Using the Implicit Relational Assessment Procedure (IRAP) to explore implicit versus self-report attitudes toward bullying with students at post-primary and university levels.

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Table of Contents

Acknowledgements

Abstract

The current research sought to develop the Implicit Relational Assessment Procedure (IRAP) as a measure of bullying attitudes amongst Secondary School and University Students in South East Ireland. The research assessed whether IRAP performance differed between University and Secondary School Students; and investigated the impact of picture versus word stimuli on IRAP performance. It also examined whether an educational intervention video affected participant responding on implicit measures by presenting the IRAP at pre and post-intervention. Explicit measures were presented at pre-intervention only and compared across studies. Implicit measures were presented at pre and post-intervention and compared across groups, gender, and IRAP stimuli (words versus pictures). In Study 1, 30 University Students and 30 Secondary School Students were exposed to (i) a word-based IRAP designed to assess attitudes towards toxic (e.g. Just go die/Rot in hell) and innocuous phrases (Go on ya fool/Don't be daft) pertaining to bullying; (ii) explicit measures including the Bullying Prevalence Questionnaire (BPQ), the Revised Pro-Victim Scale (RPV-S), the Bullying Attitudes Questionnaire Modified (BAQ-MM) and the Cyberbullying Survey (CS) and (iii) an educational intervention video about the negative and lasting effects of bullying. IRAP trial-type analysis for Study 1 revealed statistically significant effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types. Results revealed no statistically significant differences between data for groups, gender, or between pre and post-intervention responses on the IRAP. Using Pearson's product-moment correlation coefficient, statistically significant correlations were found between the Pro-Social subscale of the BPQ and *Toxic-Harmless* and *Innocuous-Abusive* IRAP trial types. In Study 2, 30 University Students were exposed to a picture-based IRAP with images pertaining to cyberbullying and the same intervention and explicit measures as in Study 1. Again, participants were exposed to the explicit measures at pre-intervention, and to the IRAP at pre and post-intervention. Trial-type analysis for Study 2

revealed statistically significant effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types. Results revealed no statistically significant differences between participants' pre and post-intervention scores on the IRAP or explicit measures; and no correlations between implicit and explicit measures. Further analysis using a 2x2x4 mixed repeated measures ANOVA found no statistically significant differences between University Students' responses on a word-based IRAP in Study 1 versus a picture-based IRAP in Study 2. Overall, participant responding on the IRAP showed a statistically significant effect for the *Toxic-Abusive* and *Innocuous-Harmless* trial-types. Findings are discussed with reference to the research literature.

CHAPTER 1

GENERAL INTRODUCTION

Using the Implicit Relational Assessment Procedure (IRAP) to explore implicit versus self-report attitudes toward bullying with students at post-primary and university levels.

The first chapter of this thesis aims to provide a comprehensive overview of the relevant literature which has informed this current research programme, and sets out the rationale for conducting this research. The chapter will fundamentally explore the field of attitude research, along with the emergence of implicit assessment methodologies such as the Implicit Association Test (IAT). The IAT, focusing predominantly on associations rather than relations, presented some limitations which will be discussed in greater detail, along with the subsequent development of Relational Frame Theory (RFT) and its relevance to attitude/bias formation. It will then evaluate the development of more nuanced behavioural measures such as the Relational Elaboration and Coherence (REC) Model and the Implicit Relational Assessment Procedure (IRAP: Barnes-Holmes, Barnes-Holmes, Power, Hayden, Milne, & Stewart, 2006). The current chapter will also engage in a review of bullying and cyberbullying literature in order to evaluate the need for further exploration of implicit attitude research on bullying. The importance of intervention procedures when exploring implicit attitudes will also be examined, as well as its influence on bullying, and the power of dual-process models in attitude research. The principal goal of the current thesis is to develop the IRAP as a tool for assessing bullying attitudes.

The definition of bullying provided by Olweus (1993) is as follows: "A student is being bullied or victimised when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more others students" (p. 9) and "there should be an imbalance of strength" (p.10) where the victim is incapable of defending themselves effectively. These negative actions are intentionally inflicted by the aggressor, as in other forms of aggression. It is the repetition of the action over time, as well as the power imbalance, which makes bullying distinguishable from other forms of aggressive behaviour. School bullying is a

noticeable collective problem and is already evident among primary school children (van Goethem, Scholte & Wiers, 2010). Studies on this population have shown that 3-27% of children bully, while 9-32% report being bullied once a week or more (Berger, 2007). Bullying has also been shown to have negative and lasting consequences for the well-being of victims and the bullies themselves (Berger, 2007; Scholte, de Kemp, Haselager, & Engels, 2007).

Bullying can take an abundance of forms, such as verbal aggression, physical aggression or social isolation. It can be either direct, where the bully directly attacks the victim, be it verbally or physically, or indirect, where the bully can remain relatively anonymous while manipulating the way other people respond to the victim (Olweus, 1993). A prime example of indirect, severe bullying that has yet to receive the attention it deserves is cyberbullying (Jäger, Amado, Matos, & Pessoa, 2010). While some researchers suggest that cyberbullying is simply an electronic form of traditional bullying (Kowalski, Limber, & Agaston, 2008), there are indications that it is a rather new, distinct phenomenon. In spite of a number of overlaps with traditional bullying, there are many aspects which are unique to cyberbullying. For example, perpetrators often can conceal their identity and remain anonymous. Furthermore, cyberbullying transcends the boundaries of time and space; it can occur 24 hours a day, and it is not restricted to places such as a school, but can occur anywhere (Hinduja & Patchin, 2009; Smith et al., 2008; Willard, 2006).

Despite the current and expected rapid growth of cyberbullying, there has been a distinct absence of academic attention devoted to the matter (Jerome & Segal, 2003). The internet has been described as a transformational aid which provides constant person-to-person communication (Bargh and McKenna, 2004). However, while the phenomenon continues to expand, problems have emerged due to lack of regulation of and legislation for the cyber-world in which many young people actively participate (Bargh & McKenna, 2004).

A serious issue has been noted in popular media related to cyberbullying among children and adolescents, with expressed concerns on lasting negative impact as yet largely uninvestigated by scientific research. While scholars are now investigating this issue, research remains very much in its infancy (Campbell, 2005). Currently, there is very little reported evidence of cyberbullying among adolescents in schools in Ireland (Department of Education and Skills, personal communication, November, 2016). Existing research on cyberbullying is also mostly conducted without sound theoretical foundation and has predominantly focused on young adolescents (Xiao & Wong, 2015). The existence of such a globally interactive world has allowed the youth of today to easily and efficiently explore their way through cyberspace (Bauman, 2007), giving adolescents the resources and anonymity to taunt and harass their peers from the confines of a computer screen. Their lack of knowledge and limited experiences influence their ability to identify risk factors, as well as their ability to predict the potential consequences of their behavioural choices (Berson & Berson, 2005).

Curtis and McGilloway (2014) conducted a study which attempted to assess the nature and extent of bullying via social networking sites amongst a group of Secondary School Students. While this was an unpublished study, one finding of particular interest was that positive response rates to questions regarding victimisation varied with the way in which bullying was described. That is, higher levels of participants reported having unpleasant experiences online when responding to questions and open-ended sections pertaining to these specific experiences, than had positively responded to the more general question of whether they had been cyberbullied during the previous six months. This was consistent with one of the recurring themes identified in analysing thematically the responses to open-ended questions, which is what appeared to be a rather casual and even dismissive attitude towards bullying. Thus, it is questionable whether adolescents truly understand the seriousness of bullying or are simply dismissing such negative experiences as '…not a big deal'. Similar

findings were also confirmed by Cotter and McGilloway (2011) and a study by Ismail and Kim (2010) also found that 20% of participants did not know whether or not they had been bullied. Some of the open-ended responses in the study by Curtis and McGilloway (2014) were also supportive of these findings, with one student commenting: "I think people might not actually know they are being bullied, and only see it as harmless slagging…"

Critically, a persistent problem in bullying research has been to decide where teasing ends and bullying begins (Swain, 1998). The everyday social interactions of peers in school can entail a great deal of teasing of a relatively playful and friendly nature. While this is often recurrent, in most cases it could not be classified as bullying. On the other hand, if this repetitive teasing is of a degrading character, and, particularly, is continued in spite of obvious signs of distress, it would certainly qualify as bullying (Olweus, 1997). Lack of knowledge in the area will influence adolescents' ability to identify risk factors and, as numerous incidents continue to be reported in various countries all over the world, it is vital that adolescents today understand the issues and consequences that can accompany the use of technology and social network sites. The judgement of what is considered unacceptable behaviour may in some sense be influenced by the exploitation of hurtful and humiliating behaviour portrayed on television and on the internet (Kohm, 2009). Furthermore, while considerable efforts are being made in the planning and implementation of anti-bullying programmes in schools and universities, the success of these programmes has not been self-evident. It is sometimes the case that interventions can prove very effective in particular schools, but in others the situation can get noticeably worse (Salmivalli, 2001). Thus, there is certainly room in the literature for the investigation of a possible deficit amongst the public as to what their understanding of bullying is. If bullying is understood it is more likely that it will be much more readily recognised and dealt with when it arises.

Noticeably, all studies discussed have employed the use of adolescent participants when exploring attitudes towards bullying. Following a thorough inspection of the existing literature, there appears to be a scarcity of empirical examination of bullying and behaviour among University Students, particularly in relation to cyberbullying. The majority of extant studies on bullying have predominantly focused on children and adolescents, aged from 9 to 18 years old (e.g. Dooley, Shaw, & Cross, 2012; Hinduja, Sameer, & Patchin, 2008; Juvonen & Gross, 2008; Raskauskas & Stoltz, 2007; Smith, Mahdavi, Carvalho, Fisher, Russell, & Tippett, 2008), and the lack of research on the investigation of cyberbullying behaviour in particular, especially among University Students, has become more evident. A recent internet use survey revealed that 95% of young adults (18-29 years old) were active users of the internet, which represented the highest use among all the age groups (Pew Internet and American Life Project, 2010). Since the frequency of both internet and computer usage has been found to be a reliable indicator of exposure to risks, young adults are very likely to have direct exposure to cyberbullying behaviour, a known risk online (Huang and Chou, 2010).

In 2015, Xiao and Wong conducted a study to empirically test the effects of environmental and personal factors on the likelihood of University Students taking part in cyberbullying behaviour. They distributed 288 questionnaires to University Students in Hong Kong which consisted of three parts. These were specifically designed to (1) collect respondents' demographic and background information, (2) probe their knowledge of and experience with cyberbullying and cyber-victimisation, and (3) explore factors which may have contributed to cyberbullying behaviour. Drawing from social cognitive theory and with a predominant focus on University Students, this study hypothesised about, and tested empirically for the effects of, personal and environmental factors on the likelihood of University Students engaging in cyberbullying behaviour. Results revealed that social norms, as well as personal factors such as internet-efficacy and experience with cyber-victimisation,

were strong predictors of University Students' cyberbullying behaviours (Xiao & Wong, 2015).

This research is certainly relevant to the current study in its attempts to determine the precise factors which predict the likelihood of University Students engaging in bullying behaviours. Specifically, in Xiao and Wong's (2015) study, social norm was found to have a statistically significant impact on the likelihood of cyberbullying. Consistent with the prediction of social cognitive theory (Bandura, 1986), University Students had a greater tendency to engage in cyberbullying behaviour when they held positive normative beliefs about such behaviour (i.e. when they believed that those who were most important to them approved of this type of behaviour). Should the social norm for University Students be that bullying is approved of by those closest to them, explicit bullying attitudes could be more influenced by socially desirable answering (Nosek, 2005) as opposed to their own internal attitudes towards bullying. This is consistent with the idea that self-report measures may be influenced by social desirability; even for students with more positive explicit bullying attitudes, social desirability may impact their self-reported bullying behaviour, because a student reporting a pro-bullying bias may be socially more accepted than a student reporting to be a bully. Thus, the student sees that bullying is approved of, may exhibit pro-bullying bias on self-report measures, and in consequence engage in such behaviours (van Goethem et al., 2010).

The limited number of bullying studies on University Students have mainly been conducted in other countries, for example the U.S. and Turkey. A study by MacDonald and Roberts-Pittman (2010) found that among 439 students in a Midwestern University in the United States, 8.6% of the students had cyber-bullied others while 21.9% reported being cyber-bullied themselves. Additionally, Finn (2004) found that of 339 students at the University of North Hampshire, 10-15% had received emails or instant messages that were

threatening or harassing, while 50% had received unwanted pornography. In Turkey, Dilmac (2009) conducted a study in Selcuk University and found that 22.5% of 666 students had cyber-bullied others while 55.3% reported being online victims. In a more recent survey on bullying via electronic media, it was reported that 59.8% of the 579 University Students recruited for the study had been cyber-bullied (Turan, Polat, Karapirli, Uysal, & Turan, 2011). Rising incidents of cyberbullying such as those described have thus certainly awakened researchers, educators and parents to the severe consequences associated with bullying in its various forms.

Research on University Students' attitudes towards bullying and cyberbullying to date has also evidently focused on the primary use of explicit measures. For example, Xiao and Wong (2015), for their study, used a questionnaire to assess demographic information, knowledge of, and experience with, cyberbullying and cyber-victimisation, and factors contributing to cyberbullying behaviour. Additionally, in MacDonald and Roberts-Pittman's study (2010), participants were asked to complete a questionnaire asking how often they had experienced each of a series of bullying and harassing behaviours since they had been in college. All of these questions were answered on a 4-point Likert type scale, with 1 = Never and 4 = Very Frequently. In light of these findings, the current research attempts to address a gap in prior literature – the paucity of cyberbullying research on University Students, particularly University Students in Ireland. The study will thus contribute to the literature by providing and enriching knowledge on the prevalence and predictors of bullying and cyberbullying behaviour, as well as attitudes in a demographic cohort and geographical area not studied extensively in prior literature.

Research literature on bullying attitudes has also focused predominantly on explicit self-report measures (e.g. Boulton, Trueman, & Flemington, 2002). A review of the literature advocates self-report measures which can be used efficiently on a school-wide basis

(Silverman & Rabian, 1999) and at multiple time points to efficiently assess change (Espelage & Swearer, 2003). In one recent study, Hartung, Little, Allen, and Page (2011) used two self-report measures to assess their psychometric properties in an exploration of bullying and victimisation among 3rd-5th Graders. The two self-report measures that were used were the Revised Olweus Bully/Victim Questionnaire (OBVQ; Olweus, 1993) and the Reynolds Bully-Victimisation Scale (BVS; Reynolds, 2003). The validity and reliability of these measures is evident within the literature; the OBVQ has the inclusion of items that assess various aspects of bullying such as frequency, location, and sex of the perpetrator (Ross, 1996), while the BVS displays excellent internal validity, reliability and consistency through factor analysis and construct (Reynolds, 2003). This study found that students reported being victims of bullying statistically significantly more often than being perpetrators of bullying. Another study conducted by Boulton et al. (2002) used self-report questionnaires among Secondary School Students to assess involvement in various types of bullying, what behaviours were classed as bullying, and attitudes towards bullying, bullies and victims. They found that while most pupils indicated that they thought six out of eight types of behaviours regarded by researchers as bullying should in fact be classified as bullying, a substantial minority did not. This confirms the need for further investigation in respect of a deficit in understanding amongst the general population on the implications of bullying behaviour.

The above analysis of the literature certainly suggests that researchers advocate the use of self-report measures. However, certain limitations still exist from the use of these explicit forms of measurement. For example Hartung et al. (2011) found that students reported being victims of bullying significantly more often than being perpetrators of bullying. This is similar to Dilmac's study (2009) discussed earlier, which found that 22.5% of students had cyberbullied others while 55.3% reported being online victims. This leads to a question of the accuracy of students' self-reports in that for each recorded incidence of

bullying/victimisation, there should be at least one victim and at least one perpetrator. One possible and quite probable explanation for this flaw may be that students feel they can be more honest about victimisation than they can be about bullying. Consequentially, students may be accurately reporting levels of victimisation and under-reporting levels of bullying. Alternatively, students may be more honest about bullying than they are about victimisation, and thus over-report levels of victimisation (Hartung et al., 2011). Additionally, a study by Boulton et al. (2002) found that a consistent pattern was evident in the literature of statistically significant negative correlations between attitudes and the pupils' self-reported involvement in specific types of bullying. These findings stem from the notion that explicit measurements can only evaluate attitudes which are under cognitive control and attitudes which the participants themselves are willing to report. Explicit methods for measuring attitudes and behaviours are hugely influenced by social factors (Farnham, Greenwald, & Banaji, 1999). The next section will focus on the introduction of implicit attitudes with a simultaneous focus on the emergence of implicit assessment methodologies, which is a fundamental topic for discussion given the ability of these evaluations to guide individuals' behaviour (Greenwald & Banaji, 1995).

Implicit Attitudes

In 2002, Wegner successfully showed how little control individuals possess over personal thoughts, while Greenwald and Banaji (1995) similarly highlighted the unconscious or hidden nature of social attitudes. These findings have increased interest in developing both measures and procedures which might allow today's researchers to grasp what is so-called implicit cognition. Arguably one of the most fundamental contributions to research in social cognition within the last decade has been the development of implicit measures of attitudes, self-concept, stereotypes, and self-esteem (Nosek and Banaji, 2001). It seems that, in some

form or another, humans are capable of analysing the contents of their own brain and can describe with ease and precision what they find there (Barnes-Holmes et al., 2006).

Attitudes can act as predictors of all kinds of deliberate and spontaneous social and non-social behaviour (e.g. Glasman and Albarracin, 2006). By definition, attitudes can be described as general and enduring, concrete or abstract evaluations of a group, person or issue and can be attributable to beliefs, emotions and behaviour (Petty and Cacioppo, 1986). Originally, explicit measurements (i.e. self-report measures) such as questionnaires were the primary accepted method in assessing individuals' attitudes (Greenwald and Banaji, 1995). However, in more recent times, the limitations of this type of measurement have become prominent within the literature. Explicit measurements can only evaluate attitudes which are under cognitive control and attitudes which the participants themselves are willing to report. That is, explicit methods for measuring attitudes are hugely influenced by social factors (Farnham et al., 1999). This is especially true when it is socially sensitive issues that are being assessed such as racism, homosexuality, body image, political topics, or even bullying. People do not want to go against the established views of the social norm and certainly do not want to portray themselves as being intolerant to a particular social class or social group.

Greenwald and Banaji (1995) define implicit attitudes as inaccurately identified aspects of one's past experiences which may influence feelings, thoughts or actions towards certain social objects. They argue that individuals are often unaware of their own implicit beliefs, or how they may manifest into judgments or actions. Further research also shows that implicit assessment methodologies (e.g. the Implicit Association Test) have been developed because explicit attitudes have been deemed highly sensitive to the effects of social desirability (Nosek, 2005) as well as impression management (Barnes-Holmes, Murphy, Barnes-Holmes & Stewart, 2010). For example, it has been found that participants who are assessed in a public environment will show more positive attitudes towards certain social

groups on explicit measures than do participants who are assessed in a private environment (Blanchard, Crandall, Brigham & Vaughn, 1994; Plant & Devine, 1998). The clear distinction between explicit and implicit attitudes is also strongly applicable to the field of bullying research and this is elaborated in detail in the latter part of this review. Evidently, it appears that when individuals are informed that their responses will be open to public scrutiny, one tends to respond with more positive or less negative attitudes toward the outgroup. Implicit measures try to access the implicit cognition (Barnes-Holmes et al., 2006). Measuring attitudes in this way can help overcome the obstacles faced when measuring attitudes using explicit measures, such as faking responses to ensure they are socially acceptable (Greenwald, McGhee & Schwarz, 1998).

