were translated differently were both placed by both raters at the lower end of the verbal aggression subscale of the OAS, but one severity point apart. Specifically, Independent #1 Rater categorized the two behaviours as "makes loud noise, shouts angrily," while the thesis author rated them both as "yells mild personal insults." The effect of this very minor difference in rating (i.e., only a .7% difference) is insignificant.

Table 1

Inter-rater reliability in translating school misbehaviour

data in	to Over	t Aggres	sion Sca	ale cate	gories
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	Thesis author	Independent #1	Independent #2
Thesis author	100%	99.3%	100%
Independent #1		100%	99.3%
Independent #2			100%

Between the author rater and the Independent #2 Rater, there was absolutely no difference in translation from the school descriptions to the OAS categories. The results supported the use of the OAS as the measure of aggressive behaviour largely because of the ease with which one could translate information into the OAS's categories of aggression.

Coding

Students used their five-digit student numbers and their names, on the I, P, an C Scales to identify themselves. After all of the participants had completed the quesionnaire, the scores were calculated for each participant individually. The scores were then recorded, in a list format, using only the five-digit student numbers and either "m" or "f" to identify each subject by gender.

Next, toward the end of the school year, the aggressive behaviour data from the school administration system were retrieved. Recorded misbehaviours were listed beside the names and student numbers of the students responsible for the misbehaviours. The names were removed immediately, leaving only the students' grade levels and the five-digit student numbers. These numbers were the same as the student numbers used on the I, P, and C Scales.

Once aggressive misbehaviours were identified and separated from the other types of misbehaviours, they were translated into categories as defined

in the Overt Aggression Scale (OAS). The four fields, "gender," "grade," "student number" and "aggressive act" were collated onto a single spreadsheet. It is important to note that out of the 616 students who completed the I, P, and C Scales, 504 of them were not recorded as having been involved in any aggressive activity during that school year. Then, three more fields were added: the three scores from each of the I, P, and C Scales. Those fields were titled "internal," "powerful others" and "chance."

Finally, because these student numbers were known by the subjects themselves and could easily be linked to the respective students, a new alphanumeric coding system replaced the student numbers. The new coding system used three-digit numbers for students who had committed acts of overt aggression over the course of the school year and four-digit numbers for students who had not. This was done to make them easy to identify as either violent or non-violent without having to look at the data attached to each subject. Either the letter "m" or the letter "f" was attached as a suffix to each new code number as a means of identifying the gender of each subject, allowing for the removal of the "gender" field. The new code numbers also indicated the grade levels of each of the students. The new code numbers were used to replace the old student numbers, in order to make it impossible to link the study data to the subjects, once information in its original form was destroyed. All electronic and paper versions of the original data were stored in a secure (i.e., double locked) storage box, and then were destroyed after all of the data analyses were complete.

Data Analysis

In order to determine the relationship between locus of control, as measured by the I, P, and C Scales, and overt aggression, as measured by the OAS, the variables needed to be represented in a way that would allow for the most accurate analysis. After considering the advantages and disadvantages of looking at the aggression variable as either discrete or continuous, it was decided that it was a better continuous variable. This was decided mainly because the Overt Aggression Scale itself organizes aggressive behaviour into one of twelve severity levels, making it natural to see it as continuous.

Since the research question is asking about the relationship between overt aggression as a single entity and locus of control as a profile, aggression needed to be examined in a way that would not suggest that each category of the OAS was unrelated to all of the other categories. It was not the intention of this study to see what specific types of aggression were predicted by certain locus of control profiles, but rather to look at aggression as a whole behaviour type.

In addition, because some aggressive acts, as defined by the OAS, were committed only a small number of times (i.e., less than 3) by the population studied, it would have been misleading to report results based on each aggression category individually, as the sample size would just be too small within each category. There would be no possibility for generalizability. As a single dependent variable, however, aggression could confidently be examined in relation to locus of control profiles, as the total number of aggressive acts, without regard to category (except as an indication of severity), is a large enough number about which one could make generalizations.

Statistical Analysis

Because aggression was seen as a single continuous dependent variable and locus of control was seen as a composite of three, discrete independent variables (i.e., "internal," "powerful others," and "chance"), multiple linear regression was chosen as the statistical test which would best show the degree of relationship between the variables in the way that the research question suggests.

The assumptions required by a multiple linear regression were examined. An analysis of the normality of the population was carried out using a Q-Q plot of the residuals after the regression had been performed. An attempt to increase the normality was carried out by transforming (log 10 and inverse transformations) the independent variables. The best fit to normality was achieved, however, by leaving the variables in their original, untransformed state.

As well, part and partial correlations were examined to see what part of the variance in the dependent variable was a product of each of the three independent variables, without the influence of either of the other two. Multicollinearity was analysed by including VIF (variance inflation factor) numbers and tolerance figures in the overall statistical analysis.

CHAPTER FOUR: RESULTS

Descriptive statistics, as depicted in Table 2, revealed a larger mean for the "internal" variable than for either of the other two locus of control variables, "powerful others," or "chance." This was expected, based on Levenson (1981) who pointed out that, for students of high school and college age in western countries, internality is generally stronger than either of the external loci. The means of each variable were, in fact, consistent with those in other studies using the I, P, and C Scales with student populations (Levenson, 1981).

Table 2

Variables	М	SD	N	Possible Range
Aggression	2.52	3.97	773	0-12
Internal	30.47	8.02	773	0-48
Powerful Others	22.07	8.42	773	0-48
Chance	23.23	7.86	773	0-48

I, P, and C Locus of Control Scores and Aggression for all Subjects

Correlations among the three independent and one dependent variable are shown in Table 3. As expected, "Internal" correlated negatively with severity of aggression, while both external locus of control variables, "powerful others," and "chance" correlated positively. Also as expected, "internal" correlated negatively with the two external locus of control variables "powerful others" and "chance."

Table 3

Pearson Correlations Among "Internal," "Powerful Others," and "Chance" and Severity of Overt Aggression

	Aggression	Internal	Powerful Others	Chance
Aggression	1.00	513	.499	.563
Internal		1.00	326	418
Powerful Others			1.00	.555
Chance				1.00

A multiple linear regression was performed with "overt aggression" as the dependent variable and "internal," "powerful others," and "chance" as the independent variables. The analysis was performed using SPSS Regression (SPSS 7.5, 1996).

The initial results of the regression showed a positively skewed distribution histogram, as seen in Figure 1. As recommended by Tabachnick and Fidell (1989), a transformation of the variables was performed. First, a logarithmic transformation was undertaken. It produced an even more positively skewed result than did the original, untransformed regression. Log10 and inverse transformations were performed next, in that order, with each transformation also creating more skew than the original,

untransformed regression. Since each of the transformations led to greater skew, rather than an improved normality, the original regression analysis was used. Normality, as it is an integral assumption of linear regression, was also examined through a Q-Q plot of residuals

Dependent Variable: Aggression



Figure 1.

Histogram showing distribution of linear regression standardized residual with overt aggression as the dependent variable.

As depicted in Figure 2. In a Q-Q plot, if the residuals are from a normal population, they should fall close to the regression line. That is, in fact, the case with this plot. Because linearity is not a problem with the dependent variable in this study, the fact that this plot appears normal means that the

assumptions of a multiple linear regression have inflation, were also accounted for and are presented later in this chapter.

Table 4 shows the results of the multiple linear regression. Together, the locus of control variables, "internal," "powerful others," and "chance," accounted for 44.4% of the variance using the Overt Aggression Scale (OAS) as a measure of severity of aggressive acts committed. The variables "internal," "powerful others," and "chance" predicted severity of overt aggressive acts 44.6% of the time ± 1 SD = 68% if normal, within 3 points on the 12-point OAS, as the Standard Error of Estimate value is 2.963.

Table 4

Variable	В	SE B	β
Internal	154	.015	311
Powerful Others	.108	.015	.228
Chance	.155	.017	.307

Total variance accounted for: $R^2 = .446$, adjusted $R^2 = .444$ (p < .05)

Following Cohen (1992), the formula

$$f^{2} = \frac{R^{2}}{1 - R^{2}}$$

was used to calculate effect size for the multiple regression. The result is an



effect size of .24. This indicates a medium to large Effect Size, where .15 is considered medium and .35 is considered large. Medium effect size, according to Cohen, represents an effect that a careful observer could see with the naked eye. Large effect size represents an effect that is noticeably larger than medium.