To summarise, the study of attitudes is a popular domain that has been widely researched. As described, implicit assessment methodologies (e.g. the Implicit Association Test) have been developed because explicit attitudes have been deemed highly sensitive to the effects of social desirability (Nosek, 2005) as well as impression management (Barnes-Holmes et al., 2010). Thus, implicit attitudes may contradict the attitudes that individuals convey on explicit measures (i.e. questionnaires, rating scales), and tend to reveal more spontaneous, immediate responses and judgement (Freise, Hofmann, & Wanke, 2008; Galdi,Arcuri, & Gawronski, 2008; McConnell & Leibold, 2001). Measuring implicit attitudes can help overcome some of these obstacles faced when measuring explicitly (Greenwald, McGhee and Schwartz, 1998) and these implicit assessment methodologies will now be described in further detail.

The Implicit Association Test (IAT)

The publication of the Implicit Association Test (IAT) by Greenwald, McGhee and Schwartz (1998) sparked considerable curiosity in psychologists who were searching for alternatives to the more typically used self-report measures. The basic premise of the IAT is

that stereotypes, self-concepts and attitudes can be otherwise defined as "associations between concepts" (Greenwald, Rudman, Nosek, Banaji, Farnham and Mellott, 2002). Thus, its predominant focus is to expose implicit attitudes based on association assumptions. Put more simply, the IAT is a double discrimination task for two stimulus dimensions such as, for example, *Black-White* and *Good-Bad.* What Greenwald and colleagues could show was that white participants responded quicker when *good+white* and *black+bad* were allocated the same key than when *bad+white* and *good+black* were allocated the same key. The authors interpret this difference in response time as indicative of implicit association; indicating implicit negative attitudes towards blacks (Banse, Seise, & Zerbes, 2001).

The process of achieving this implicit association is based, as described, on computer-mediated response latency measurement protocols, that is, responding rapidly and accurately under specific time constraints. The IAT measure is computed by drawing comparisons of the relative response times associated with various categorisation tasks (Brunel, Tietje and Greenwald, 2004). The first demonstration of the IAT was seen by Greenwald et al. (1998), who compared the relative strength of the association between flowers versus insects. Participants were presented with names of flowers such as "tulip" and names of insects such as "beetle" (the target concepts). Next, unpleasant words such as "ugly" and pleasant words such as "love" were presented (the attribute concepts). Participants had to match one of the target concepts to a suitable attribute pairing. Participants were found to respond much quicker on trials that were compatible, such as insect/unpleasant, compared to trials that were incompatible, such as insect/pleasant. These types of pairings or trials are also called consistent and inconsistent respectively. The consistent or compatible trials have a quicker response time due to the fact that this word pairing would have already been logical or true to the individual prior to conducting the experiment. In contrast, the inconsistent word parings would not have been consistent with the participant's beliefs prior to the experiment.

Effectively, it will take the participant longer to respond if he/she feels the pairing is incorrect (Greenwald et al., 1998). Thus, persons with a more favourable attitude towards flowers than insects portrayed a stronger automatic association of "flower" with "positive" than of "insect" with "positive" (Brunel et al., 2004). That is, speedier responding to familiar pairs presented (e.g. flowers-positive versus flowers-negative) is deemed to indicate an implicit bias towards flowers as pretty.

The IAT "effect" is defined by the dominance of the consistent responding over the inconsistent responding. It is believed that response latencies over the two different types of trials give the measure of the implicit attitudes to the topic being assessed. Instead of requiring individuals to provide self- reports, the premise of these measures instead focus on comparing the relative ease (i.e. speed in milliseconds) with which individuals can associate certain pairs of stimuli relative to others. For example, individuals who are faster to pair "self" with "positive" than "self" with "negative" are said to have high implicit self- esteem (e.g. Gemar, Segal, Sagrati, & Kennedy, 2001). Many IAT's have been carried out on socially sensitive topics such as gender (Greenwald &Farnham, 2000), anti-fat attitudes (Teachman and Brownell, 2001), race (Greenwald et al., 1998; Baron and Banaji, 2006), and bullying (van Goethem et al., 2010).

The IAT as a method for testing implicit beliefs has come under scrutiny, with a fundamental focus on the fact that the IAT, along with its variants, focuses on associations rather than relations among stimuli or events, and therefore only provides an indirect measure of beliefs (De Houwer, 2002). Thus, a key limitation to the IAT is its inability to assess the nature or directionality of an association (i.e. a relation), and also it cannot be used to assess a complex structure of directional associations (i.e. a relational network). For example, if the IAT indicated preference for white over black, this could indicate a positive attitude to the former and a negative attitude to the latter. Alternatively, it could indicate preference for both

but with a stronger preference for white, or it could indicate a negative attitude to both with a less negative attitude to white. Naturally, and especially in the case of exploring socially sensitive topics such as racism, research questions might require more precise and detailed information than what the IAT provides. These limitations have brought with it the development of alternative methods which aim to offer non-relative measures of implicit attitudes, such as the Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001) and the Extrinsic Affective Simon Test (EAST; De Houwer, 2003). There has also been another alternative method developed for attitude measurement known as Relational Frame Theory (RFT: Hayes, Barnes-Holmes, & Roche, 2001). RFT differs from the IAT in that it addresses its flaws that were previously identified; while the IAT focused on associations rather than relations, RFT can account for the fact that humans can learn from events they have not directly experienced or have been exposed to. Information will subsequently be provided on the theoretical link between RFT and the effects produced on implicit measures. One implicit measure that was designed specifically for use with RFT research, the Implicit Relational Assessment Procedure (IRAP: Barnes-Holmes et al., 2006; Barnes-Holmes, Barnes-Holmes, et al., 2010), will subsequently be described and its merits elucidated (Hussey, 2015).

A Behavioural Approach to Attitudes

       Verbal behaviour. According to Skinner (1957), language is a learned behaviour and can be just as much controlled by the types of environmental principles and variables that control other behaviours (Skinner, 1957). He analyses speech only in terms of its "controlling relations", including the speaker's current motivational state, his genetic constitution, his past reinforcements, and his current stimulus circumstances. That is, Skinner accounts only for the objective dimensions of verbal behaviour (MacCorquodale, 1970). Since the publication of B.F. Skinner's *Verbal Behavior* (1957), interest in a behavioural approach to the study of language began to grow (Normand, 2002). Verbal behaviour was subject to some criticism,

with some saying that it did not adequately account for the generativity of language (Chomsky, 1965). Skinner laid a very impressive framework for the interpretation of many language-related phenomena that were traditionally left to linguists and philosophers. However, what Skinner lacked was any sound empirical data to support his analyses (Normand, 2002). More recently, behavioural psychologists have found the definition of verbal behaviour too broad (Hayes et al., 2001) and proffered arguments against Skinner's verbal behaviour approach. The area of language development is largely complex and the methodology from which to study it remained very much in its infancy (Normond, 2002). The need to account for more complex language phenomena became prominent, and a great deal of experimental research began to focus on the development of such phenomena, such as stimulus equivalence and derived stimulus relations. The behavioural literature on stimulus equivalence and derived relations subsequently became one of the core components of RFT (Barnes-Holmes, Barnes-Holmes & Cullinan, 2000).

Relational frame theory. A method of accessing implicit attitudes developed by Barnes-Holmes et al. (2006) is similar in scope to the IAT method but differs in that it addresses the flaws that were previously identified with the IAT. The concepts behind this test were derived from the modern behavioural theory of human language and cognition, known as Relational Frame Theory (RFT; Hayes et al., 2001). The pivotal elements of human cognition are relational responses; in other words, the coming to respond to events in certain ways based on their relationships to other events rather than the formal properties they possess. For example, when asked to choose the "bigger one," a child may choose a dime over a penny based on its arbitrary "value" as opposed to its physical size.

As stated, the simplest unit of analysis which is suggested by RFT is the relational frame. This is defined by three core properties: mutual entailment, combinatorial entailment, and the transformation of stimulus function (Hayes et al., 2001). RFT suggests that stimulus

relations (as opposed to associations) are the fundamental point in understanding human psychological events (Hayes & Barnes-Holmes, 1997). That is, it is more worthwhile when studying implicit attitudes to identify implicit stimulus relations rather than associations. As an example, imagine for illustrative purposes that an individual is trained on the knowledge that one stimulus (A) is the *same* as a second stimulus (B), and B is the *same* as a third stimulus (C) either via instruction or through contacting contingencies. Within this framework, mutual entailment refers to the relation that emerges instinctively between A and B in the absence of explicit training. That is, when trained that A is the *same* as B, humans will also derive that B is the *same* as A without any additional training. Combinatorial entailment describes the relations that emerge between multiple mutually entailed stimuli. Thus, if A is same as B and B is same as C, then humans will spontaneously derive that A is same as C, and C is same as A. Furthermore, the psychological functions of mutually related stimuli are transformed in accordance with the stimulus relation (i.e. transformation of function; Dougher, Hamilton, Fink & Harrington, 2007; Dymond & Rehfeldt, 2000). For example, if an aversive function is established for the A (e.g. an electric shock), both B and C will also attain the aversive functions of A, despite the fact that they were never directly co-ordinated with an electric shock (Dougher, Augustson, Markham, Greenway, & Wulfert, 1994).

What is fundamental is that relations other than "sameness" (i.e. co-ordination) can be established between stimuli, such as "different to" (distinction), "opposite to" (opposition), "more than" (comparison), "comes after" (temporal), "contains" (hierarchy), etc. (Hussey, 2015). This embodies a pivotal difference between RFT and previous functional-analytic accounts of symbolic meaning (e.g. Stimulus Equivalence; Sidman, 1994). As such, psychological functions are *transformed through* such relations and not merely *transferred between* them. For example, if an individual is trained that A is *less than* B, and C is *more*

than B, and B is co-ordinated with an electric shock, then that individual will be *less* avoidant

of A than B, and *more* avoidant of C than B (Dougher et al., 2007). Hughes summarised this

effectively with his statement that "in short, Relational Frame Theory posits a rather simple

notion – that complex human behaviour reflects the learned and contextually controlled

ability to arbitrarily relate one stimulus to another" (Hughes, 2012, p. 22).

The Implicit Relational Assessment Procedure (IRAP)

RFT advocates that all verbal behaviour is relational behaviour (Hayes et al., 2001).

The IRAP was derived from this core RFT assumption; that the components of language and

cognition encompass the ability to derive arbitrary relations among stimuli and events. As

previously discussed, numerous RFT studies provide empirical evidence of a variety of

derived relations, such as co-ordination, comparison and temporal (Barnes-Holmes, Barnes-

Holmes, McHugh & Hayes, 2004). The IRAP was designed to target the relational responses

defined in RFT. Responses on explicit measures, such as questionnaires, are similarly

impacted on by contextual factors such as socially desirable responding (Paulhus, 2002). As

an implicit measure, the IRAP is designed to limit contaminating sources of contextual

control such as socially desirable responding. In this manner, it is said that the IRAP

specifically targets relatively 'brief and immediate' relational responses (Barnes-Holmes et

al., 2010).

The first basic IRAP study examined implicit attitudes to simple positive and negative

terms (Barnes-Holmes et al., 2006). It was used to test if the hypothesis this method was

based on was true; that on average, response latencies for consistent blocks would be shorter

than response latencies for inconsistent blocks. To ensure the experimental sequence had no

influence on the results, the participants were randomly assigned to one of two sequences,

consistent-relations first or inconsistent-relations first. Each participant was provided with a

set of instructions explaining how to perform the task. On each trial of the IRAP, four words

were simultaneously shown on the screen. A sample stimulus, namely "pleasant" or "unpleasant", appeared at the top of the screen, with a single target word presented in the centre that was deemed either pleasant (e.g. love) or unpleasant (e.g. accident), and two relational terms, "opposite" and "similar". The first block of trials in the consistent relations-first condition reinforced responses that were considered relationally consistent. This was based on Greenwald et al.'s (1998) consistent and inconsistent categorisation of pleasant and unpleasant terms. Given the sample, "Pleasant", for example, and any of the target words (caress, freedom, health, love, peace or cheer), choosing the relational term "Similar" immediately progressed the computer programme to the next trial. The second block of trials in the consistent-relations-first condition reinforced responses that were considered relationally inconsistent. For example, when given the sample "Pleasant" and any of the target words (abuse, crash, filth, murder, sickness or accident), choosing the relational term "Similar" allowed the computer programme to progress to the next trial. The analysis of data from the experiment concluded that there was a statistically significant difference in response latencies between the consistent and inconsistent blocks, showing an IRAP effect.

In light of this experiment's success, more IRAP studies have been carried out involving more complex and socially sensitive topics. One example of this is Irish nationals in which preference for other nationalities over Irish nationals was assessed (Barnes-Holmes et al. 2006). The researchers hypothesised that individuals would generally display a preference for their own group over others (Tajfel, 1982). Furthermore, it was assumed that relative preferences for other groups would be determined, at least in part, by the extent to which the other groups were perceived to be more or less similar to one's own (Cota, Evans, Dion, Kilik, & Longman, 1995). Four Likert scales were also designed to evaluate the participants' explicit ratings of how likeable they found the four nationalities in question (Irish, Scottish, American, and African). Results from the IRAP showed that the mean adjusted response

latencies were statistically significantly longer on inconsistent tasks relative to consistent tasks for each of the three target-pairs. Thus, in more general terms, the participants in the study responded more rapidly across tasks that confirmed rather than denied that; (i) Irish is more likeable than Scottish, (ii) Scottish is more likeable than American, and (iii) American is more likeable than African. Further analyses also showed that these IRAP effects were obtained in both consistent-first and inconsistent-first conditions. Results of the explicit scales indicated that participants did not discriminate between Irish and Scottish, and African was rated as statistically significantly more likeable than American (while the IRAP showed a bias for Irish over Scottish and American over African). Thus, the implicit measures of likeability were agreeable with the predictions made by the researchers and diverged from the pattern of preferences obtained using the explicit Likert scales.

Another example would be attitudes towards individuals with a diagnosis of autism (Barnes-Holmes et al., 2006). This study hypothesised that professionals working with individuals with autism would be more inclined to express positive attitudes to the disorder using explicit measures (i.e. questionnaires), than those professionals with no direct experience of autism, but this difference could be absent if an implicit measure was used (Hayes, et al., 2001). Results showed that while the questionnaires did yield statistically significant differences across the three groups, statistical analyses on the IRAP found no statistically significant difference among the groups in terms of the relative difference in latencies between consistent and inconsistent tasks. In many of these studies, there is evidence of implicit bias produced by the IRAP that is not revealed in related explicit measures. Again, using the example of assessing attitudes to racism, participants may produce a negative IRAP effect with respect to black people, but report positive attitudes towards black people on explicit self-report measures (e.g. Barnes-Holmes et al., 2010). In an effort to explain this type of divergence between implicit and explicit measures of attitudes from an RFT

perspective, the Relational Elaboration and Coherence (REC) model has emerged (Barnes-Holmes et al., 2010) and will be discussed in the subsequent section.

The results from these experiments give evidence to support the IRAP in that it is a good alternative to the IAT. It offers an exceptional degree of accuracy, it is not influenced by the context in which it is carried out (i.e. whether it's carried out in a public or private setting), it has the ability to assess relational properties between sample and comparison stimuli (Barnes-Holmes et al., 2010), and it can be manipulated to test an abundance of socially sensitive subjects. To summarise, Relational Frame Theory is a modern behavioural approach to human language and cognition, with its central assumption being that higher-cognitive functioning is composed of relational acts. It assumes that, as opposed to associations, stimulus relations are a core factor in understanding human psychological events (Hayes et al., 2001). Due to the increasing popularity of this account, it seems vital to develop methodologies whose aim is to assess implicit stimulus relations, as opposed to associations. The IRAP achieves just that by measuring the probability of both brief and immediate relational responses that become apparent when the behavioural system is put under pressure to respond swiftly and accurately (Hughes & Barnes-Holmes, 2011). Unlike the IAT, the IRAP has yet to be used to measure the relational responses that may be associated with bullying.

The REC model. According to the REC model, specific IRAP trials can produce brief and instant relational responses that are predominantly determined by the participant's verbal and nonverbal history. By definition, the most probable immediate response will most often be emitted by the participant first, meaning that any IRAP trial which requires pressing a key that co-ordinates with that immediate response will be emitted relatively quickly. Thus, across multiple trials, the average latency for inconsistent blocks will be longer than for consistent trials, as with the IAT and other implicit tests. Biases are made apparent to the researcher

when participants are put under pressure to respond quickly and accurately (Barnes-Holmes et al., 2010).

On explicit measures, the REC model assumes that responses may reflect elaborate and coherent relational responding. When asked to express an attitude, individuals often produce a relational response that is coherent with other relational responses in their behavioural repertoire (see Barnes-Holmes, Hayes, & Dymond, 2001). When completing explicit measures, participants generally have time to engage in this extended relational responding. On implicit measures, however, exposure to a more time-pressured measure means that the impact of a participant's elaborated relational responding would be absent or significantly reduced. In summary, the REC model assumes that the IRAP effect, when produced under appropriate time pressure, is driven largely by immediate and relatively brief relational responses, whereas explicit measures reflect extended and coherent relational networks. That is, the IRAP captures more spontaneous and automatic evaluations, while explicit measures capture more carefully considered reactions. The REC model can also account for the divergence often reported between implicit and explicit measures, especially in the domain of socially sensitive attitudes. It outlines that automatic or immediate evaluative responses may or may not cohere with subsequent relational responding. Should they cohere, implicit and explicit measures will typically converge, but when they do not, the measures will typically diverge (Barnes-Holmes et al., 2010).

Following a thorough analysis of the literature, it is evident that explicit measures are still a useful research tool at times, but due to the outlined limitations, it could greatly benefit from the accompaniment of some form of implicit measure. This would allow the researcher to obtain a more elaborate understanding of the attitudes and behaviours being assessed. Dual-process models are those which advocate that two different modes of information processing underlie implicit and explicit attitudes. According to these models, implicit attitudes are

correlated with more automatic, associative, impulsive processes while more reflexive, controlled processes are attributable to explicit attitudes (Evans, 2008). This is consistent with the assumptions of the REC model, which suggests that the IRAP effect, when produced under appropriate time pressure, is driven largely by immediate and relatively brief relational responses, whereas explicit measures reflect extended and coherent relational networks (Barnes-Holmes, Hayes, & Dymond, 2001).