When split by gender, the regression yields similar results, with some notable exceptions. First of all, the mean overt aggression values differ between males and females. For male subjects, the mean aggression was 3.39 on the 12-point Overt Aggression Scale. For females, it was 1.23, indicating less of a representation in reported aggressive acts on the part of female students. Indeed, this was not a surprise. Before any analysis was



Figure 3. Frequency distribution of reported acts of aggression by Overt Aggression Scale category and by gender.

undertaken, it was not difficult to see from the raw data that males accounted for most of the reported acts of aggression, both in terms of total number of acts reported and in severity of acts committed. Figure 3 shows the frequency of each type of aggression committed, by gender. The omission of "Verbal 1," "Object 1," and "Object 2" is intentional, as there were no reports of aggression in those categories.

The adjusted R^2 values, showing the degree to which variance in aggression was predicted by locus of control, were .460 for males (n = 318) and .355 for females (n = 298), when the population is split by gender. The Standard Error of Estimate for each gender was 3.143 and 2.452 respectively. Though this study was not looking at males and females separately, the differences in mean aggression and total numbers of aggressive acts committed, as well as the difference in predicted variance by the locus of control variables, seemed worth reporting, as the two analyses support each other.

Because the two variables "powerful others and "chance" are both measures of external locus of control, a check for multicollinearity was also performed. This was done in order to see if the two external scales were too highly correlated for a successful inversion of the matrix of correlations among the independent variables, which is the basis for the calculation of regression coefficients (Tabachnik & Fidell, 1989). As can be seen in the collinearirty statistics, included in Table 5, the variance inflation factor (VIF) numbers are quite small (i.e. only slightly higher than 1) for each of the variables, indicating that there is not a problem with multicollinearity among the independent variables. Furthermore, when the tolerance figures, also included in Table 5, are examined, it is clear that all of these numbers are nowhere close to zero. This indicates further that any concerns over potential multicollinearity among variables are alleviated.

Table 5

Partial Correlation and Collinearity Statistics Among Independent Variables

-	Partial Correlations	Tolerance	VIF ^a
Internal	352	.812	1.231
Poweful Others	.245	.681	1.468
Chance	.311	.629	1.590
a)/arianaa Inflation	Fastar		

*Variance Inflation Factor

This is consistent with previous findings by Levenson (1981) when using the I, P, and C Scales as independent variables, which explain that multicollinearity is not an issue with the Scales. In fact, it was the lack of collinearity which contributed to Levenson et al. concluding that the division of Rotter's original "external" locus of control into two parts -- "powerful others" and "chance" was feasible.

As is evident in Table 5, the multiple linear regression was also analysed with regard to part and partial correlation figures. Partial correlation, the more important of the two in this case, shows to what degree each independent variable affected the dependent variable without the inclusion of the other two independent variables. "Chance" and "powerful others" each have their own effect on overt aggression when analysed for partial correlation. "Internal" was negatively correlated with overt aggression when analysed in a partial correlation. This indicates that the higher the "internal" independent variable, the lower the aggression variable, when analysed for partial correlation.

This finding is certainly supported by the literature regarding locus of control, attribution theory, the psychological roots of aggressive behaviour in youth, and the relationship among all three (e.g., Neufeld, 1998; Artz, 1998; Worchel, et al., 1978)

CHAPTER 5: DISCUSSION

Summary of Findings

The purpose of this study was to determine two things: whether or not there was a relationship between locus of control and aggressive behaviour in adolescents while at school, and to what extent locus of control predicted aggression. Toward these ends, the study began by determining the locus of control scores for a population sample, and then monitoring overt aggression on the part of that same sample over a period of time. The relationship between locus of control and overt aggression could then be examined.

Based on the findings that locus of control scores predicted almost half of the overt aggressive behaviour committed by the sample population, the null hypothesis – that locus of control does not predict overt aggression in secondary school students – was rejected.

Because aggression was viewed as a single, dependent variable and locus of control as three, independent variables, multiple linear regression was used as a means of determining the relationship between locus of control and aggression. It was found that locus of control predicted variance in overt aggressive behaviour 44.4% of the time and within less than 3 points on the 12-point Overt Aggression Scale. All three elements of the locus of control profile (i.e., "internal," "powerful others" and "chance") combined to contribute to the prediction of overt aggressive behaviour. Lower than average "internal" scores, combined with higher than average "powerful others" and/or "chance" scores, predicted a higher chance of students committing overt acts of aggression, and with greater severity when it was committed. Average and higher than average "internal" scores, combined with average or lower than average "powerful others" and "chance" scores, predicted a lesser chance of committing an overt act of aggression, and a lower severity of aggression when it was committed.

Explanation of Findings

The data used met the tests for normality and for linearity, two important assumptions of linear regression. Because the sample size was fairly large, it was possible to state the findings in a generalized way. When subjects were broken down by gender, the tests still held, as did the results of the regression, suggesting that, for both male and female subjects, locus of control predicted overt aggression.

Convergence with Related Literature

The relationship between locus of control and overt aggression found in this study was not a surprise. In fact, there was much literature on which

this hypothesis was based which suggested such a relationship. Some studies, such as those evaluating the Frustration-Aggression Hypothesis, suggested that there is, in fact, a relationship between the level of personal control we feel over outcomes in our lives and aggression. Specifically, the less control we feel we have, the more likely we are to be aggressive.

When seen in the light of attributional theories, that aggression takes on a more specific purpose. Whereas the Frustration-Aggression Hypothesis sees aggression as a sort of "last resort" for people who have no other means of establishing control over a given situation, Attribution theories tell us that the resulting aggression is not merely an indication of frustration, but is actually a calculated means for restoring power. If that power is seen to have been taken by a particular person, either directly or symbolically, that person is more likely to become the target of the aggression.

More generally, a number of studies included in the literature review of this paper had correlated external locus of control with a variety of antisocial behaviours, including overt aggression. Gordon Neufeld (1998), in his theory on the roots of aggression among youth, found that external locus of control, combined with a growing peer-orientation on the part of youth, created a breeding ground for aggressive behaviour. Similarly, among prison inmates (Bayse & Allgood, 1992), abusive husbands (Prince & Arias, 1994), and chronically violent youth (Yates, et al., 1994), an external locus of control is more prevalent than is an internal one.

Limitations of Findings

There were a number of issues which may limit the findings of this study. They had to do with the test used to measure locus of control, the reporting of overt aggressive acts at the school where the study was conducted, the way locus of control was used in the study, and the aggression variable being viewed as a single variable.

Testing for Locus of Control

The Levenson I, P, and C Scales were used to measure the locus of control of each of the students at the secondary school where this study took place. While the test itself has demonstrated strong validity and reliability, the way the test was administered during this study may not have been as consistent as it might have been. The classroom teachers who administered the scales were trained together. They were instructed as to the time allowed, the test conditions required, and the level of assistance which they were allowed to offer students. In the training session, these conditions were all made very clear and seemed to be understood by the teachers.

In the actual administration of the scales to the students, though, there were undoubtedly some who strayed from best practice. Conditions from classroom to classroom vary in all situations, including during testwriting. There is no assurance, for example, that absolute silence and absolutely no sharing of answers among students occurred. Though this was included in the training, different teachers have different expectations of their students. Some would allow no communication whatsoever among students during the writing of the tests and would notice any transgressions, while other teachers would tolerate a limited amount of communication, making a personal judgement as to whether or not it had affected the integrity of the test results.

Similarly, though teachers were not to assist students in any way which might lead the students toward one answer or another, it is very difficult to answer questions about vocabulary without using at least slightly charged language to describe the meanings of unfamiliar words. Any definitions of words given by teachers to students which might have seemed at all value-laden to the students could have changed the way they saw that particular question on the scales.

Furthermore, some students, when faced with a task that was not directly impacting their course mark and which was maybe not seen as terribly interesting to some, may have chosen to take a less-than-serious approach to answering the test questions. Quick, random selections on a Likert-type test would not be identifiable after the fact. Again, there was a reliance on the vigilance of the teachers supervising the test-writing, and that likely varied somewhat from classroom to classroom.

Reporting of Overt Aggression

While the Overt Aggression Scale (OAS) itself left little room for error, some

error may have occurred before arriving at the categorization stage. In this study aggressive behaviour was reported in the usual way that the school had already been reporting, and was then translated in to OAS categories later. This categorization was quite simple, as the OAS has neatly defined and very discrete categories within it. To ensure accuracy of translation by the author of this thesis, two independent raters were asked to also translate the reported aggressive acts into OAS categories. Thus, inter-rater reliability was examined and any corrective measures required could take place before further analysis.