Evidence for the success of assessing these meaningful constructs that are difficult to identify by sole use of self-reports is implied by the discovery that implicit measures often show rather low correlations with explicit measures (Blair, 2001), yet still reliably predict behaviour (Asendorpf, Banse, & Mücke, 2002). As a result, it is no surprise that a considerable amount of past literature looks favourably on the use of dual-processing models in that explicit and implicit attitudes cannot always be used to validate each other since it is common that they may represent two distinct types of attitudes (van Goethem et al., 2010). As stated by Wilson, Lindsey and Schooler (2000), to only include explicit measures in studies is to allow for the possibility of exaggerating the ease with which individuals change their attitudes. Even if an individual's explicit attitude changes, an implicit attitude can still very much remain the same. This is especially true when it is socially sensitive issues that are being assessed, such as that of bullying. Implicit attitudes relative to bullying will now be discussed, along with the benefits of using dual-processing models to identify individuals' bullying attitudes.

Implicit attitudes relative to bullying are described as uncontrollable, impulsive feelings about bullying, such as the attitudes one feels towards bullying behaviour or even towards an individual who bullies (van Goethem et al., 2010). These attitudes are distinguishable from explicit bullying attitudes, which are described as more deliberate and controlled thoughts/feelings towards bullying in general. For example, if a teacher were to

show students a movie in which a child is being bullied by another child, it is very probable that a pupil in the class would have an initial positive appraisal of bullying while watching this movie. This is what can be referred to as a positive implicit attitude towards bullying. However, if the teacher was to ask the class about their feelings on the movie and what they think of it, it is probable that a student who is a bully will deliberately express his/her disapproval towards the bullying behaviour shown in the movie. Again, this is due to what is being portrayed by the teacher as the established views of the social norm; the pupil sees that bullying is disapproved of, and in consequence is probably punished by most teachers. This is referred to as a negative explicit attitude towards bullying (van Goethem et al., 2010).

Because bullying is considered by most individuals as a socially unacceptable behaviour, explicit bullying attitudes could be more influenced by factors such as socially desirable answering (Nosek 200). Furthermore, there is some evidence which suggests that the exploration of bullying attitudes has particularly benefited from measuring an individual's implicit attitudes and their correlation with bullying (e.g. van Goethem et al., 2010). The study of van Goethem et al. (2010) appears to be one of the first to examine implicit bullying attitudes with regard to bullying behaviour among adolescents. Their study is admirable in that it advocates the individual differences evident in the relative strength of cognitive processes underlying bullying. In adolescents with negative explicit bullying attitudes, they found that only these (negative) explicit attitudes about bullying were found to be related to their bullying behaviour, but not their implicit bullying attitudes. In adolescents without clear anti-bullying explicit attitudes, implicit bullying attitudes were found to be related to their bullying behaviour. This is something that van Goethem and her colleagues could not have discovered had they simply replicated the methods of others and their sole use of self-report measures (questionnaires, etc.). This suggests that to be able to predict the bullying behaviour of all groups of children more accurately, not only explicit bullying attitudes should be

considered but also implicit bullying attitudes. In this instance, measuring the implicit

attitudes of the pupils helped in overcoming the obstacles faced from the use of explicit

measurement, such as the possibility of pupils faking responses to ensure that their answers

are socially acceptable (Greenwald et al., 1998), as well as providing increased accuracy

(Barnes-Holmes et al., 2010).

The IRAP: Using Appropriate Stimuli

The IRAP was designed to target a history of verbally relating specific classes of

stimuli (Hughes & Barnes-Holmes, 2013), and research within the literature on the IRAP

continues to grow. Most notably, studies have been designed to test the ability of the IRAP in

measuring different constructs and their relation to attitudes (Kelly, 2011). The current study

attempts to add to this literature by testing the usefulness of the IRAP in measuring attitudes

related to bullying. As this study is the first of its kind to asses implicit bullying attitudes

using the IRAP, it is paramount that the stimuli chosen are suitable and appropriate for

assessing individuals' attitudes. The IRAP programme itself is advantageous in this respect as

it is easily adapted to an array of stimuli which are chosen based on their suitability in

assessing the attitudes in question.

Within the literature of implicit measures, there are many reported examples which

use word stimuli, picture stimuli, or both pictures/words to explore socially sensitive attitudes

(e.g. racism). In one study Ottoway, Hayden and Oakes (2001) used *word* stimuli consisting

of Black, Hispanic and White names on the IAT to examine the role of stimulus familiarity on

automatic race attitudes. In another more recent study, Barnes-Holmes and his colleagues

(2010) used *picture* stimuli of black and white people holding guns on the IRAP in order to

measure racial biases. Dasgupta, McGhee, Greenwald, & Banaji (2000) extended on the work

of Ottoway et al. (2001) by representing racial groups with *both,* i.e. pictures of non-famous

black and white individuals, and Black, Hispanic, and White names. Ottaway et al. (2001)

found that White subjects expressed automatic preference for White over Black and Hispanic Americans even though the experiment controlled for name frequency and familiarity. As for the study by Dasgupta et al. (2000), they found that even when name stimuli were replaced with Black and White faces that were equally unfamiliar, strong pro-White attitudes were still revealed.

However, it may also be the case that the use of picture stimuli could produce differing results than those obtained from using word stimuli. Differences in the use of picture or word stimuli may occur for several reasons. For example, faster latencies from picture stimuli may suggest that pictures are more easily processed than words, which in turn reduces task difficulty (Dasgupta et al., 2000). Furthermore, research has suggested that pictorial representations may produce an affective reaction that is quicker and more direct than words (Smith, Bradley, and Lang, 2005) while Kesinger and Schacter (2006) argue that differences emerge due to brain activity. Words are associated with brain activity in the left side, while pictures are associated with brain activity in the right amygdala, an area of the brain often associated with emotional responding. Emotional information often is remembered more accurately and persistently than non-emotional information (Kesinger and Schacter, 2006) with neuroimaging and patient studies providing additional evidence that amygdala–hippocampal interactions can underlie humans' enhanced memory for emotional information (Phelps, 2004).

The findings discussed above suggest that the implementation of a word IRAP could produce differing effects from those observed when implementing a picture IRAP (e.g. Kelly, 2011). Furthermore, differences in responding may be more likely when examining emotionally sensitive topics. Incidents of bullying or cyberbullying could certainly be considered events that may induce emotion and/or distress in an individual, making it reasonable to consider that pictorial representations could produce more emotional reactions

for participants than three-word descriptions. Images describing a very specific type of bullying such as cyberbullying could particularly be more effective than words, as they would have direct resemblance to how an image would look if the participants were to receive it on their own computer or mobile phone screen. Thus, an exploration of the most appropriate and effective methodologies and stimuli to use would certainly be of benefit to the field of bullying and cyberbullying attitudes.

Intervention Techniques

Emerging research suggests that behaviour is partly influenced by automatic processes of perception and memory (implicit cognition). While methods have been developed for assessing implicit cognition, research is also needed to determine how to influence implicit processes most effectively and whether intervention techniques may impact on these processes (Moghaddam & Hart, 2011). Various studies in IRAP literature have adapted the use of intervention techniques in order to assess and compare IRAP data both at baseline and proceeding the implementation of an experimentally induced state on its participants. For example, Hussey and Barnes-Holmes (2012) induced an experimental sad mood state to measure depressive emotional reactions on groups of participants that were representative of both the high and low extremes of normative levels of depressive symptoms. This was achieved by means of a standard musical and autobiographical recall mood induction procedure, which required each participant to listen to a piece of emotive music while recalling an appropriate personal memory. It was hypothesised that those characterised as "normal" and "mild/moderate" depressive would display differential reactions to the mood induction procedure. Results showed that the "normal" participants showed little change pre- to post-mood induction, displaying a consistently positive bias. In contrast, the participants who were seen as mild/moderate depressive showed a substantial reduction post-mood induction.

Similarly, another study by Ritzert, Forsyth, Berghoff, Barnes-Holmes and Nicholson (2015) aimed to investigate behavioural and psychological flexibility and the impact of a cognitive defusion intervention. Defusion interventions (i.e. labelling thoughts as thoughts or saying thoughts in a funny voice), are designed to undermine the behaviour regulatory functions of thoughts by altering the context in which thoughts occur (Masuda, Hayes, Sackett, & Twohig, 2004). From an RFT perspective, cognitive defusion weakens the influence of specific verbal functions of stimuli on behaviour, and increases sensitivity to other stimulus functions that may shape behaviour in more beneficial ways (Blackledge, 2007; Hayes & Wilson, 1993). Their aim was to assess the impact of a defusion intervention on behaviour, as measured by the IRAP. Undergraduates who had high rates of spider fear were randomly assigned to one of two interventions targeting phobic spider thoughts: a defusion intervention or a thought distraction intervention. A control condition (reading an article) was used to evaluate the relative impact of both interventions. They found that the defusion intervention produced statistically significantly greater pre to post intervention reductions in IRAP effects and thought believability.

These studies serve as just some examples of the growing field of literature surrounding the exploration of determining how to best influence implicit processes, and whether intervention techniques may have an effect on these processes. In the field of bullying attitudes and behaviours, a vast array of the literature attempts to evaluate the effects of anti-bullying interventions in conjunction with explicit self-report measures in order to determine the effects of intervention techniques. In one study, Andreou, Paparoussi and Gkouni (2013) evaluated the efficacy of an anti-bullying bibliotherapy intervention on the bullying behaviour and victimisation of primary school children, as well as attitudes towards bullying. They employed an experimental pre-test/post-test design with data collected using self-report measures before and immediately after the intervention. They found that this

intervention programme contributed to a positive reduction in 'outsider' behaviour (an unawareness or ignorance to bullying; Jenkins & Nickerson, 2016) and enhanced students' pro-victim attitudes and self-efficacy for intervening in bully/victim incidents. Similarly, Cross et al. (2015) measured the longitudinal impact of a whole-school online cyberbullying prevention and intervention programme which was developed in partnership with young adolescents in Perth, Western Australia. Students completed questionnaires in 2010, 2011, and at a 1-year follow-up in 2012, measuring their cyberbullying experiences during the previous school term. This study showed statistically significant declines of participant involvement in cyber-victimisation and perpetration from pre- to the first post-test.

While there is much evidence to support the effectiveness of bullying intervention techniques with the use of explicit measures, there is currently a gap within the literature on the use of intervention techniques to determine an influential effect on implicit processes. Additionally, evidence reported from the aforementioned studies certainly indicate that there is still much to learn with respect to peer interventions in bullying. To date, there appears to be limited evidence on what methods are effective when addressing the issues of bullying and cyberbullying. Not only do researchers fail to operate under a common definition of cyberbullying (Tokunaga, 2010), there is also very little evidence-based criteria for developing an intervention program. Due to the growing prevalence rates of cyberbullying in today's generation, the need for interventions has greatly surpassed the research (Della Cioppa, O'Neil & Craig, 2015). In addition, as limitations to explicit forms of measurement become more and more prominent within the literature, more evidence suggests that the exploration of bullying attitudes has benefited from measuring an individual's implicit attitudes and his/her correlation with bullying behaviour (van Goethem et al., 2010). Thus, intervention techniques employed within the bullying literature could be subjected to tests using explicit and implicit processes.

Successful content elements of an intervention technique provide emphasis on the significance of incorporating a whole school bullying prevention policy (Ttofi & Farrington, 2011). This whole school approach is based on the assumption that bullying is a systemic problem (Smith, Schneider, Smith, & Ananiadou, 2004) and therefore, interventions should go beyond the school; they should also target wider systemic factors such as the family and the neighborhood (Ttofi & Farrington, 2011). Furthermore, interventions should target the entire school population as opposed to just focusing on those who bully and/or those who are victimised (Smith et al., 2004). It is also paramount that interventions demonstrate effectiveness in reducing bullying. In light of evidence supporting the effect of intervention techniques on implicit processes such as the IRAP, as well as the growing need for intervention techniques in relation to bullying attitudes and behaviour, the current study attempts to utilise these findings by employing an intervention technique. The intervention used speaks to an entire school population and addresses bullying as a systemic concern, which can be combatted most effectively if students stand together and unite against the cause.

The Current Study

The above literature review concluded with various recommendations for future research, which served as a guide to the current research programme. The current research is especially inspired by the work of van Goethem et al. (2010) by using both implicit and explicit measures to explore the attitudes of Secondary School Students and University Students to bullying. However, following a thorough analysis of the literature and the strengths and limitations evident for both, this study will use the IRAP as the implicit measure for assessing the attitudes of individuals to bullying as opposed to the IAT. As addressed, there is evidence in the literature to suggest that a rather casual and even dismissive attitude towards bullying appears to exist in society today. Furthermore, a persistent problem in

bullying research is to decide where teasing ends and bullying begins (Swain, 1998), and to be able to distinguish what is malicious from what is more friendly, playful teasing (Olweus, 1997). This is something which will also be explored.

Based on this research, it was hypothesised that participant responding on the IRAP would indicate a relaxed attitude towards bullying, and that an educational video intervention would impact attitudes. It was also hypothesised that Secondary School Students and University Students would respond more rapidly to affirm proposed relations that reflect their current beliefs than to affirm proposed relations that do not; thus, participants who demonstrated pro-consistent responding (e.g., IRAP trial-types, toxic-abusive-true/innocuous-abusive-false/innocuous-harmless-true/toxic-harmless-false) would be interpreted as showing an anti-bullying bias/unrelaxed attitude towards bullying. Conversely, no difference in speed in responding to toxic (e.g. Rot in hell, Just go die) versus innocuous (e.g. Go on ya fool, Don't be daft) phrases would be interpreted as showing no anti-bullying bias/relaxed attitude toward bullying. Participant group data from implicit tests was compared to their self-report data to determine if students' implicit data corresponded with self-reported anti-bullying attitudes.

In light of the severity and sensitivity of bullying in today's society, there is no doubt that a window exists within the literature to assess if a deficit is present amongst the public regarding their understanding of bullying. If bullying is understood, it is more likely that it will be much more readily recognised and dealt with when it arises. The current research constitutes the first systematic attempt to assess implicit attitudes on bullying in Ireland, and is therefore exploratory in nature.

Study 1. Study 1 used a word-based IRAP to measure the attitudes of participants towards phrases deemed toxic and innocuous, and if they were Abusive or Harmless. Explicit measures were also used, namely the BPQ, RPVS, BPQ-MM and CS for purposes of

additional demographic information and comparison. A brief educational video intervention about the lasting and negative effects of bullying was also employed to assess if the intervention had an effect on IRAP responding pre and post intervention. Two groups were employed for this Study, namely University Students and Secondary School Students, again, for purposes of further exploration and comparison.

Study 2. Study 2 incorporated the words and phrases used in Study 1 to create a picture-based IRAP to represent cyberbullying. The same explicit and implicit measures were used as well as the same intervention technique, with the only difference being that the IRAP incorporated pictures from social media websites which were representative of the participant receiving an Abusive message or a Harmless message.

In summary, the two studies presented in this research provide further understanding into 1. a comparison between implicit and explicit measures; 2. the employment of intervention techniques to assess differences in IRAP performance; 3. the role of the stimuli used and its appropriateness and relevance to the participant and 4. a further insight into the attitudes of Secondary School Students and University Students to bullying in society today.

CHAPTER 2

STUDY 1

Using the IRAP to Measure Bullying Attitudes:

Word Stimuli

Introduction

The first study in the current research programme signifies the first attempt to explore if data from the Implicit Relational Assessment Procedure (IRAP) can be used as a measure of bullying attitudes. Commonly used explicit measures (i.e. the BPQ, RPVS, BPQ-MM and CS) were also used within this study as a further measure of bullying attitudes and experiences and for purposes of additional demographic information and comparison. Previous research in this field has predominantly employed explicit measures, (e.g. Boulton et al., 2002). A review of the literature advocates self-report measures in that they can be used efficiently on a school-wide basis (Silverman & Rabian, 1999) and at multiple time points to efficiently assess change (Espelage & Swearer, 2003). However, it has been found that participants who are assessed in a public environment will show more positive attitudes towards certain social groups on explicit measures than do participants who are assessed in a private environment (Plant & Devine, 1998). Therefore, the researcher will administer all aspects of the current study on a 1:1 basis. Bullying literature to date has also predominantly focused its research on school adolescents. For this reason, two groups were employed for this study, (University Students and Secondary School Students) for the purpose of further exploration and comparison. This study constitutes the first attempt to directly compare the bullying attitudes of Secondary School Students and University Students using both explicit and implicit measurement techniques. A systematic group comparison therefore may be valuable in the exploration of each group's understanding of bullying.

As discussed in Chapter 1, research studies in the area of bullying suggests that intervention programmes can contribute to a positive reduction in bullying behaviour in adolescents (e.g. Cross et al., 2015). Furthermore, various studies in IRAP literature have adapted the use of intervention techniques in order to assess and compare IRAP data both at baseline and proceeding the implementation of an experimentally induced state on its

participants (e.g. Hussey and Barnes-Holmes 2012; Ritzert et al. 2015). This study therefore employed a brief educational video intervention about the lasting and negative effects of bullying to assess if the intervention had an effect on IRAP responding before and after the intervention.

The IRAP used for the current study incorporated word based stimuli. Six toxic phrases (Just go die, Rot in hell, Ugly fat slut, Dirty mean scum, Horrible rotten skank, Evil little shit) and six innocuous phrases (Ah shut up, Gway you ejit, You fecken idiot, Go on ya fool, Don't be daft, Just feck off) appeared on screen one at a time. Along with one of these phrases, either the word "Abusive" or "Harmless" would appear underneath, and the response options "Yes" and "No", which appeared in the bottom left and right corners of the screen. These were presented in blocks of trials, which were either *Pro-Abusive for Toxic phrases/Pro-Harmless for Innocuous phrases* or *Pro-Abusive for Innocuous phrases/Pro-Harmless for Toxic phrases*. Thus, there were four trial-types involved: (1) *Toxic-Abusive* (2) *Toxic-Harmless* (3) *Innocuous-Abusive and* (4) *Innocuous-Harmless.*

This study is inspired by the work of van Goethem et al. (2010) and uses both implicit and explicit measurement techniques to explore the topic of bullying. More specifically, it attempts to investigate the attitudes of Secondary School Students and University Students to bullying, and constitutes the first attempt to directly compare the bullying attitudes of these groups using both implicit and explicit measures. While explicit measures are still a useful research tool, it could hugely benefit from the accompaniment of a form of implicit measure. This will allow the researcher to obtain a more elaborate understanding of the attitudes being assessed. Furthermore, a persistent problem in bullying research to date has been the relationship between bullying and teasing, and to decide at what point teasing ends and bullying begins (Swain, 1998). For the current study, it was hypothesised, based on prior research, that (1) participants would have a relaxed attitude towards bullying (2) exposure to

an educational video intervention about negative and lasting effects of bullying would impact attitudes (3) both groups would respond more rapidly to affirm proposed relations that reflect their current beliefs than to affirm proposed relations that do not (4) there would be a divergence between Secondary School Students and University Students responses.

Method

Participants

Sixty individuals completed the study; 20 others volunteered (15 Secondary School Students, 5 University Students) but their data were discarded because they did not meet inclusion criteria for the IRAP explained subsequently. The final sample included 30 adolescent boys and girls attending Secondary School and 30 third level education University Students. The total sample for Study 1 consisted of 30 Secondary School students, 15 males and 15 females (mean age = 17.1, SD = 1.09) and 30 University Students, 15 males and 15 females (mean age = 21.6, SD = 1.63).

The first group consisted of a sample of adolescent boys and girls attending Secondary Schools in South East Ireland while the second group of participants were third level education University Students. Each secondary school advocated the use of anti-bullying procedures as set out by the Department of Education and Skills and their revised circular on Anti-Bullying Procedures for Post-Primary Schools (January 2013). Similarly, Maynooth University and its student body representatives care for the welfare and equality of all its students and advocate the vitality of an equal environment to combat the very prominent issue of bullying and discrimination for those attending University. The participation rate was 100%, and none of the participants refused nor did any parents forbid their children's participation in the study.

Apparatus and Materials

Implicit attitude measure. The IRAP was presented within a single computer programme, which presented stimuli and recorded all responses. The IRAP tasks were presented on a standard laptop computer and the IRAP programme itself controlled all aspects of stimulus presentation and the recording of participant responses. The stimuli employed in the study consisted of twelve phrases – six of which (e.g. 'Don't be daft', 'Go on ya fool') were seen as innocuous and thus were deemed to be consistent with harmless phrases, and six of which (e.g. "Dirty mean scum", "Just go die") were deemed to be toxic and were consistent with abusive phrases. The response options, ''Harmless" and ''Abusive", were also presented on each trial. Each of the phrases used had been formulated directly by an adolescent sample and subsequently presented to the researcher. These were collected by gathering six male and six female adolescents and asking them to write down different phrases that they or their peers had heard of in the past that they had found to be either distressing and hurtful, or light-hearted and 'not a big deal'. Thus, all phrases were in keeping with a vocabulary that is current and not disconcerting for the participants.

Table 1. *Stimulus Arrangements and Word groups presented by the IRAP*

Label 1	Label 2
Rot in hell	Ah shut up
Ugly fat slut	Gway you ejit
Evil little shit	You fecken idiot
Dirty mean scum	Go on ya fool
Horrible rotten skank	Don't be daft
Just go die	Just feck off
Targets deemed consistent with Sample 1	**Targets deemed consistent with Sample 2**
Abusive	Harmless
Response Option 1	**Response Option 2**
Yes	No

Intervention. All participants were presented with a brief educational video intervention about the negative and lasting effects of bullying. This was carried out by showing each participant two video clips which were directly from the Department of Education and Skills and their Anti-Bullying Forum which took place on the 17th of May, 2012, in their attempts to explore ways to tackle and combat the problem of bullying in schools. These intervention videos were thus very much in keeping with the issues surrounding bullying behaviour in Irish Society today and were relatable to the sample population used for the purposes of this study.

The first video clip was a video titled 'Stand Up! – Don't Stand for Homophobic Bullying (video can be found at the following link https://www.youtube.com/watch?v=lrJxqvalFxM). It focused on a story about developing acceptance by portraying the effects that standing up to homophobic bullying can have.

The second video clip was a slide show devised by Secondary School Students and was directly focused on cyberbullying and some of the effects it can have (video can be found on the Anti-Bullying Forum under the Department of Education and Skills website (http://www.education.ie/en/Press-Events/Events/cp_anti_bullying/).

 The video intervention lasted for approximately 10 minutes.

Explicit attitude measure. The explicit phase of the study involved a cross sectional, questionnaire-based survey. Using this cross-sectional survey approach, the non-experimental phase focused on attitudes towards bullying. Specifically, data was collected on specific demographic characteristics: attitude, prevalence, and severity of bullying, and sympathy towards bullying. Any supplementary data of interest was examined as an integrated whole in order to identify any issues of interest.

The first explicit measure was the Bullying Prevalence Questionnaire (BPQ)**.** This was devised by Rigby and Slee (1993) and provides assessments of the prevalence of behaviours

and attitudes among students that reflect a tendency to bully others, be bullied by others and to act pro-socially. Participants were asked to respond to each statement on four-point scales (*Never, Once in a while, Pretty Often, Very Often).* This measure was used for both Secondary School and University Student participants.

The second explicit measure was the Revised Pro-Victim Scale. This questionnaire was devised by Rigby (1997) to assess the extent to which students are sympathetic to the plight of victims of school bullying or tend to support bullying behaviour. Participants were asked to respond to each statement on three-point scales (*Agree, Unsure, Disagree).* Again, this measure was used for both Secondary School and University Student participants.

For Secondary School Students, the third questionnaire presented was the Student Bullying Attitudes Questionnaire Modified (BAQ-MM). Yoon and Kerber's (2003) BAQ-M was modified by Guillory (2013). This new modification, known as the BAQ-MM, was adapted to be used with both students and teachers, and is the instrument used in this study. The Bullying Attitudes Questionnaire-Modified (BAQ-MM) presents six Vignettes to depict a repeated pattern of bullying. Following each of the vignettes are three questions: (1) How serious is the conflict; (2) How likely are you to intervene in this situation; and (3) Would you call this bullying? For the first two questions, participants responded on a 5-point Likert scale and on the third question, the response format is dichotomous (items range form 0-1).

For University Students, the third questionnaire presented was a 27-item cyberbullying survey (CS) used by Walker and Sockman which was an adaptation and combination of surveys from Li (2006) and Spitzberg and Hoobler (2002). Participants were asked various questions on their own experiences of cyberbullying at University (see Appendices 1-4 for explicit measures).

Settings

Research for the adolescent sample was carried out in a Secondary Schools located in

South East Ireland. The school was St Kieran's College, College Road, Kilkenny. Following discussions with the Principal, consent was obtained from the organisations (see Appendix 5). Within the school, the research was carried out in a room with an open/glass door whereby there was frequent passer-by school traffic/staff. A staff member also checked in with the researcher regularly to make sure that all data collection was running smoothly and efficiently.

Research for the University Student sample was carried out at the Department of Psychology, Maynooth University. The researcher was provided with a private experimental cubicle within the Department for purposes of this study.

Ethical Approval

The primary issues of concern that were addressed in the current research were vulnerability of the sample population, informed consent, confidentiality and voluntariness. Due to the Secondary School participants used in the current study being under 18 years of age, a signed parental/guardian consent was required for participation in this study. An information sheet was also delivered to the parents/guardians of all potential participants providing detailed information on the nature of the study, ensuring that they were fully aware of what their child's participation entailed (see Appendices 6 and 7). Any parents who wished to allow their child to participate were asked to read the information sheet and return a signed informed consent form. The information sheet and consent form also included information regarding data analysis, and indicated that all data would be anonymised and analysed at a group level only. In addition to parental/guardian consent, participant verbal assent was secured prior to the commencement of each experimental session. Participants were also reminded at this point that participation in the study was completely voluntary.

University Students were provided with information on the study verbally and using the consent form prior to commencing participation (see Appendix 8). Again, verbal assent

was also secured prior to commencing the experimental session. Participants were fully debriefed verbally at the end of the task and were given the option of taking a debriefing form (see Appendix 9) if they so wished.

Data Protection

All data collected by the researcher from the participants was irrevocably anonymised as soon as they left the experimental setting and each participant was assured that all aspects of the study were completely confidential. Any questionnaires that were completed using pen and paper were not identifiable to each individual participant. At no point were participants asked to include their names during the research and were only identifiable as 'Participant 1', 'Participant 2', etc. All (anonymised) raw research data will be retained for ten years in accordance with research ethics and data will not be retained by the researcher any longer than is necessary. It will be permanently destroyed and overwritten when it is no longer needed by the researcher or the legal time for data retention has passed. Similarly, any hard copy data retained by the researcher will be shredded.

Procedure

Explicit measure and baseline IRAP. Each participant completed all aspects of the tasks individually. Each participant was told about the different aspects of the study and what they would be required to do. The researcher explained that they would first be asked to fill in a questionnaire before moving on to a computer task, which would be explained to them in further detail at the time of presentation. They were then told that following this computer task they would be asked to watch two short video clips related to bullying, and would then complete the exact same computer task again. After receiving this brief explanation of what the study involved and providing written informed consent, participants were asked to begin the study by completing the three-part questionnaire. The experimenter reminded them that all data were confidential and anonymous and that they should respond honestly. The order of

presentation of these measures was: 1. BPQ, 2. Revised Pro-Victim Scale. For Secondary

School Students, the third questionnaire presented was the Student Bullying Attitudes

Questionnaire Modified. For University Students, the third questionnaire presented was the

27-item Cyberbullying Survey.

IRAP Instructions

All participants were provided with verbal instructions on how to complete the IRAP

task in various stages using a pre written script (Hussey et al., 2016; see Appendix 10). In

contrast to much research previously published within the field, no additional written or on-

screen instructions were provided. The experimenter's verbal instructions for the bully IRAP

contained the following key points, which were delivered before the participant completed the

first practice block. If a participant indicated a lack of clarity at any stage as the researcher

worked through the script, that point was reiterated and clarified to the participant's

satisfaction before proceeding.

Participants were instructed that they would be presented with abusive phrases of

words related to bullying, and harmless phrases of words not related to bullying. These would

be accompanied with the words, "Abusive" and "Harmless", and participants would be asked

to respond to each phrase as being "Abusive" or "Harmless". They were informed that, unlike

a questionnaire that asked for their subjective opinion, this behavioural task simply required

that they follow a rule, and this rule would be provided on screen. Next, they were instructed

that the rule would swap after each block, that there were only two rules, and that they would

be reminded of the rule for the following block on screen. It was emphasised that they were to

initially go as *slowly* as they needed to get as many trials as possible 'right' according to the

rule, and that they would naturally become faster with practice. Furthermore, it was

emphasised to each participant that they must learn how to be accurate before they could learn

to go both quickly and fluently. Once they had learned to be accurate they should then

naturally learn to speed up. They were then informed that they would complete pairs of practice blocks until they learned to meet accuracy and speed criteria that would be presented at the end of the block. Once these were met on both blocks within a pair, they would then complete three pairs of test blocks. Finally, they were informed that the researcher would step out of the room so that the participant could complete the remainder of the task alone, and would return when a blue screen appeared instructing them to alert the researcher.

IRAP Task

Each block in the IRAP consisted of 24 trials of the twelve target stimuli (6 toxic phrases and 6 innocuous phrases) presented twice in quasi-random order, once in the presence of each of the two label stimuli. In each trial, one of the 12 target stimuli phrases ("toxic" phrases and "innocuous" phrases) were presented at the top centre of the screen, a label stimulus was presented below the chosen phrase, in the middle of the screen ("Harmless" or "Abusive"), and two response options ("Yes" and "No") were presented at the bottom, one on the left and the other on the right. Participants were required to "indicate" the relation between the label and the phrase by choosing either "Yes" or "No" by pressing the keyboard keys "d" (for the option Yes) or "k" (for the option No). As specified in the IRAP instructions, the allocation of each response option was fixed across trials for the entire duration of the task. Participants had to respond as fast and as accurately as possible in each trial. A correct response started a 400ms inter-trial interval where the screen went blank, followed by the presentation of another trial. An incorrect response produced a red "X" that remained in the middle of the screen until the participant gave the correct response for that trial.

Before participants gained exposure to the first block of trials, a message appeared on screen which advised the participant that the first block was just for practice purposes. Four specific types of trials were presented during the task: the label "Abusive" along with an

abusive phrase pertained to bullying; the label "Harmless" and a harmless phrase pertained to bullying; the label "Abusive" and a harmless phrase pertained to bullying; and the label "Harmless" and an abusive phrase pertained to bullying (see Figure 1). In toxic is abusive/innocuous is harmless blocks, if the label "Harmless" and an innocuous/benign phrase appeared on the screen (e.g. 'go on ya fool'), the participant had to press the response option "Yes"; but if the label "Abusive" was presented along with an innocuous phrase, the participant had to press the option "No". Accordingly, if the label "Harmless" and a toxic phrase pertaining to bullying was presented, they had to respond "No"; but if the label "Abusive" was presented along with a toxic phrase, they had to respond "Yes". In toxic is harmless/innocuous is abusive blocks, participants had to respond in accordance with the opposite. Once this block of trials was complete, the response accuracy and latency feedback for that block was presented, with the instruction to continue the experiment by pressing the space bar on the keyboard.

Participants had to achieve specific criteria (80% correct responding and a median latency under 2000ms) in each practice block (of the same pair) in order to advance to the six test blocks. In a typical IRAP preparation, a minimum of two practice blocks are presented, followed by six test blocks. If they failed to meet the criteria on the first two practice blocks, they were re-exposed to practice blocks up to a maximum of six pairs. If they still failed to meet the criteria, they finished their participation and their data were discarded. The same accuracy and latency criteria were applied in order to consider data from the test blocks to be valid (although these criteria were not required to continue from one test block to the next).

The procedure was almost identical for both practice and test bocks. Once participants finished a block, they proceeded to the next block with the instruction that now they would have to respond in an opposite manner to their responding in the previous block. In accordance with standard practice, the interval between blocks was determined by the

participant. The main difference between practice and test was that after each pair of practice blocks, participants received a more complete feedback, reminding them of the criteria required to pass the task. This information was not presented after each pair of test blocks. Responding with pro-innocuous for harmless phrases and pro-toxic for abusive phrases was required on the first, third and fifth test block, and responding pro-toxic for harmless phrases and pro-innocuous for abusive phrases on the second, fourth and sixth test block. This was the case for the consistent-first sequence. For the inconsistent –first sequence, the trials were presented to the opposite effect. Once all test blocks were completed, a message appeared on the screen to please alert the researcher, meaning that this part of the experiment was finished.

'Ah shut up'		**'Just go die'**	
Harmless		**Abusive**	
Select 'd' for	Select 'k' for	Select 'd' for	Select 'k' for
Yes	**No**	**Yes**	**No**

'Dirty mean scum'		**'Don't be daft'**	
Harmless		**Abusive**	
Select 'd' for	Select 'k' for	Select 'd' for	Select 'k' for
Yes	**No**	**Yes**	**No**

Figure 1: Examples of the four IRAP trial-types. The labels (toxic phrases or innocuous phrases), target words ("Abusive" or "Harmless"), and response options ("Yes" or "No") appeared simultaneously on each trial.

Intervention. When participants finished with the IRAP task, they were presented with a brief educational intervention about the negative and lasting effects of bullying. This was carried out by showing each participant two video clips which were taken directly from the Department of Education and Skills Anti-Bullying Forum which took place on the 17th of May, 2012, and outlined ways to tackle and combat the problem of bullying in schools. These intervention videos were thus very much in keeping with the issues surrounding bullying behaviour in Irish Society today and were relatable to the sample population used for purposes of this study. This video intervention lasted for approximately 10 minutes.

IRAP measurement post-intervention. The researcher was notified by the participant once they had completed this video intervention. Immediately after the excerpt finished playing, participants completed the IRAP for a second time, including both practice and test blocks. Participants were notified that this computer task was the exact same task that had been presented to them previously. They were reminded briefly of each rule at which point the researcher asked if they were happy to begin the task. Once all six test blocks had been completed, participants reported to the researcher. Upon completion of these tasks, each participant was thanked for their time and was offered a debriefing sheet to take with them if they so wished. Overall, participation lasted approximately 40-45 minutes. No incentives were offered for participation.

IRAP Data Processing

Data were analysed at group level in terms of speed of relational responding during the implicit phase of the procedure. The effectiveness of the IRAP in assessing the implicit attitudes of Secondary School Students and University Students to bullying was examined by comparing speed and accuracy of relational responding within the IRAP (abusive Vs. harmless), which was recorded automatically on the computer. One *D* score was calculated for each of the IRAP's four individual trial-types, in keeping with methods of previous

research which employed the IRAP (D. Barnes-Holmes, Barnes-Holmes, et al., 2010).

Practice block data were not included in the analysis. Accuracies on the IRAP are typically

lower than the IAT. Thus, in order to ensure that IRAP effects were derived from

performances that involved the targeted patterns of stimulus control, D scores were excluded

if a participant failed to maintain the mastery criteria in the test blocks. While a number of

specific exclusion strategies could be applied in principle, the current research adopted one of

the methods most commonly employed in previous research (e.g. Nicholson and Barnes-

Holmes, 2012), which equally balances the two goals of (a) removing unwanted

performances, and (b) minimizing attrition. Following these authors' approach, D scores from

IRAP test blocks that failed to meet criteria were excluded from the analysis by following this

approach: If accuracy on one or both test blocks within a pair was < 78% and/or median

latency was > 2000ms, then the four D scores from that test block pair were excluded; if only

one of a participant's three test block pairs were excluded in this manner, the final D scores

were calculated by averaging the D scores across the two remaining test block pairs. D scores

for three participants were calculated on this basis; if more than one of a participant's three

test block pairs were excluded in this manner, all of the data from that particular IRAP was

excluded from the analysis. IRAP data for three participants were removed on this basis.

Results

Implicit Relational Assessment Procedure: Data Analysis

IRAP data were prepared and analysed in line with the latest recommendations (see

Hussey, Thompson, McEnteggart, Barnes-Holmes, & Barnes-Holmes, 2015). The primary

data produced by the IRAP programme are raw latency scores representing time in

milliseconds elapsed between the onset of the trial to the emission of a correct response by the

participant. Following a standard procedure to control for individual variation (Barnes-

Holmes, Waldron, Barnes-Holmes, & Stewart, 2009), the response latency data for each

participant were transformed into standardised difference scores, or *D*-scores, using an adaptation of the Greenwald, Nosek, and Banaji (2003) *D*-algorithm (see Cullen & Barnes-Holmes, 2008; Vahey, Barnes-Holmes, Barnes-Holmes & Stewart, 2009). IRAP *D*-scores are the standardised mean differences in response latencies between consistent and inconsistent trial-blocks across three pairs of trial-blocks. The steps involved in calculating the *D*-IRAP scores were as follows: (1) only response latency data from test blocks were included; (2) latencies above 10,000 ms were not included; (3) if participants' data contained more than 10% of test block trials with latencies less than 300 ms, they were removed; (4) standard deviations for the four trial types were calculated: four for the response latencies from test blocks 1 and 2, four for the response latencies from test blocks 3 and 4, and four for the response latencies from test blocks 5 and 6; (5) 24 mean latencies were calculated for the four trial-types in each test block; (6) difference scores for each of the four trial types were calculated for each pair of test blocks by subtracting the mean latency of the *Toxic-Abusive* block from the mean latency of the corresponding *toxic-harmless* block; (7) each difference score was then divided by its corresponding standard deviation from step 4, yielding 12 *D*-IRAP scores, one score for each trial type for each pair of test blocks; (8) four overall trial-type *D*-IRAP scores were calculated by averaging the three scores for each trial- type across the three pairs of test blocks.