Before this stage, however, there was room for a different kind of inter-rater reliability error. Namely, not everyone reported all aggressive acts in the same way. Reports of overt aggression were made by teachers and administrators over the course of the school year, and were recorded in the school's computer administration system. While there were some definitions of what constituted aggression made available to school staff, each person interprets severity differently and reports details selectively. The result is that not all acts of overt aggression were even reported, and the ones that were may not have been reported consistently. The level of aggressive behaviour is intolerable to one teacher, for example, may be quite tolerable to another. Furthermore, some aggressive acts were witnessed only by the students involved, and these were not necessarily reported.

In addition to the above concerns, several of the OAS categories, because of their lack of severity, remained under-reported. For example, no

reports of "slams door, scatters clothing, makes a mess," the lowest level of aggression in the "Physical Aggression Against Objects" category were received by the school's vice-principal over the course of this study. This is likely because it is not the kind of thing that a teacher would report, due to its lack of severity. If students making a mess, for example, became a reportable offense, the school would likely not be able to handle the huge number of reports it would undoubtedly receive. For these reasons, certain less-severe categories of the OAS were under-reported.

This did not affect the outcome of this study, in that the underreported categories do not significantly impact the overall direction or severity of the correlation with locus of control.

The Use of Locus of Control

A further area of concern which may have limited this study is the general use of locus of control. That is, locus of control was used in this study in a fairly generic way. Rather than linking locus of control to a specific context, like health or academic progress or athletic ability, it was limited only by the fact that it was measured at school. Though the I, P, and C Scales themselves do not require that locus of control be examined contextually, as recommended by Rotter, the originator of the locus of control construct. The caution is intended to stop people from seeing locus of control as a typology -- an unchangeable personality type -- and to help them see it as a more fluid psychological attitude. One's perceived locus of

control in one environment could be totally different from one's perceived locus of control in another environment.

Because school is a kind of environment, there is some parameter put on locus of control. School, however, is made up of a number of varying environments, each one potentially affecting students' locus of control differently.

Aggression as a Single Variable

Though aggression is a word with a single definition, there is such a range within

that definition that it is difficult to see aggression as a single variable. In this study, aggression was measured as a single variable, but with different levels of severity. Despite that scale of severity, it was difficult to view slamming a door and cutting someone with a knife as part of the same variable. It may be useful for a future researcher to take one particular type of overt aggression, or to narrow the range considerably, and see how that more specific type of aggression is related to locus of control. Because it is the more extreme violence that seems to concern people the most, it would seem reasonable to focus on that end of the aggression severity scale.

Sample Population

As with any school's student body, the students who participated in this study were not necessarily representative of all students in North America, in Canada, or even in British Columbia. The British Columbia interior town of Quesnel, in which the school is situated, is a mainly rural, resource-based community with a medium to low socioeconomic status. The school is located in the most urban part of the town and services approximately half of the high-school age students in Quesnel. Because it was a grade 8 to 12 school, students maturity levels were widely varied. The student body was fairly cohesive in that there were few cliques and there was much inter-grade social interaction. The number of fights which occurred in that school year was approximately average for a rural high school of its size.

Implications of Findings

Theoretical Implications

The findings of this study are explained and supported by studies in related areas. Most closely related is Gordon Neufeld's (1998) theory that argued essentially that frustration and a peer-oriented society, in which much of today's youth lives, co-exist in ways that promote aggressive reactions to situations in which children find themselves powerless.

Other studies based on the Frustration-Aggression Hypothesis (e.g., Berkowitz, 1989; Zillman, 1978), as Neufeld's is, would also support the findings of this study. Namely, when a desired and expected goal cannot be obtained, frustration sets in and aggression is a likely result. In this study, frustration would have been predicted by the subjects' individual locus of control scores. Students who scored higher on the externality scales than

on the internality scale would feel generally less in control in a given situation, leading to a greater chance of frustration, and then to a greater chance of behaving aggressively.

When the various studies based on attribution theory, cited in this paper, are considered, it seems likely that they, too, would support the findings of this study. Specifically, where a person or an organization is seen as having taken power or control from an individual, that individual may resort to overt aggression in order to restore that power. The target of the aggression would be the person or organization seen as having taken the power, or as symbolizing the person or organization who is seen as having taken the power. This is not only compatible with the findings of this study, but adds to the potential future research directions in terms of specific types of aggression.