For the research, the foregoing data transformation yielded positive *D*-scores that represent consistent trial-types (*Toxic-Abusive/Innocuous-Harmless*) and negative *D*-scores that represent the inconsistent trial-types (*Toxic-Harmless/Innocuous-Abusive*). Pre and post-intervention mean *D*-IRAP scores, standard deviations, *t*-values (one sample t-test) and *p*-values are presented in Table 2. The four *D*-IRAP trial-type scores for *n*=30 University Students pre and post-intervention are presented in Figure 2 (upper panel). The four *D*-IRAP trial-type scores for *n*=30 Secondary School Students pre and post-intervention are presented

in Figure 2 (lower panel).

Table 2. *Mean and Standard Deviation of IRAP across trial types and explicit measures for University and Secondary School students.*

		Pre Intervention				Post Intervention			
		M	*SD*	*t*	*p*	*M*	*SD*	*t*	*p*
Toxic-Abusive	University	0.42	0.38	6.0	0.000	0.49	0.40	6.7	0.000
	Secondary	0.40	0.41	5.4	0.000	0.46	0.34	7.5	0.000
Toxic-Harmless	University	0.11	0.43	1.4	0.158	0.12	0.39	1.7	0.104
	Secondary	0.26	0.38	3.8	0.001	0.21	0.46	2.6	0.016
Innocuous-Abusive-	University	0.12	0.42	1.6	0.128	0.53	0.49	0.6	0.552
	Secondary	0.25	0.37	3.7	0.001	0.11	0.44	1.4	0.170
Innocuous-Harmless	University	0.45	0.40	6.2	0.000	0.45	0.37	6.7	0.000
	Secondary	0.43	0.31	7.5	0.000	0.39	0.34	6.3	0.000

Note. *t*-value from one sample t-test; statistical significance was set at $p < 0.05$.
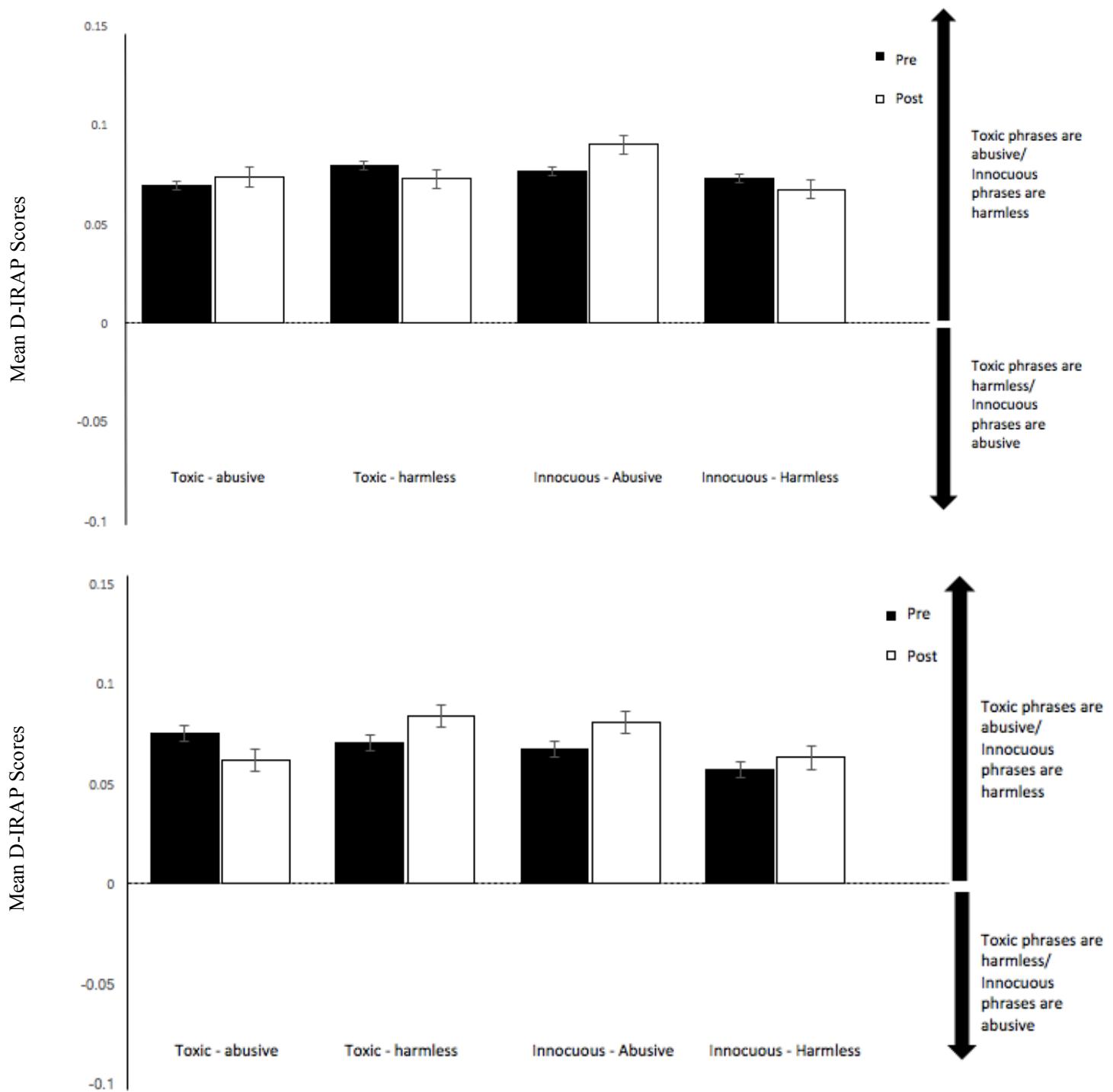
Figure 2. Upper panel: University students' *D*-scores for four IRAP trial-types pre and post intervention. *Lower Panel:* Secondary-school students' *D*-scores for four IRAP trial-types pre and post intervention. Positive *D*-scores (above the zero axis) reflect pro-Consistent relations, and negative *D*-scores (below the zero axis) would indicate pro-Inconsistent relations.

Statistical analyses were conducted which involved inverting IRAP trial-types 3 and 4

(multiply by -1; see Hussey, 2015) to facilitate comparisons using SPSS software. The mean

D-IRAP scores for University Students and Secondary School Student groups were subjected to a 2x2x4 mixed repeated measures analysis of variance (ANOVA) to test the effect of a brief educational video intervention by comparing pre and post-intervention IRAP data. The within participant independent variables (IV) were trial-type and time (pre and post-intervention); the between participant IV was participant group (University Students versus Secondary School Students). There was no statistically significant main effect identified for group ($p = 0.54$). There was also no statistically significant main effect identified for time [Wilks' Lambda = 0.995, F (1,58 = 0.317, $p = 0.575$] when resulting IRAP data for 4 trial-types were compared pre and post intervention. Thus, an intervention exposing the participants to an educational video did not impact participants' evaluations one way or another, as evidenced via comparison of IRAP *D*-scores. A statistically significant main effect was identified for trial type, [Wilks' Lambda = 0.49, F (3,56) = 19.72, $p < .0005$, partial eta squared = 0.51]. Post-hoc pairwise comparisons indicated a statistically significant difference between *Toxic-Abusive* and *Toxic-Harmless* ($p<0.001$), *Toxic-Abusive* and *Innocuous-Abusive* ($p<0.001$), *Toxic-Harmless* and *Innocuous-Harmless* ($p<0.001$) and *Innocuous-Abusive* and *Innocuous-Harmless* ($p<0.001$) (Bonferroni corrected for multiple comparisons).

There was no statistically significant two-way interaction effect between time (pre/post) and group [Wilks' Lambda = 0.994, F (1,58 = 0.376, $p = 0.542$], or between IRAP trial-type and group [Wilks' Lambda = 0.935, F (3,56 = 1.31, $p =0.282$], or between time (pre/post) and trial-type [Wilks' Lambda = 0.936, F (3,56 = 1.28, $p = 0.290$]. There was also no statistically significant three-way interaction between trial type, group and time [Wilks' Lambda = 0.997, F (3,56 = 0.055, $p = 0.983$].

Explicit Measures Analysis

Results from the explicit measures analysis showed that individuals rated themselves as statistically significantly more pro-social than as a bully or as a victim to bullying.

Similarly, mean scores of 28.6 and 28.4 on the Revised Pro-Victim scale for University Students and Secondary School Students respectively represents a positive attitude towards victims of bullying as opposed to a positive attitude towards bullies. Means and standard deviations of explicit measures subscales for both groups are presented in Table 3.

A 3x2 mixed between-within ANOVA was conducted to explore the difference between subscales within the Bullying Prevalence Questionnaire across both groups. The between participant IV was group (University Students, Secondary School Students); the within participant IV was subscale (bully, victim, pro-social). The DV was BPQ score. There was a statistically significant main effect for subscale [Wilks' Lambda = 0.12, $F(2,57) = 215.35$, $p<0.005$, partial eta squared = 0.88]. There was no statistically significant main effect for group ($p = 1.00$). There was no statistically significant interaction between subscales and group [Wilks' Lambda = 0.96, $F(2, 57) = 1.25$, $p = 0.29$, partial eta squared = 0.04]. As expected, post-hoc comparisons showed that there were statistically significant differences between the bully and pro-social subscales ($p<0.001$); and between the victim and pro-social subscales ($p<0.001$). An independent t-test was conducted to examine differences between the two groups on the RPVS; there were no statistically significant differences [$t(58) = 0.53$, $p = 0.60$].

Table 3: *Mean and Standard Deviation of explicit measure sub-scales for University Students and Secondary School Students.*

Group		Mean	Std. Deviation
University Students	BPQ bully	6.6	1.0
	BPQ victim	6.6	1.85
	BPQ Pro-Social	12.4	1.57
	RPVS	28.6	1.69
Secondary School Students	BPQ bully	6.93	1.28
	BPQ victim	6.73	1.87
	BPQ Pro-Social	12.0	2.24
	RPVS	28.4	1.22

Implicit-Explicit Correlations

Each of the four *D*-IRAP scores pre-intervention were entered into a correlation matrix with the 4 explicit measure sub-scales. Preliminary analyses showed no violation of the assumptions of normality, linearity and homoscedasticity. The relationship between trial types and explicit bullying attitudes was therefore investigated using Pearson product-moment correlation coefficient. There was no statistically significant correlation identified between IRAP trial types and the 4 explicit sub-scales for the Secondary School Student sample (all p's >0.05). In the University Student sample, there was a statistically significant correlation identified between *Toxic-Harmless* and the pro-social sub scale in the BPQ ($r = 0.4$, $p = 0.03$). A statistically significant correlation was also identified between *Innocuous-Harmless* and the pro-social subscale ($r = 0.4$, $p = 0.03$, see Table 4).

For the University Student sample, there was a statistically significant correlation between the bully and victim subscales on the BPQ ($r = .598$, $p = 0.000$). This statistically significant correlation was also evident for the Secondary School Student sample ($r = .422$, $p = 0.02$).

Table 4: *Correlations between IRAP trial-types and explicit measures*

	Explicit Measures			
IRAP Trial-type	BPQ - Bully	BPQ – Victim	BPQ – Pro social	RPVS
University Students				
Toxic – Abusive	-.138	-.146	-.053	.028
Toxic – Harmless	-.006	.121	-.390*	-.154
Innocuous – Abusive	.196	.200	.065	.172
Innocuous Harmless	.069	.011	-.408*	-.084
Secondary School Students				
Toxic – Abusive	.048	-.087	.112	.208
Toxic – Harmless	.078	.119	.299	.125
Innocuous - Abusive	-.176	-.341	-.094	.082
Innocuous - Harmless	-.090	-.290	-.066	.012

Note: BPQ-Bully, BPQ-Victim, and BPQ –Pro Social = Bullying Prevalence Questionnaires' Bully, Victim and Pro social Subscales respectively, RPVS = Revised Pro-Victim Scale. For ease of interpretation, correlations among the IRAP trial-types are not included here. *$p < 0.05$

Gender Analyses

A 2x4 mixed between-within ANOVA was conducted to examine gender differences across trial types for both groups. The four *D*-IRAP trial-type scores for female University Students ($n = 15$) and female Secondary School Students ($n = 15$) pre and post-intervention are presented in Figure 3 (upper panel). The four *D*-IRAP trial-type scores for male University Students ($n = 15$) and male Secondary School Students ($n = 15$) pre and post-intervention are presented in Figure 3 (lower panel).

For the Secondary School Student sample, there was a statistically significant main effect for trial type [Wilks' Lambda = 0.73, F (3,26) = 3.15, p = 0.042, partial eta squared = 0.27]. However, no statistically significant main effect was identified for gender (p = 0.352). There was no statistically significant interaction effect between trial type and gender [Wilks' Lambda = 0.936, F (3,26) = 3.16, p = 0.63, partial eta squared = 0.06. For the University Student sample, a statistically significant main effect was identified for trial type [Wilks' Lambda = 0.5, F (3,26) = 8.56, p = 0.000, partial eta squared = 0.5]. Again, no statistically significant main effect was identified for gender (p = 0.947). There was also no statistically significant interaction effect identified between trial type and gender [Wilks' Lambda = 0.91, F (3,26) = 0.84, p = 0.485, partial eta squared = 0.09].
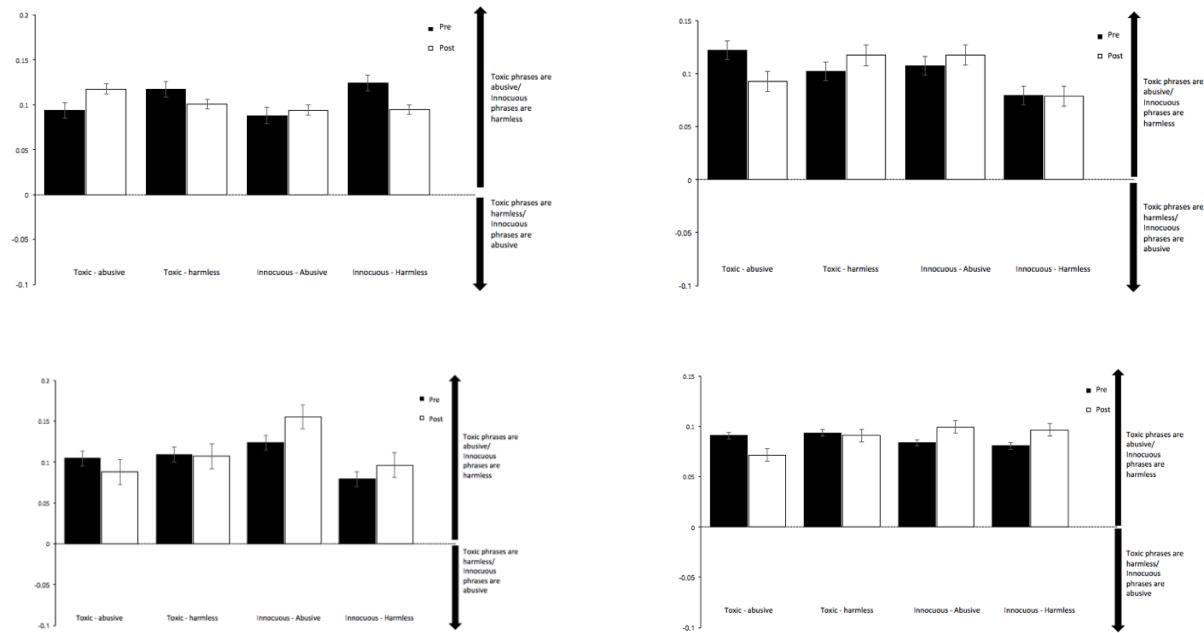
Figure 3. Upper panel: Female University and Secondary School Students' *D*-scores for four IRAP trial-types pre and post intervention. *Lower Panel:* Male University and Secondary-School Students' *D*-scores for four IRAP trial-types pre and post intervention. Positive *D*-scores (above the zero axis) reflect pro-Consistent relations, and negative *D*-scores (below the zero axis) would indicate pro-Inconsistent relations.

Prediction of group status

In order to determine if the IRAP proved to be a statistically significant predictor of attitudes towards bullying, four separate logistic hierarchical regression analyses were planned, one for each subscale on the explicit measures used. To effectively prepare the data for analyses, the following calculations were conducted. Firstly, an overall mean D-IRAP score was calculated for all participants by calculating the mean of the eight trial-type scores (4 trial-type scores pre-intervention; 4 trial-types post intervention). An overall positive score indicated that participants responded faster to affirm toxic-abusive-true effect and innocuous-harmless-true effect. Conversely, a negative score indicated a toxic-abusive-false effect, and an innocuous-harmless-false effect.

The data were then used to conduct four separate hierarchical logistic regression analyses. For each model, one of the explicit sub-scale measures was entered as a predictor of group status (Secondary School Students or University Students) for the first step, and the overall D-IRAP mean score as the second step in the model.

The bully sub-scale on the BPQ proved to be a statistically non-significant predictor of group status, $B = 0.3$, $p = 0.27$, correctly classifying 58.3% of participants. Overall D-IRAP scores entered into the second step also proved to be a statistically non-significant predictor of group status, $B = -.64$, $p = 0.56$, with a correct classification of 60% of participants.

The victim sub-scale on the BPQ similarly proved statistically non-significant in predicting group status, $B = .04$, $p = .78$, accounting for 50% of the variance. The overall D-IRAP scores also produced a statistically non-significant effect, $B = -.67$, $p = .54$, accounting for 50% of the variance.

The BPQ Pro-Social subscale was also statistically non-significant in predicting group status, $B = -.13$, $p = .35$, accounting for 50% of the variance. When the D-IRAP scores were entered in the second step, these also produced a statistically non-significant effect $B = -.62$, p

= .58, accounting for 52% of the variance.

The final scale examined was the RPVS which, again, proved statistically non-significant in predicting group status, B = -.1, p = .6, accounting for 53.3% of the variance. The addition of the D-IRAP scores in the second step also was a statistically non-significant predictor of group status, B = -.73, p = .5, accounting for 56.7% of the variance.

Experience with Bullying

Results from the cyberbullying survey (CS) showed that the majority of University Students rated their online usage at *more than four hours a day* (45%), closely followed by 38% of participants being online *between three and four hours a day*. Only 3% of participants reported that they had been *cyberbullied at University*. However, 42% of participants reported that they *knew someone who had been cyberbullied*.

Results from the BAQ-MM showed that Secondary School Students rated the bullying behaviour as *very serious* 41% of the time, with only a 1% rating as *not at all serious* (see Figure 4).