Research Implications

Certain elements of this study could inform future research in the area. Looking at a narrower band of aggression, for example, might be more informative than looking at the entire spectrum of violence measured by the Overt Aggression Scale. A more consistent reporting procedure might increase the reliability of those who report aggressive behaviour, in this case, the teachers. Another measure which could increase consistency is if the locus of control tests were administered by a smaller number of people than were used in this study.

In terms of both validity and richness, an element which would add a great deal to this study would be the inclusion of a qualitative component. For instance, after all the data were collected, the students who committed acts of aggression could be interviewed. The subjects' own perceptions as to the reasons for their violent acts would enhance the validity of the study, while at the same time would add a more human element.

Applied Implications

The construction of this study was fairly simple. For that reason, it may not have many methodological implications. Perhaps the greatest implications of

this study, though, are for the application of its findings in the field of education.

If there is as strong a relationship between locus of control and overt aggression as the findings of this study seems to suggest, two parts of education practice should change. One part would be curricular, and the other part would be operational.

Curriculum, as it relates to the personal and social development of the student, would need to add a component related to locus of control. Understanding one's own locus of control might help students understand their own feelings of confidence in some situations, and of powerlessness and frustration in others. Knowing that everybody has a little bit of all three locus of control attributions in them (i.e. "internal," "powerful others," and "chance") would also help to show children that they are not so dissimilar from their classmates, cultivating a feeling of belonging among them. The other part of curriculum would be less contemplative and more instructional. Specifically, if higher levels of externality is related to higher rates and severity levels of overt aggression, would it not make sense to help students gain a better sense of their own internal control? This would include instruction which could help students deal effectively with situations in which they do not normally feel in control, and which could teach coping strategies for students to use in situations where they do feel powerless.

Operationally, the way we deal with student conduct and discipline in schools would change. Rather than punishing or exacting consequences for students who behave violently -- practices which only increase their feelings of powerlessness and the resulting frustration, perpetuating the aggressive behaviour -- we would instead help students find other, more constructive ways of dealing with frustration. Currently, there are a number of programs which do focus on teaching acceptable behaviour rather than punishing for undesirable behaviour. One such program, Effective Behaviour Support, not only focuses on teaching acceptable behaviours, but it also stresses consistency among teachers, thus reducing the feeling of arbitrariness felt by many students when it comes to power exerted by teachers over students. Peer mediation, as an alternative to punishment for aggressive behaviour, is another program which empowers the involved parties by the very nature of

the process of mediation. In addition, it helps to teach students alternatives to aggression for dealing with frustration. Programs like these, as well as any others which help students feel that they have power and which help students behave non-violently in environments where they may not have control, would become key to dealing with aggression in our schools.

School counsellors might use these findings as well. For instance, if a counsellor were helping someone deal with violence, as a perpetrator, a victim, or both, using the framework of control and frustration caused by the lack of it as a means of understanding past behaviour could be very helpful. Often victims feels that they have been robbed of control, and that in turn could lead to their own violent behaviour. Perhaps if a counsellor could explain to a victim that the violence is more about the perpetrator's own problems rather than the victim's, it may help him/her to keep a sense of internal control intact, rather than over-attributing control to "chance." Because school counsellor also deal with teachers' concerns as well as students', helping teachers deal with violent behaviour using approaches which will address frustration in a way that does not add to it, perhaps escalating the behaviour.

Future Directions

In addition to those suggestions for future applications of the findings of this study, there are a number of other recommendations. They range from the

theoretical to the practical and, in some cases, bridge the two.

If external locus of control and overt aggression are as strongly related as was found in this study, then helping people move from a generally external locus to a generally internal one would be valuable. As was already mentioned in the previous section of this chapter, schools could benefit from any program or curriculum that helps students either change their locus of control to become more internal or to better cope with frustration potentially caused by an external locus of control.

For extremely violent youth, a more concentrated program focused on moving subjects from externality to internality could be developed to benefit the youth themselves, and the people whom they affect with their aggressive behaviour. Aside from youth, prisons could benefit from a similar program for adults and measure its effect on recidivism rates among violent offenders. If a program like this were developed, a study to measure its effectiveness in dealing with aggressive behaviour would logically follow.

More simply, future directions from this study might be to replicate the study for similar populations in other high schools, for younger age groups in middle and elementary schools, and for adult populations which can be monitored easily over a long enough period of time. The addition of qualitative elements to this entirely quantitative study might add richness and more detail to the results. Absent from this study was examination of self-harm and locus of control. It would seem likely, based on the literature and on the findings of this study, that a similar relationship would be revealed.

It seems to follow naturally, also, that locus of control of known violent populations should be compared with known non-violent populations to see whether or not locus of control is predicted by overt aggression scores the same way that a certain amount of aggression has been predicted by locus of control in this study. This would help to examine the strength of the relationship between the two variables.

As was mentioned earlier, it would be interesting to look at only a specific kind of aggression, say "physical aggression toward other people, " for example, and how it is related to locus of control. Because it is personal violence which concerns people most, it seems appropriate to study it in isolation. Along the same lines, it would also be useful to see if there is a relationship between different configurations of external locus of control and different kinds of aggression.

It cannot be over-emphasized that the implications of the relationship between locus of control and overt aggression are complex. It is important for anyone who wishes to analyse the relationship through another study or who wishes to develop a program to attempt to shift locus of control from external to internal to have a full understanding of the theories involved. An in-depth understanding of the kind of population which was the subject of this study and of both the locus of control construct and the roots of overt aggression will improve theory, research, and practice in this field.

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Appendix A

Overt Aggression Scale (OAS)

Overt Aggression Scale

Name of subject:		Name of Rater:		
Sex of Subject: M F		Date:	Shift:	
No aggressive incident(s) a	against self, others	, or objects during the	e shift	
A	GGRESSIVE BEHA	/IOUR (check all that a	apply)	
Verbal Aggression		Physical Aggression Against Self		
 makes loud noise, shouts angrily [1] _yells mild personal insults [2] _curses viciously, uses foul language in anger, makes moderate threats to self or others [3] makes clear threats of violence toward others or self, or requests to help control self [4] 		 picks or scratches skin, hits self, pulls hair (no injury) [9] bangs head, hits fist into objects, throws self on floor or into objects (without serious injury) [10] small cuts, bruises, minor burns [11] mutilates self, causes deep cuts, bites that bleed, interna injury, fracture, loss of consciousness [12] 		
Physical Aggression Agains	st Objects	Physical Aggressic	on Against Other People	
 slams door, scatters clothing, makes a mess [5] throws objects down, kicks furniture, marks wall or furniture [6] breaks object/furniture, smashes window [7] sets fire, throws objects dangerously [8] 		 makes threatening gesture, swings at people, grabs at clothes [9] strikes, kicks, pushes, pulls hair (without injury) [10] attacks others causing mild to moderate injury [11] attacks others, causing severe injury (broken bones, deep lacerations, internal injury) [12] 		
	INTERVENTION	N (check all that apply)	
none	immediat	e oral medication	use of restraints	
talking to subject	immediat	e medication (injection	n) injury requires	

- ____ isolation without seclusion
- ____ injury requires medical treatment
- ____ injury requires medical treatment for other person

__ closer observation
__ holding subject

____ seclusion

COMMENTS

Appendix B

I, P, and C Scales
Test Instructions

- 1. Please fill in your name, student number, grade, and gender on the first page inside this booklet. All information will remain confidential.
- 2. Use either a pen or a pencil. Please mark your answers clearly. If you need to make a correction, please make your desired response known as clearly as possible.
- 3. This test is personal; that is, you MUST do the test on your own, without conversation with classmates. You may ask for clarification from your teacher if any question on the test is confusing to you. Do not ask for help unless you are really unsure.
- 4. There are no right or wrong answers on this test. Just be as honest as possible.
- 5. When you are finished the test, please hand it in quietly to your teacher.

THANK YOU for your co-operation!

Test Instructions

- 1. Please fill in your name, student number, grade, and gender on the first page inside this booklet. All information will remain confidential.
- 2. Use either a pen or a pencil. Please mark your answers clearly. If you need to make a correction, please make your desired response known as clearly as possible.
- 3. This test is personal; that is, you MUST do the test on your own, without conversation with classmates. You may ask for clarification from your teacher if any question on the test is confusing to you. Do not ask for help unless you are really unsure.
- 4. There are no right or wrong answers on this test. Just be as honest as possible.
- 5. When you are finished the test, please hand it in quietly to your teacher.

THANK YOU for your co-operation!

Name:	Student #:
Grade:	Gender (M/F):

Please respond to the following statements by circling the number below each which corresponds to how you feel about that statement. Your answers will be kept confidential. You may use either a pen or a pencil.