Participant Scores on the BAQ-MM
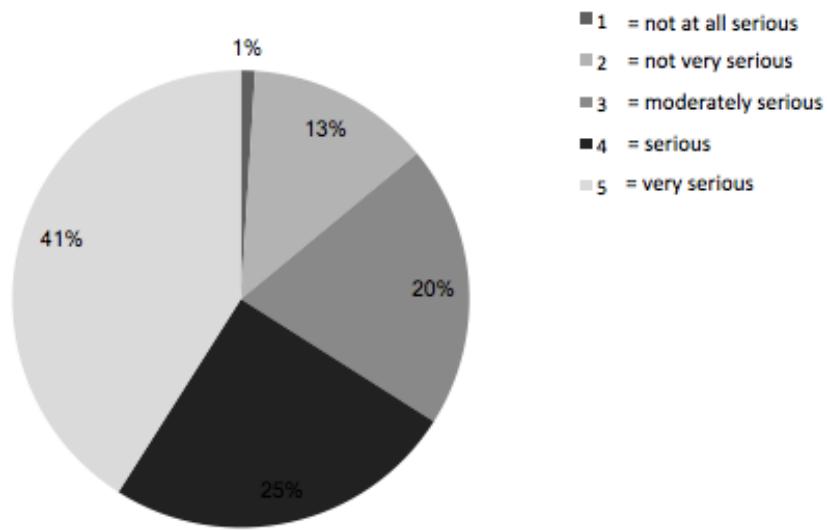
Figure 4: Total percentage of all participants scores on the BAQ-MM.

Results Summary

Results from the IRAP analysis in Study 1 found a statistically significant effect for the *Toxic-Abusive* and *Innocuous-Harmless* trial-types; but no statistically significant effect for the *Toxic-Harmless* and *Innocuous-Abusive* trial types. That is, participant responding on both IRAP test occasions showed more rapid affirmation of consistent (*Toxic-Abusive*/*Innocuous-Harmless*) patterns of responding. No statistically significant differences were identified between Secondary School Students (*n*=30) and University Students (*n*=30) attitudes towards toxic and innocuous phrases; and no statistically significant differences on any IRAP trial-type between pre and post intervention *D*-scores, subsequent to an educational video intervention. Gender analyses for male (*n*=30) and female (*n*=30) participants similarly showed no statistically significant influence of an educational video intervention on IRAP trial-types between pre and post intervention *D*-scores. There were statistically significant correlations between the Pro-Social subscale and *Toxic-Harmless* and *Innocuous-Abusive* IRAP trial types. The BPQ Bully and Victim subscales also showed statistically significant

correlations for both groups. Regressions analyses revealed that neither the IRAP nor the

explicit measures were statistically significant predictors of group status.

Discussion

The current research aimed to explore if the IRAP could be used as a measure of implicit attitudes towards bullying. Specifically, the IRAP was used to determine whether students held a relaxed attitude or a negative bias towards abusive and harmless phrases. The BPQ and RPVS self-report measures were also employed to examine attitudes towards bullies and victims of bullying; and also pro-social attitudes. It was hypothesised, based on prior research, that participants would have a relaxed attitude towards bullying, and that an educational video intervention would impact attitudes. It was also hypothesised that both groups would respond more rapidly to affirm proposed relations that reflect their current beliefs than to affirm proposed relations that do not; and there would be a divergence between Secondary School Students and University Students responses.

Results from the individual trial types showed that effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types were statistically significant. That is, both University Students and Secondary School Students responded that toxic phrases were abusive/not harmless and innocuous phrases were harmless/not abusive. Results revealed no statistically significant differences between pre and post intervention scores for either group, suggesting that an educational intervention video that outlined the negative and lasting effects of bullying did not appear to affect individuals' implicit responding on the IRAP. Overall, this suggests that participants had more of an anti-bullying bias as opposed to a relaxed/dismissive attitude. Such findings may be reflective of why the video intervention did not impact participant responding in that where no pro-bully bias was identified in the first instance, the intervention was not shown to exert influence.

Results from the explicit measures analysis showed that individuals rated themselves as statistically significantly more pro-social than as bullies or as victims to bullying on the BPQ. This suggests that participants see themselves as being largely pro-social, and most

likely classify themselves as friendly and approachable within their own social circles. Eslea and Smith (2012) also found that participants expressed generally positive, pro-social attitudes when asked about bully/victim problems at school, affirming that participants may be rating themselves pro-socially in the context of their own familiar social circle. It also appears that participants did not see themselves as either a victim or a bully, which is interesting considering the statistics on bullying reported by participants on the cyberbullying survey (CS). Only 3% of University Students reported that they had been cyberbullied at University. However, 42% of participants reported that they knew someone who had been cyberbullied. Dilmac (2009) found similar results; 22.5% of students had cyber-bullied others while 55.3% reported being online victims. This leads to a question of accuracy of students' self-reports in that each recorded incidence of bullying/victimisation requires at least one victim and one perpetrator.

Both University and Secondary School Students' responses on the Revised Pro-Victim scale were suggestive of a positive attitude towards victims of bullying as opposed to a positive attitude towards bullies. Again, this suggests that participants consider themselves as being empathic and sensitive towards victims of bullying and show an overall negative attitude towards bullies themselves. This is consistent with Rigby and Slee's (1991, 1993) findings when initially developing the Pro-Victim Scale, that from a sample of 700 Australian students aged from 6-16, most adolescents sympathise with victims to bullying, and were disapproving of bullies and supportive of intervention. This could be due to students feeling that they can be more honest about victimisations than they can be about bullying and it is often found that students report being a victim to bullying statistically significantly more often than being a perpetrator of bullying (see Hartung, Little, Allen, & Page, 2011).

Correlational analyses between IRAP trial types and the explicit sub-scales revealed a statistically significant correlation between the *toxic-harmless* and *innocuous-harmless* trial

type and the pro-social subscale of the BPQ for University Students. Rigby and Slee's (1993) BPQ provided assessments of the prevalence of behaviours and attitudes among students that reflect a tendency to bully others, be bullied by others, and to act pro-socially. For the pro-social subscale to correlate with these IRAP trial-types suggests that University Students who rated themselves as more pro-social were more likely to affirm innocuous–harmless-true and toxic-harmless-false. This suggests that University Students who rate themselves as more pro-social recognise innocuous phrases as simply harmless 'banter', and recognise that more severe and toxic phrases are not just harmless fun. Thus, their understanding of what is "toxic" and what is "innocuous" might make them more inclined to be reflective of a tendency to act pro-socially. This also reaffirms the hypothesis that participants had more of an anti-bullying bias as opposed to a casual/dismissive attitude.

Finally, regression analyses showed that none of the explicit measures were significant predictors of group status. Furthermore, when the D-IRAP scores were added to the explicit measures, the predictive validity across each one did not increase. Thus, neither the explicit measures nor the IRAP were found to be significant predictors of group status in this instance.

To re-examine the primary hypothesis for this study, it was anticipated that Secondary School Students and University Students would respond more rapidly to affirm proposed relations that reflect their current beliefs than to affirm proposed relations that do not. Both groups (Secondary School Students and University Students) showed *Toxic-Abusive* and *Innocuous-Harmless* patterns of responding and at both time points (pre and post intervention), and also rated themselves as statistically significantly more pro-social than they did as a bully or as a victim to bullying. It is suggested that participants IRAP responses were as a result of their understanding of the negative effects of abusive phrases most likely due to reports by scholarly literature and popular media of the Internet's undesirable social

implications (Tokunaga, 2010). Cyberbullying victimisation has ascended to the forefront of the public agenda, with several anecdotal cases unfolding in the media (Benfer, 2001; Doneman, 2008; Tomazin & Smith, 2007). Similarly, it is likely that participants have experienced the benign effect of more harmless phrases in daily conversation with friends or through exposure to popular social media sites, where participants report spending 3 - 4+ hours of their day.

Bullying can take an abundance of forms, such as verbal or physical aggression, and can be either direct or indirect (Olweus, 1993). For this reason, attitudes towards bullying behaviours may be somewhat different depending on the type of bullying that is being considered. For example, one type of bullying may have direct, physical repercussions for the victim (i.e. hitting, etc.), while another type may have indirect, emotional repercussions (i.e. spark negative feelings, sense of fear, etc., (Smith and Frisen, 2016). Research within the literature has shown that the implementation of an IRAP which presents images as target stimuli as opposed to words could produce differing effects (e.g. Dasgupta, McGhee, Greenwald, & Banaji, 2000). It is therefore possible that different IRAP effects may be observed if images were used which depicted a more specific and prominent form of indirect bullying, such as cyberbullying. University Students report spending a vast amount of time connected to the internet (97%, Tokunaga, 2010; 98%, Curtis & McGilloway, 2014) and are often spending this time on popular social media sites such as Facebook, Twitter, etc. The aim of Study 2 therefore was to extend the findings of Study 1 by creating a bully IRAP which focused specifically on cyberbullying.

CHAPTER 3

STUDY 2

Using the IRAP to Measure Bullying Attitudes:

Picture Stimuli

Introduction

The current study aimed to explore if the IRAP could be used as a measure of assessing implicit attitudes towards toxic and innocuous phrases. Study 2 more specifically focused on cyberbullying with a sample of University Students only. The IRAP employed picture stimuli (as opposed to word stimuli) that presented the toxic and innocuous phrases used in Study 1 on a pictorial backdrop of commonly used social media sites (e.g. Facebook, Twitter) or text messaging providers (e.g. iMessage). Existing research on cyberbullying is mostly conducted without sound theoretical foundation and have predominantly focused on children and adolescents (Xiao and Wong, 2015). In addition, research within the literature has shown that the implementation of an IRAP which presents picture stimuli as opposed to word stimuli could produce differing effects (e.g. Dasgupta, McGhee, Greenwald, & Banaji, 2000). In light of these findings, the current research addresses a gap in prior literature – the paucity of cyberbullying research on University Students, particularly University Students in Ireland.

The researcher also attempted to explore any correlations between IRAP data and self-report measures. Pre and post IRAP measures were taken to determine any impact of the intervention used, and to allow for analysis of the impact on different groups. Explicit attitudes were assessed using the BPQ, the RPVS and the CS to examine bully, victim and pro-social attitudes respectively. Implicit attitudes were assessed using the Implicit Relational Assessment Procedure (IRAP; Barnes-Holmes et al., 2006). While explicit measures are still a useful research tool, it could hugely benefit from the accompaniment of a form of implicit measure. This allowed the researcher to obtain a more elaborate understanding of the attitudes and behaviours being assessed.

Method

Participants

Thirty participants took part in this study; three others volunteered but their data were

later discarded as they did not meet the inclusion criteria as described. Recall of participants which were used in Study 1 was preferable. The researcher therefore reached out to University Student participants who had already taken part in Study 1, and asked if they would be willing to return in order to take part in a similar second study. Following the conclusion of participant recall, it was preferable that other participants willing to take part in Study 2 would possess similar demographic information and characteristics to those employed in Study 1 (e.g. similar age group, ethnicity, etc.) In total, 12 participants from Study 1 returned to take part in Study 2. All other participants were third level college students attending Universities in South East Ireland.

The mean age of participants was 21.7, and consisted of 25 males and 5 females. All participants were of White ethnic origin and spoke English as their first language. All participants were third level education university students attending Universities across South East Ireland.

Apparatus and Materials

The research was conducted in a private experimental cubicle provided to the researcher for purposes of the study. This cubicle was located in a quiet, private area within the Department of Psychology at Maynooth University. All IRAP tasks were presented to each participant on the same standard laptop computer that was used in Study 1. The IRAP programme, again, controlled all aspects of stimulus presentation and the recording of participant responses. For Study 2, the stimuli presented by the IRAP comprised of eight images which were deemed "toxic" and consistent with cyberbullying behaviour and eight images which were deemed "innocuous" and inconsistent with cyberbullying behaviour and the two words "Abusive" and "Harmless". Additionally, the words "Yes" and "No" were presented as response options. The picture stimuli comprised of actual images taken from popular social media sites (e.g. Facebook, Twitter) and contained either an abusive or

harmless message on the image screen. The word stimuli used in Study 1 thus remained the same for Study 2 (see Table 1).

The IRAP presented the stimuli in the same manner as Study 1 except that the Abusive and Harmless cyberbullying images replaced the word labels. Each of the images employed in Study 2 can be seen in Appendix 12. The BPQ, RPVS and CS questionnaires employed in Study 1 were also used in Study 2. Additionally, the same educational video intervention in Study 1 was also employed for the second study.

Procedure

The procedure for Study 2 was identical to that of Study 1. The only identifiable difference for Study 2 was that the words previously presented as label stimuli were replaced with images in the IRAP task. The same label stimuli in Study 1 were still used in Study 2. However, they were now presented on images from popular social media sites to create an overall image related to cyberbullying. Examples of the four IRAP trial-types employed in Study 2 can be seen in Figure 5 (overleaf). All other aspects of the study replicated Study 1.
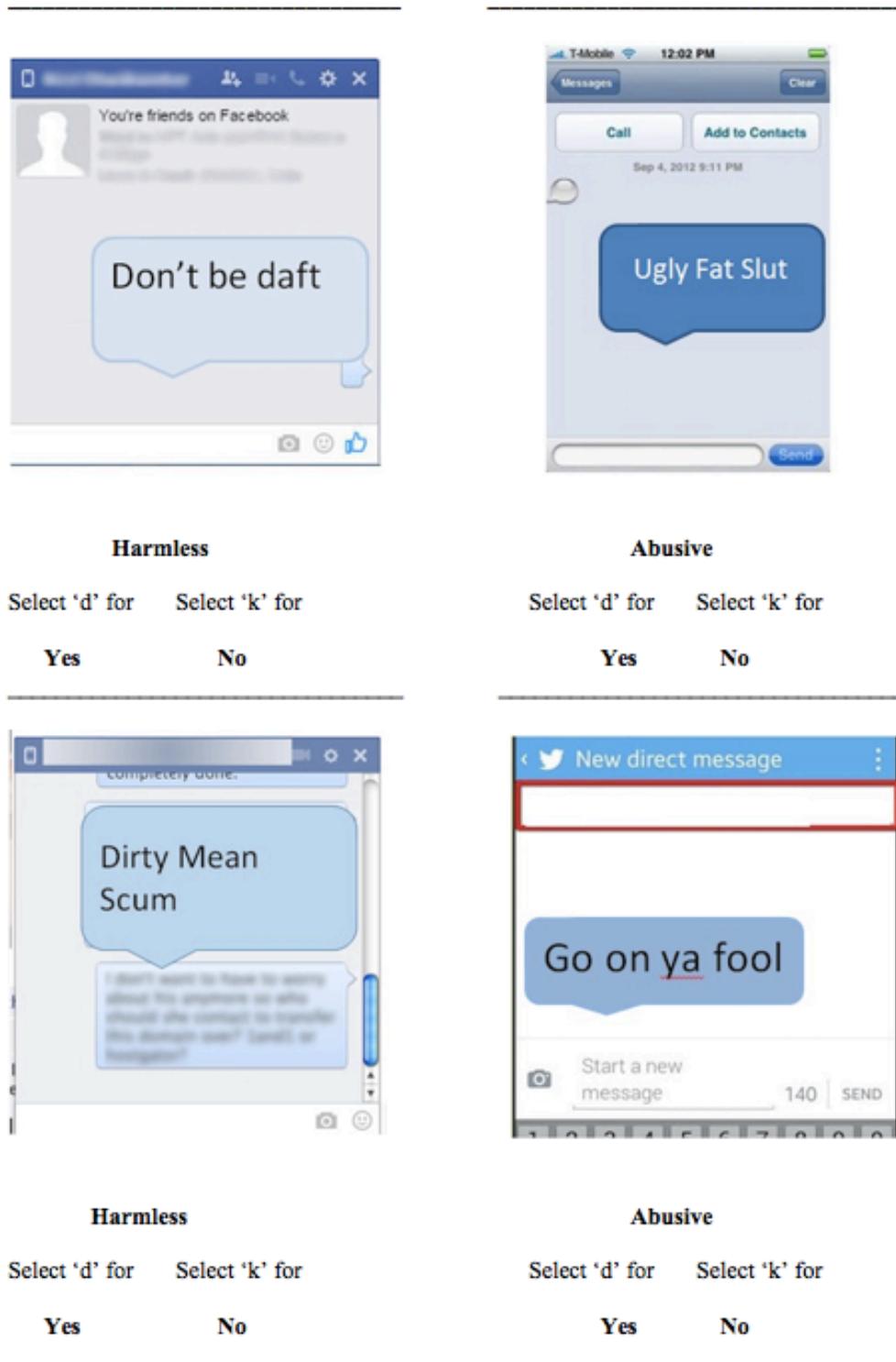
Figure 5: Examples of the four IRAP trial-types and picture stimuli used for Study 2. The labels (toxic phrases or innocuous phrases), target words ("Abusive" or "Harmless"), and response options ("Yes" or "No") appeared simultaneously on each trial.

Results

Implicit Relational Assessment Procedure: Data Analysis

The primary data produced by the IRAP programme, the IRAP trial-types, and the calculation of *D*-scores were the same as those employed in Study 1. Data from the 30 participants who successfully completed the IRAP were included. The four overall mean *D*-IRAP scores for each trial type are presented in Figure 6. As in Study 1, positive *D*-scores represented consistent trial-types (*Toxic-Abusive/Innocuous-Harmless*) and negative *D*-scores represented inconsistent trial-types (*Toxic-Harmless/Innocuous-Abusive*).
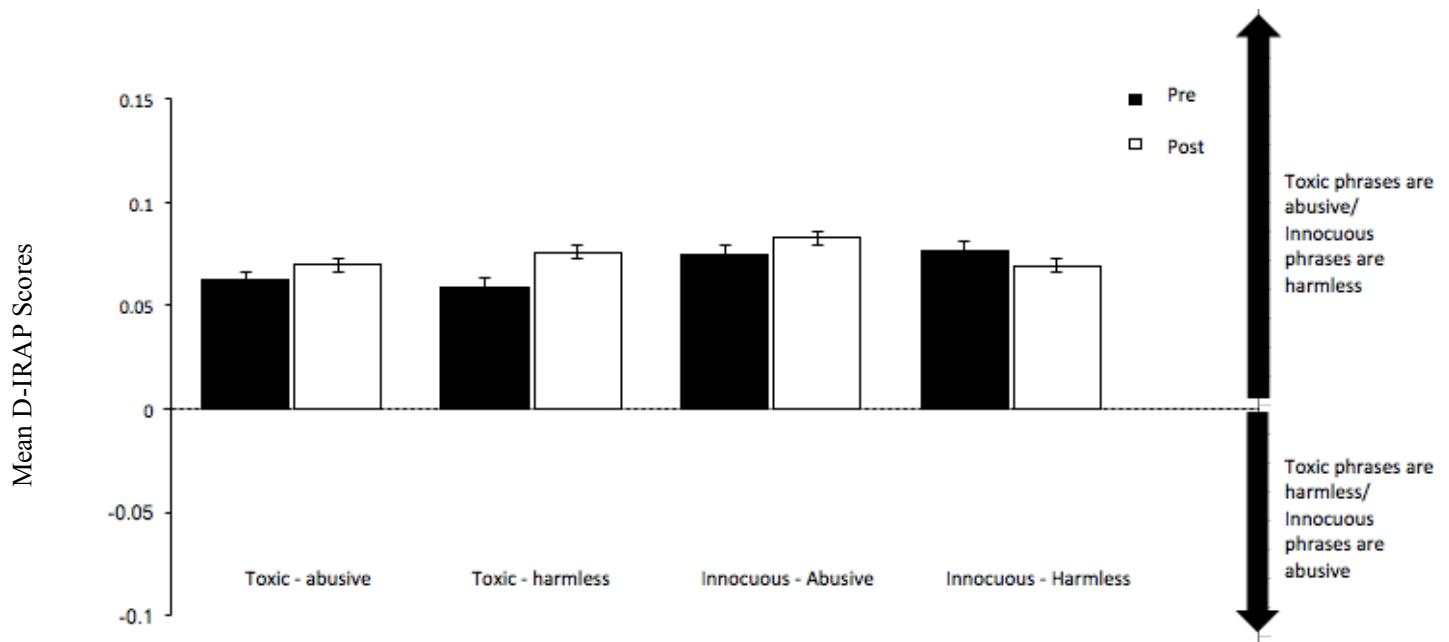
Figure 6: University students' *D*-scores for four IRAP trial-types pre and post intervention. Positive *D*-scores (above the zero axis) reflect pro-Consistent relations, and negative *D*-scores (below the zero axis) would indicate pro-Inconsistent relations.

As in Study 1, statistical analyses were conducted with IRAP trial-types 3 and 4 inverted to facilitate comparisons using SPSS software. Pre and post-intervention mean *D*-IRAP scores, standard deviations, *t*-values (one sample t-test) and *p*-values are presented in Table 5. The mean *D*-IRAP scores for the *n* = 30 participants were subjected to a two-way

repeated measures ANOVA to test a) if trial-type data showed participant evaluations more rapidly affirmed consistent versus inconsistent relations presented in the IRAP procedures; and b) to determine any effect of the intervention procedure by comparing participants' pre and post IRAP results across 4 trial-types. Time (pre and post intervention) and trial-types were the within-participant independent variables and IRAP D-scores were the dependent variable. A statistically significant main effect was identified for trial-type [Wilks' Lambda = 0.43, F (3,27) = 11.9, p<0.001, partial eta squared = 0.57]. Post-hoc pairwise comparisons indicated a statistically significant difference between *Toxic-Abusive* and *Toxic-Harmless* (p<0.001) and *Toxic-Abusive* and *Innocuous-Abusive* (p<0.001) (bonferroni corrected for multiple comparisons).

There was no statistically significant main effect for time [Wilks' Lambda = 0.98, F (1,29) = .556, p = .462, partial eta squared = 0.02], and no statistically significant interaction between trial type and time [Wilks' Lambda = 0.87, F (1,29) = 1.37, p = 0.27, partial eta squared = 0.13]. Thus, although visual analysis of Figure 4 may suggest some differences between pre and post responding, there was no meaningful change subsequent to an educational video intervention.

Table 5. *Mean and Standard Deviation of IRAP scores across trial types for University students.*

	Pre Intervention				Post Intervention			
N=30	*M*	*SD*	*t*	*p*	*M*	*SD*	*t*	*p*
Toxic-Abusive	0.49	0.34	7.9	0.000	0.45	0.38	6.5	0.000
Toxic-Harmless	0.14	0.32	2.3	0.028	0.05	0.41	0.6	0.532
Innocuous-Abusive	0.19	0.41	2.6	0.015	0.52	0.46	0.6	0.533
Innocuous-Harmless	0.32	0.38	3.0	0.005	0.32	0.38	4.6	0.000

Note. *t*-value from one sample t-test; statistical significance was set at *p<0.05*.

Explicit Measures Analysis

Results from the explicit measure analysis showed that individuals rated themselves as statistically significantly more pro-social than as a bully or as a victim to bullying. Similarly, a mean score of 29 on the Revised Pro-Victim scale represent a positive attitude towards victims of bullying as opposed to a positive attitude towards bullies. Means and standard deviations of explicit measures subscales are presented in Table 6.

A one-way within participant ANOVA was conducted to explore the difference between subscales within the Bullying Prevalence Questionnaire for University Students. The within participant IV was subscale (bully, victim, pro-social), and the DV was BPQ score. There was a statistically significant main effect for subscale [Wilks' Lambda = 0.81, F (2,28) = 158.98, $p<0.005$, partial eta squared = 0.92]. As expected, post-hoc comparisons showed that there were statistically significant differences between the bully and pro-social subscales ($p<0.001$); and between the victim and pro-social subscales ($p<0.001$).

Table 6. *Mean and Standard Deviation of explicit measure sub-scales for University Students.*

Group		Mean	Std. Deviation
University Student	BPQ bully	6.4	0.7
	BPQ victim	6.6	1.9
	BPQ Pro-Social	12.7	2.0
	RPVS	29.0	1.4

Implicit-Explicit Correlations

Each of the four *D*-IRAP scores were entered into a correlation matrix with the 4 explicit measure sub-scales (BPQ Bully, BPQ Victim, BPQ Pro-Social, RPVS). Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. Analysis using Pearson product-moment correlation coefficient showed no statistically significant correlations between IRAP trial types and the four explicit subscales (all p's>0.05). Statistically significant correlations were identified between the BPQ – Bully subscale and the BPQ – Victim subscale ($r = .75, p = .000$), and the BPQ – Bully subscale and RPVS ($r = -.41, p = 0.03$).

Experience with Bullying

Results from the cyberbullying survey (CS) yielded similar results to those of Study 1. They showed that the majority of University Students who participated in Study 2 rated their online usage at *between three to four hours a day* (50%), closely followed by 43% of participants being online *more than four hours a day*. Similar to Study 1, only 3% of participants in Study 2 reported that they had been *cyberbullied at University*, while 43% of participants reported that they *knew someone who had been cyberbullied*.

Stimulus-type Analysis

In order to examine whether stimulus type (words versus pictures) affected participant responding on an IRAP investigation of implicit attitudes toward bullying, *D*-IRAP scores from University Students in Study 1 (word stimuli presented in IRAP trials) were compared

to University Students' *D*-IRAP scores in Study 2 (picture stimuli presented in IRAP trials). A 2x2x4 mixed repeated measures ANOVA was used, with stimulus type (word versus picture stimuli) as the between-participant variable and time (pre and post intervention) and IRAP trial-types as repeated measures variables. No statistically significant main effect was identified for stimulus type ($p = 0.575$). There was no statistically significant two-way interaction effect identified between time and stimulus type [Wilks' Lambda = 0.993, F (1,58 = 0.433, p= 0.513], time and trial type [Wilks' Lambda = 0.930, F (3,56) = 1.4, p= 0.252], or trial type and stimulus type [Wilks' Lambda = 0.894, F (3,56) = 2.22, p= 0.096]. There was also no statistically significant three-way interaction between trial type, stimulus type and time [Wilks' Lambda = 0.957, F (3,56) = 0.833, p= 0.481]. Figure 7 illustrates the trial-type by stimulus-type interaction, which is indicative of stimulus type not having any statistically significant effect on IRAP trial-types. Thus, results of the current study do not support previous IRAP research suggesting that picture stimuli may facilitate detection of stronger bias in participants' *D*-scores compared to word stimuli.
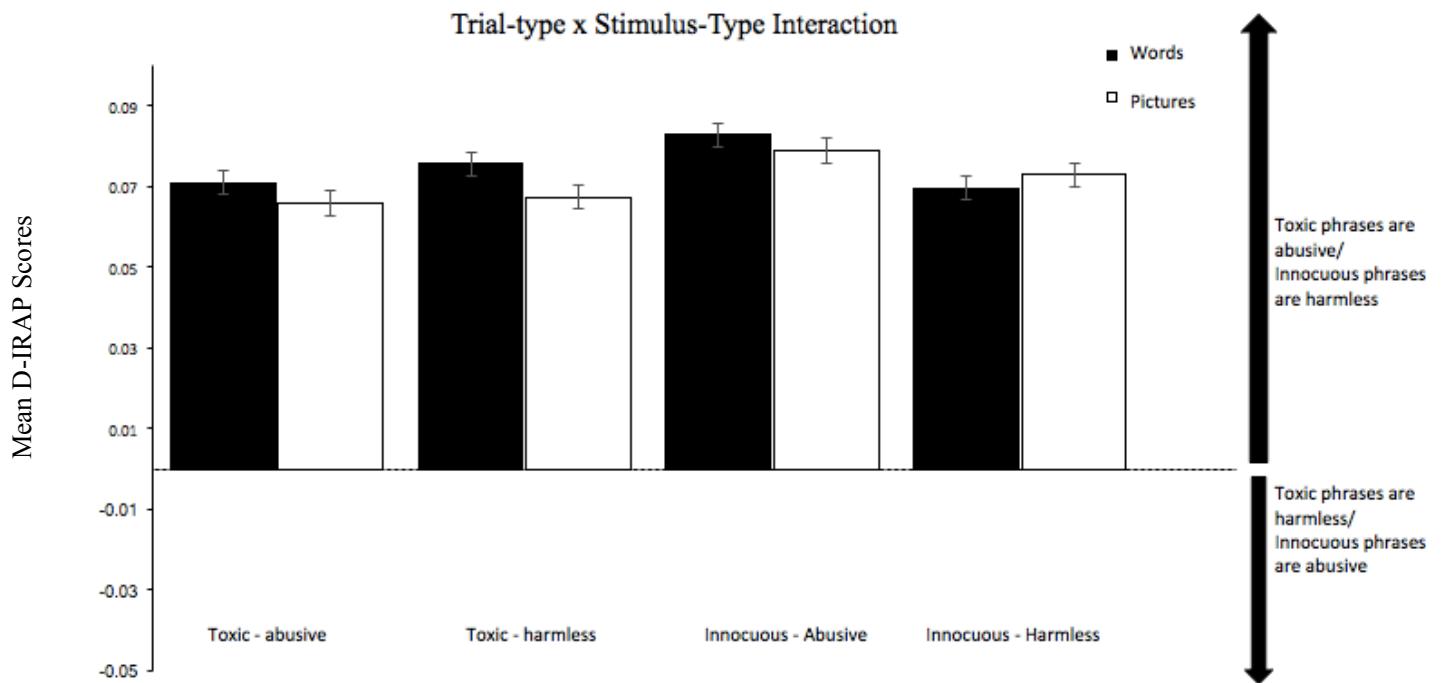
Figure 7: Mean D-IRAP scores for University Student participants who completed the word IRAP versus University Student participants who completed the picture IRAP.

Results Summary

Results of Study 2 yielded similar IRAP results to Study 1 (pro *Toxic-Abusive/Innocuous-Harmless* consistent trial-types) bias. No statistically significant differences were identified between pre and post intervention *D*-scores subsequent to an educational video intervention. No statistically significant correlations were identified between the IRAP data and subscale data (explicit measures); however a statistically significant correlation was identified between the RPVS and the BPQ - Bully subscale. Similar to Study 1, the Bully and Victim subscales on the BPQ also correlated with one another at a statistically significant level.

Discussion

Similar to Study 1, the current study aimed to explore if the IRAP could be used as a measure of assessing implicit attitudes towards toxic and innocuous phrases. Study 2 more specifically focused on cyberbullying with a sample of University Students only. The IRAP employed picture stimuli (as opposed to word stimuli) that presented the toxic and innocuous phrases used in Study 1 on a pictorial backdrop of commonly used social media sites (e.g. Facebook, Twitter) or text messaging providers (e.g. iMessage). As in Study 1, the BPQ and RPVS were employed to examine bully, victim and pro-social attitudes respectively. Results from the individual trial types showed that effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types were statistically significant. This is, University Students responded that images presenting toxic phrases were abusive/not harmless and innocuous phrases were harmless/not abusive. Results revealed no statistically significant differences between pre and post intervention scores, suggesting that an educational intervention video about the negative and lasting effects of bullying did not appear to affect individuals' implicit responding on the IRAP. This may reflect that where there was no pro-bully bias in the first instance, the intervention was not shown to exert influence. Overall, this suggests that participants had more of an anti-bullying bias as opposed to a relaxed/dismissive attitude.

Results from the explicit measures analysis showed that individuals rated themselves as statistically significantly more pro-social than as bullies or as victims to bullying on the BPQ. This finding is the same as that found in Study 1, and suggests that participants see themselves as being largely pro-social, and most likely classify themselves as friendly and approachable in their own social circles (see Eslea and Smith, 2012). It also appears that they did not see themselves as either a victim or a bully, which again is an interesting finding due to reports by participants on the CS. Only 3% of participants in Study 2 reported that they had been cyberbullied at University, while 43% of participants reported that they knew someone

who had been cyberbullied. Again, a question of accuracy on self-report measures must be considered here in that each recorded incidence of bullying/victimisation requires at least one victim and at least one perpetrator. Thus, it may be a case that participants are accurately reporting levels of victimisation and under-reporting levels of bullying (e.g. Hartung et al., 2011).

Similarly, both University and Secondary School Students' responses on the Revised Pro-Victim Scale suggested a positive attitude towards victims of bullying as opposed to a positive attitude towards bullies. This suggests that participants consider themselves as being empathic and sensitive towards victims of bullying and show an overall negative attitude towards bullies themselves. As discussed in Study 1, self-report measures may be vulnerable to introspective limitations and presentation effects when the issue is socially sensitive, and participants may deliberately express their disapproval towards bullying in order to provide the most socially desirable answer (van Goethem et al., 2010).

Correlational analyses between IRAP trial types and the explicit measures in the current study revealed no statistically significant correlations. This suggests that individuals' self-report attitudes towards bullying did not reflect how they responded on the IRAP. This finding is consistent with the assumption of the REC model which accounts for the divergence often found between implicit and explicit measures. It affirms that responses on explicit measures reflect more coherent relational responding and participants have more time to engage in this relational responding. During implicit measures, however, time constraints mean that the impact of an individuals' elaborated relational responding would be statistically significantly reduced (Barnes-Holmes, Hayes, & Dymond, 2001).

All findings from the current study did not replicate those found in Study 1, despite using similar groups and stimuli. The most noticeable differences were correlations between IRAP trial types (*toxic-harmless* and *innocuous-harmless)* and the BPQ Pro-Social Subscale

for University Students in Study 1 but not in Study 2. This suggests that individuals'

responses on self-report measures in Study 2 did not reflect the way in which they responded

on the IRAP. The current study did yield similar IRAP results to Study 1, with participant

responding on both IRAP test occasions (pre and post intervention) showing more rapid

affirmation of consistent (*Toxic-Abusive/Innocuous-Harmless*) patterns of responding and at

both time points (pre and post intervention).

The primary hypothesis remained the same for Study 2 in that it was anticipated that

University Students would respond more rapidly to affirm proposed relations that reflect their

current beliefs than to affirm proposed relations that do not. An additional hypothesis for this

study was that different IRAP effects may be observed if Study 2 used images which related

to a more specific and prominent form of indirect bullying, namely cyberbullying, as opposed

to the word stimuli used in Study 1. Research within the literature has shown that the

implementation of an IRAP which presents image stimuli as opposed to word stimuli could

produce differing effects (e.g. Dasgupta, McGhee, Greenwald, & Banaji, 2000). Furthermore,

stimuli which employed images from popular social media sites may be more attributable to

University Students, who rated their online usage at 3-4+ hours per day on the CS. As

highlighted above, Study 2 yielded similar IRAP results to Study 1. No differences in IRAP

responding may not be surprising, as there are many examples in the literature which have

reported no difference in results when using word stimuli or picture stimuli to explore a

socially sensitive attitude (e.g. racism, see Dasgupta et al., 2000). It is suggested that

participant responses on the IRAP were because of their understanding of the negative effects

of abusive phrases. As discussed in Study 1, this may largely be due to the number of reports

unfolding in popular media related to cyberbullying, and expressed concerns on lasting

negative impact becoming a prominent focus (Campbell, 2005). Similarly, it is likely that

participants have experienced the benign effect of more harmless phrases in daily

conversation with friends or through exposure to popular social media sites, where

participants report spending 3 - 4+ hours of their day. All statistically significant findings of

both Study 1 and Study 2 will be further discussed in the following chapter.

CHAPTER 4

General Discussion

The aims of the current research were to develop the IRAP as an implicit measure for assessing attitudes towards bullying, to explore the effects of label stimuli on IRAP performances, and to determine if a video intervention would impact performance on the IRAP. Over two studies, the IRAP was developed and the IRAP stimuli refined in order to produce the most appropriate measure for assessing attitudes towards bullying. Commonly used explicit measures, the BPQ, the RPVS, the BAQ-MM and the CS, were also included in each study for comparisons between the explicit and implicit measures. Each study also involved presenting a brief educational video intervention about the negative and lasting effects of bullying. Pre and post IRAP measures were taken to determine any impact of the intervention, and to allow for analysis of the impact on different groups. The final chapter provides an overview of the current research findings. All major findings from the two studies will be summarised with comparisons drawn between the measures and the intervention techniques. Where appropriate, comparisons will be made between the results and previous research and the wider implications of the research will subsequently be discussed. Throughout these explorations, recommendations for future research on the use of implicit measures within the study of bullying are provided, along with suggested avenues for future research.

Summary of the Findings

Study 1. This study was the first of its kind to investigate attitudes towards bullying by using the IRAP. It was hypothesised, based on prior research, that participants would have a relaxed attitude towards bullying, and that an educational video intervention would impact on attitudes. It was also hypothesised that that both groups would respond more rapidly to affirm proposed relations that reflect their current beliefs than to affirm proposed relations that do not, and that there would be a divergence between Secondary School Students and University Students' responses. Thus, participants with an anti-bullying bias would respond

more rapidly to affirm toxic phrases as being abusive compared to phrases that are teasing/innocuous. Conversely, no difference in speed of responding to toxic versus innocuous phrases would be interpreted as showing no anti-bullying bias/relaxed attitude toward bullying. The IRAP programme incorporated word-based stimuli to assess attitudes towards bullying in relation to toxic and innocuous phrases. Commonly used explicit measures, the BPQ, the RPVS, the BAQ-MM and the CS were also employed to assess bullying attitudes at an explicit level. Sixty participants took part overall. Thirty of these were University Students attending college in South East Ireland, and 30 were Secondary School Students attending local schools in South East Ireland.

Trial-type analysis on the IRAP revealed statistically significant effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types. Thus, both University Students and Secondary School Students recognised that toxic phrases were abusive/not harmless and innocuous phrases were harmless/not abusive. That is, participants had more of an anti-bullying bias as opposed to a relaxed/dismissive attitude. This is a positive outcome in the context of previous research, which has found a rather casual and even dismissive attitude towards bullying. Curtis and McGilloway (2014) found that higher levels of participants reported having unpleasant experiences online when responding to questions and open-ended sections pertaining to these specific experiences, than had positively responded to the more general question of whether they had been cyberbullied during the previous six months. A recurring theme identified in the analyses of open-ended questions was also consistent with this finding, which overall appeared to be a rather casual and even dismissive attitude towards bullying.