1. Whether or not I get to be a leader depends mostly on my ability.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

2. To a great extent my life is controlled by accidental happenings.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

3. I feel like what happens in my life is mostly determined by powerful people.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

4. Whether or not I get into a car accident will depend mostly on how good a driver I am.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

5.

When I make plans, I am almost certain to make them work.

-3	-2	-1	1 .	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

Name:		Student #:
Grade:	7	Gender (M/F):

Please respond to the following statements by circling the number below each which corresponds to how you feel about that statement. Your answers will be kept confidential. You may use either a pen or a pencil.

1. Whether or not I get to be a leader depends mostly on my ability.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

2.

To a great extent my life is controlled by accidental happenings.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

3. I feel like what happens in my life is mostly determined by powerful people.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

 Whether or not I get into a car accident will depend mostly on how good a driver I am.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGHEE

5.

When I make plans, I am almost certain to make them work.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

6. Often there is no chance of protecting my personal interests from bad luck happenings.

I.P. and C Scales

-3 -2 2 3 1 -1 STRONGLY STRONGLY DISAGREE AGREE SLIGHTLY SLIGHTLY DISAGREE AGREE DISAGREE AGREE

7.

When I get what I want, it's usually because I'm lucky.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY	AGREE	AGREE

8. Although I might have good ability, I will not be given leadership onsibility without appealing to those in power.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

9. How many friends I have depends on how nice a person I am.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

10. I have often found that what is going to happen will happen.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY	AGREE	AGREE

11. My life is chiefly controlled by powerful others.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGHEE		Adure

6.

Often there is no chance of protecting my personal interests from bad luck happenings.

-3 -2 2 3 1 -1 STRONGLY STRONGLY DISAGREE AGREE SLIGHTLY SLIGHTLY DISAGREE AGREE AGREE DISAGREE

7.

When I get what I want, it's usually because I'm lucky.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGHEL

8. Although I might have good ability, I will not be given leadership onsibility without appealing to those in power.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGHEL

9. How many friends I have depends on how nice a person I am.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

10. I have often found that what is going to happen will happen.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY	AGREE	STRONGLY

11. My life is chiefly controlled by powerful others.

-3	-2	-1	1	2	3
STRONGLY DISAGREE	DISAGREE	SLIGHTLY	AGREE	AGREE	AGREE

68

12. Whether or not I ever get into a car accident will be mostly a matter of luck.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGHEE	AGHEE		AGREE

13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.

-3	-2	-1	1	2	3
STRONGLY DISAGREE	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	AGREE

14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

-3	-2	-1	1	2	3
STRONGLY	DISACREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGHEE		AGREE

15. Getting what I want requires pleasing those people above me.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY

16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

17. If important people were to decide they didn't like me, I probably wouldn't make many friends.

-3	-2	-1	1	2	3
STRONGLY DISAGREE	DISAGREE	SLIGHTLY	SLIGHTLY AGREE	AGREE	STRONGLY

12. Whether or not I ever get into a car accident will be mostly a matter of luck.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

-3	-2	-1	1	2	3
STRONGLY	DISACREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

15. Getting what I want requires pleasing those people above me.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

17. If important people were to decide they didn't like me, I probably wouldn't make many friends.

-3	-2	-1	1	2	3
STRONGLY DISAGREE	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY

18. I can pretty much determine what will happen in my life.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

19. I am usually able to protect my personal interests.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

20. Whether or not I ever get into a car accident will depend mostly on the other driver.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

21. When I get what I want, it's usually because I worked hard for it.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGHEE

22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.

•		3
SLIGHTLY	AGREE	STRONGLY
	SLIGHTLY	SLIGHTLY AGREE

23. My life is determined by my own actions.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		Aduet

70

18. I can pretty much determine what will happen in my life.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

19. I am usually able to protect my personal interests.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

20. Whether or not I ever get into a car accident will depend mostly on the other driver.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

21. When I get what I want, it's usually because I worked hard for it.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY

22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

23. My life is determined by my own actions.

-3	-2	-1	1	2	3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY

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24. It's chiefly a matter of fate whether or not I have a few friends or many friends.

-3	-2	-1	1	2	- 3
STRONGLY	DISAGREE	SLIGHTLY	SLIGHTLY	AGREE	STRONGLY
DISAGREE		DISAGREE	AGREE		AGREE

END OF TEST