Secondly, and in contrast to initial expectations, Study 1 revealed no statistically significant differences between pre and post intervention scores for both groups, suggesting that an educational intervention video that outlined the negative and lasting effects of bullying did not appear to affect individuals' implicit responding on the IRAP. Previous research on

implicit bullying attitudes has suggested that the relevant associations on bullying were more strongly activated after seeing a movie intervention technique than when no prior intervention was presented (van Goethem et al., 2010). Furthermore, bullying literature has found positive outcome on several variables from intervention programmes used (e.g. frequencies of bullies and victims, observed and experienced bullying, attitudes and efficacy beliefs, and to some extent, participant role behaviours) (Salmivalli, Kaukiainen, & Voeten, 2005). It is important to note that no statistically significant differences between pre and post intervention scores may reflect that where there is no pro-bully bias in the first instance, the intervention is not shown to exert influence. Thus, future research could benefit from further addressing intervention techniques in implicit research. This will be further discussed in the subsequent section on future research.

Results also yielded two statistically significant correlations between explicit and implicit measures of bullying attitudes, and we will now highlight these findings and their statistical significance in the context of the research. Specifically, the statistically significant correlation identified was between the *toxic-harmless* and *innocuous-harmless* trial type and the pro-social subscale of the BPQ for University Students. For the pro-social subscale to correlate with these IRAP trial-types suggests that University Students who rated themselves as more pro-social were more likely to affirm innocuous-harmless-true and toxic-harmless-false. This suggests that University Students recognise innocuous phrases as harmless 'banter', and recognise the severity of more toxic phrases. Previous research has found only small or non-significant statistical relations between implicit and explicit attitudes (e.g. Hofmann, Gawronski, Gschwendner, Le, & Schmitt 2005; Perugini & Prestwich 2007). Thus, the current study supports the idea that explicit and implicit attitudes can be used to validate one another and do not always represent two distinctive kinds of attitudes (e.g. Wilson et al., 2000).

In line with previous research, it was found that both University Students and Secondary School Students had negative explicit victim and bullying attitudes (Andreou et al., 2005; Menesini et al., 1997; Salmivalli &Voeten, 2004; van Goethem et al., 2010) and rated themselves as statistically significantly more pro-social than as a bully or as a victim of bullying. These findings reflect the goal of many anti-bullying policies in schools and bullying programmes as outlined in previous research, whose objectives are to decrease anti-social behaviour and increase general satisfaction/pro-social attitude in students' school lives (e.g. Olweus, 1991).

It also appears that participants did not see themselves either as victims or as bullies, which is interesting considering the statistics on bullying reported by participants on the cyberbullying survey (CS). Only 3% of University Students reported that they had been cyberbullied at University, but 42% of participants reported that they knew someone who had been cyberbullied. Participants reporting higher levels of victimisation appears to be a common finding in the field of bullying research. For example, Dilmac (2009) found that 22.5% of students had cyber-bullied others while 55.3% reported being online victims. This leads to a question of accuracy of students' self-reports in that for each recorded incidence of bullying/victimisation, there must be at least one victim and at least one perpetrator. Students may be accurately reporting levels of victimisation, but under-reporting levels of bullying (Hartung et al., 2011). This affirms the existence of a possible deficit amongst the public as to what their understanding of bullying is. A persistent problem in bullying research has been to decide where teasing ends and bullying begins (Swain, 1998) and an understanding of this relationship between bullying and teasing is paramount. If repeated teasing is persistent, offensive, and carried out in spite of opposition on the part of the target, it would certainly qualify as bullying (Olweus, 1997).

Logistic regression analyses were conducted to examine if the IRAP provided any increased predictive validity. None of the explicit measures proved to be statistically significant predictors of group status. The addition of the *D*-IRAP scores to each explicit measure also produced a non-significant statistical effect. This indicated that neither the explicit measures nor the IRAP could predict whether the participants were Secondary School Students or University Students. This study is the first of its kind to use the IRAP to assess bullying attitudes. Thus, the exploratory nature of the labels and stimuli used may have contributed to the predictive validity of the bully IRAP. Future research could therefore benefit from using different labels/images to determine if a change in the stimuli used would increase the bully IRAP's predictive validity.

Study 2. Study 2 aimed to replicate Study 1, but instead employed picture stimuli (as opposed to word stimuli) that presented the toxic and innocuous phrases used in Study 1 on a pictorial backdrop of commonly used social media sites (e.g. Facebook, Twitter) or text messaging providers (e.g. iMessage). Furthermore, while Study 1 used both University Students and Secondary School Students as participants, Study 2 employed only University Students as the sample. The overall aim was to determine if cyberbullying images on the IRAP would have differing effects to the on-screen messages employed in Study 1. The BPQ, RPVS and CS were also used as the explicit measures in Study 2 for comparative purposes. Furthermore, the intervention technique used in Study 1 was used again in Study 2. This was to allow for any differences in *D*-IRAP scores to be directly related to the change in stimuli, and not to any other confounding factors. In total, 12 participants from Study 1 returned to take part in Study 2. The remaining participants to take part in Study 2 were third level college students attending Universities in South East Ireland.

Trial type analysis on the IRAP showed statistically significant effects for the *Toxic-Abusive* and *Innocuous-Harmless* trial types. This showed that University Students responded

that images presenting toxic phrases were abusive/not harmless and innocuous phrases were harmless/not abusive. Thus, participants had more of an anti-bullying bias as opposed to a relaxed/dismissive attitude. Secondly, results revealed no statistically significant differences between pre and post intervention scores, suggesting that an educational intervention video about the negative and lasting effects of bullying did not appear to affect individuals' implicit responding on the IRAP. Similar to Study 1, this may not be surprising due to no statistically significant differences being identified between pre and post intervention scores, meaning that the intervention did not appear to exert influence as no pro-bully bias was identified in the first instance. Both of these findings in Study 2 are the same as those found in Study 1.

Correlational analyses between IRAP trial types and the explicit measures in the current study revealed no statistically significant correlations. This suggests that individuals' attitudes towards bullying on self-report measures did not reflect how they responded on the IRAP. This finding was different to that of Study 1, and supports previous research which has most often found only small or non-significant statistical relations between implicit- and explicit attitudes (e.g. Hofmann et al., 2005; Perugini & Prestwich 2007). Thus, it is consistent with the assumption of the REC model and the idea that implicit and explicit attitudes cannot be used to validate one another as they may represent two distinctive kinds of attitudes (e.g. Wilson et al., 2000). On explicit measures, the REC model affirms that responses reflect more coherent relational responding and participants have more time to engage in this relational responding. During implicit measures, however, time constraints mean that the impact of an individuals' elaborated relational responding would be statistically significantly reduced (Barnes-Holmes, Hayes, & Dymond, 2001).

Results from the explicit measures analysis showed that individuals rated themselves as statistically significantly more pro-social than as bullies or as victims of bullying. This finding is the same as that found in Study 1. It suggests that participants saw themselves as

being largely pro-social, and had negative explicit victim and bullying attitudes (Andreou, Vlachoub, & Didaskaloub, 2005; Menesini, Eslea, Smith, Genta, Giannetti, & Fonzi, 1997; Salmivalli and Voeten 2004; van Goethem et al., 2010). As previously discussed, these findings are consistent with the goals of many anti-bullying policies in schools and bullying programmes as outlined in previous research (e.g. Olweus, 1991). However, there is also research which suggests that adolescents' explicit bullying attitudes are not always in accordance with their own bullying behaviours. While some adolescents may report in questionnaires that they have negative explicit bullying attitudes, they may still demonstrate bullying behaviour (van Goethem et al., 2010). Salmivalli and Voeten (2004) also indicated that while the majority of children disapprove of bullying, there are a large number of them who are still involved in bullying, be it directly or indirectly.

It also appears that Study 2 participants did not see themselves as either victims or as bullies in this study, which again is an interesting finding due to participants' explicit responses on the CS. Only 3% of participants reported that they had been cyberbullied at University, while 43% of participants reported that they knew someone who had been cyberbullied. This is consistent with findings in Study 1, with participants reporting higher levels of victimisation.

Findings from explicit measures in both Study 1 and Study 2 are consistent with previous research which affirm that students may be accurately reporting levels of victimisation, but under-reporting levels of bullying (Hartung et al., 2011). For each recorded incidence of bullying/victimisation, there must be at least one victim and at least one perpetrator, leading to a question of accuracy of students' self-reports. A probable explanation for this flaw may be that students feel they can be more honest about victimisation than they can be about bullying. Furthermore, while victimisation seems to be clearly understood, it is possible that there is a lack of understanding amongst the public about the concept of

bullying. This is supported by a persistent problem evident in bullying research; to decide where teasing ends and bullying begins (Swain, 1998). Thus, future research could benefit from investigating the existence of this deficit and the public's understanding of bullying. Additionally, it could be of benefit to take adolescents' understandings into account when it comes to defining bullying (e.g. Hellstrom, Persson & Hagquist, 2015). If bullying is understood it is more likely that it will be much more readily recognised by individuals and dealt with when it arises.

Follow-up comparison of Study 1 and Study 2.

The results of Study 2 failed to directly replicate those found in Study 1. The presence of implicit-explicit correlations for University Students in Study 1, and the subsequent absence of these differences for University Students in Study 2, prompted a follow-up analysis to directly compare the results of the IRAP across both studies to determine if the change in stimuli was the reason for a change in correlations between both studies. That is, to examine whether stimulus type (words versus pictures) affected participants' responding on an IRAP investigation of implicit attitudes toward bullying.

The results revealed no statistically significant interactions for time (pre/post intervention) and stimulus type (word versus picture IRAP), or IRAP trial type and stimulus type. There was also no statistically significant interaction found between trial type, stimulus type and time. This indicated that a change in stimulus type on the IRAP did not have an effect on IRAP performance across groups (University Students exposed to the word IRAP and University Students exposed to the picture IRAP) or across time points (pre and post intervention). Thus, one can conclude that pictures did not produce stronger effects than words for IRAP trial-types.

Divergence/Coherence between the Implicit and Explicit Data

Overall, all participants responded more positively on the pro-social subscale on the

explicit measures, as opposed to the bully and victim subscales. Similarly, all participants on the IRAP responded that the words/images presenting toxic phrases were abusive/not harmless and innocuous phrases were harmless/not abusive. That is, effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types were statistically significant.

From the perspective of RFT, one can argue that when participants were asked to answer questions related to bully, victim and pro-social behaviour on the explicit measures, participants most likely produced relational responses consistent with other relational responses in their behavioural repertoire (Barnes-Holmes et al., 2001). As discussed in the introductory section of this study, attitudes of young individuals towards bullying can be influenced by factors such as socially desirable answering (Nosek 2005). Thus, if a teacher asks the class about their feelings on a movie about a student being bullied and what they think of it, their relational responses will likely cohere with other relevant relational networks, i.e. they will deliberately express their disapproval towards the bullying behaviour shown in the movie. Again, this is due to what is being portrayed by the teacher as the established views of the social norm; the pupil sees that bullying is disapproved of, and in consequence is probably punished by most teachers. When given enough time to engage in this extended relational responding, participants would generally report anti-bullying bias. This is also referred to as a negative explicit attitude towards bullying (van Goethem et al., 2010). Because bullying is considered socially unacceptable behaviour, explicit bullying attitudes could be more influenced by factors such as socially desirable answering (Nosek 2005). However, when exposed to the IRAP, a participants' elaborated relational responding is more likely to be reduced or even absent. This is due to the insufficient time given to engage in the relational activity that would generate the relationally coherent response (Barnes-Holmes, Barnes-Holmes et al., 2010). Thus, theoretically, low correlations between implicit and explicit measures can be due to (a) motivational biases in explicit self-report measures, (b)

lack of introspective access to implicitly assessed representations, (c) method-related characteristics of the two measures, (d) factors that influence the retrieval of information from memory, or (e) complete independence of the underlying constructs (Hoffmann et al., 2005).

While divergent results were generally recorded, perhaps one of the most prominent findings in the current research was the implicit-explicit correlations detected in Study 1 that were not detected in Study 2. As stated above, previous research has most often found only small or non-significant statistical relations between implicit and explicit attitudes (e.g. Hofmann et al., 2005; Perugini and Prestwich 2007). Thus, this finding is consistent with the assumption of the REC model and the idea that implicit and explicit attitudes cannot be used to validate one another as they may represent two distinctive kinds of attitudes (e.g. Wilson et al., 2000). On explicit measures, the REC model affirms that responses reflect more coherent relational responding and participants have more time to engage in this relational responding. During implicit measures, however, time constraints mean that the impact of an individuals' elaborated relational responding would be statistically significantly reduced (Barnes-Holmes, Hayes, & Dymond, 2001). However, in line with the results of Study 1, it remains a controversial question as to why implicit and explicit measures sometimes show statistically significant correlations (Banse, Seise & Zerbes, 2001) but sometimes are completely unrelated (e.g. Karpinski & Hilton, 2001). One could argue that implicit measures are generally unbiased by motivational influences, whereas explicit self-reports are often influenced by social desirability concerns. Fazio's MODE model (Fazio & Olson, 2003) most prominently reflected this assumption, stating that explicit and implicit measures should be highly correlated unless people are able to control their responses on the explicit measure (e.g. Banse & Gawronski, 2003; Gawronski, Geschke, & Banse, 2003; Hofmann, Gschwendner, & Schmitt, 2005). Thus, correlations between implicit and explicit measures in Study 1 seem consistent with Fazio's MODE model; an evident convergence between the pro-social

subscale and the IRAP trial types due to the socially acceptable nature of the correlation (i.e. pro-social attitudes correlated with innocuous-harmless-true and toxic-harmless-false) and why correlations were not detected for more socially sensitive topics (i.e. bullying, victimisation).

Results Comparisons

As outlined in the introduction, the current study was inspired by van Goethem et al. (2010) in using both implicit and explicit measures to explore the attitudes of Secondary School Students and University Students to bullying. It is worth noting that the current study differed slightly in that it used the IRAP as the implicit measure for assessing the attitudes of individuals to bullying as opposed to the IAT. Furthermore, it attempted to explore attitudes towards bullying as opposed to assessing if implicit bullying attitudes could predict bullying behaviour. The rationale for the current study is merited by the growing prevalence of bullying in society today, adolescents' understanding of and attitudes towards bullying, and if they have a common understanding of where teasing ends and bullying begins (Swain, 1998).

The study of van Goethem et al. (2010) appears to be one of the first to examine any type of implicit bullying attitudes among adolescents, and the current study attempts to expand on this. Van Goethem et al.'s study (2010) found that explicit but not implicit bullying attitudes directly predicted bullying behaviour. In the current research, both implicit and explicit measures successfully predicted an anti-bullying bias and predicted pro-social behaviour, but did not successfully predict victim or bullying behaviour in participants. Additionally, van Goethem and colleagues found that implicit bullying attitudes interacted with explicit bullying attitudes in predicting additional variance in bullying behaviour. The current study also conducted regression analyses to examine if the IRAP provided any increased predictive validity. However, implicit bullying attitudes did not interact with explicit bullying attitudes in the prediction of additional variance, which for the current study

was group status.

Both the current study and the study of van Goethem et al. (2010) found that participants had relatively negative explicit bullying attitudes. Van Goethem et al. further found that participants' bullying attitudes were also related to their bullying behaviour, and children with more positive attitudes towards bullying bullied more than those with stronger negative attitudes. While the current study did not assess implicit/explicit attitudes to predict bullying behaviour, this is an interesting finding and future research could benefit from including a hypothesis for assessing implicit attitudes in its prediction of bullying behaviour as well as bullying attitudes.

Overall, van Goethem et al. (2010) found that implicit attitudes were not related to bullying behaviour, which is similar in scope to the current research findings; that implicit attitudes were not related to a casual/dismissive attitude towards bullying. Both studies lend importance to the bullying research literature by providing a pathway for the development of implicit measures to predict bullying attitudes or bullying behaviours in young adolescents. Both studies also create many avenues for future research, which will now be discussed in more detail.

The Wider Implications for Future Research

Due to the largely exploratory nature of the current research, there are some areas of the study which require further discussion.

As outlined, it was preferable that participants for Study 2 remained the same as those used in the University Student sample for Study 1. This would allow any changes within the two studies to be directly related to the change in IRAP stimulus-type, as opposed to other contributing factors. In total, 12 participants from Study 1 returned to take part in Study 2. Following the conclusion of participant recall, it was preferable that other participants willing to take part in Study 2 possessed similar demographic information and characteristics to those

employed in Study 1 (e.g. similar age group, ethnicity, etc.) While these criteria were achieved for those who participated, it is still important to note that University Student participants in Study 1 were not identical to those employed in Study 2. Therefore, exposure of all participants to the word IRAP followed by the picture IRAP may have produced different results. While it is common that the exploration of socially sensitive attitudes using word stimuli or picture stimuli do not always show differences in IRAP responding (see Dasgupta et al., 2000), there is also evidence which advocates the use of pictorial representations and their ability to produce highly evocative and affective reactions (Codispoti, Bradley, & Lang, 2001; Smith et al., 2004). Future research could benefit from a study where participants remained the same for the course of the research, meaning that results could be directly attributable to the change in stimuli on the IRAP.

Following a thorough analysis of the literature, it was evident that a vast array of bullying research literature to date had focused primarily on younger adolescents, their understanding of bullying, anti-bullying policies in schools, and creating awareness around bullying. Furthermore, as discussed in Chapter 1, any emerging literature on bullying and University Students appeared to have a more predominant focus on cyberbullying (e.g. MacDonald & Roberts-Pittman, 2010; Xiao & Wong, 2015). However, very recently, literature has begun to emerge on cyberbullying experience and prevalence in younger teenagers. For example, in July 2016 experiences with cyberbullying were assessed in a sample of adolescents ranging in age from 15-19 years. This found that larger proportions of participants reported being cyberbullied than the proportion who reported ever cyberbullying another person (Wadian, Jones, Sonnentag & Barnett, 2016). A study due for publication in March 2017 by Lee and Shin also investigated the prevalence of cyberbullying in high school students and found that 34% of the respondent students were involved in cyberbullying as bullies (6.3%), victims (14.6%), or as both bullies and victims (13.1%). Not only do these

studies extend the literature on cyberbullying in younger adolescents, they also report findings consistent with the results of the current research; that participants report higher levels of victimisation on self-report measures than they do of bullying. Thus, future research could benefit from exploring both University Students and Secondary School Students' implicit and explicit attitudes to cyberbullying, and draw further comparisons between both populations and their understanding of cyberbullying.

Research suggests that the relevant associations on bullying may be more strongly activated after seeing a video intervention than when no intervention is presented, with former research finding that implicit attitudes predicted behaviour (only) after using an intervention technique (Perugini & Prestwich 2007; Schoenmakers, Weirs, & Field, 2008). Bullying literature is extremely advocative of anti-bullying policies and bullying programmes, and these types of intervention procedures are paramount in attempts to deliver a strong and powerful message on the damaging effects of bullying. Thus, it seemed necessary that a study on attitudes towards bullying in adolescents today included an intervention programme that would speak to the sample population. This study thus attempted to explore if an educational video about the negative and lasting effects of bullying would effect IRAP responses. In conjunction with the Anti-Bullying Forum of the Department of Education and Skills here in Ireland, two videos were chosen which were strongly in keeping with the issues surrounding bullying behaviour in Irish Society today and were relatable to the sample population used for the purposes of this study. Within the current research, no statistically significant change in rates of responding were identified among University Students or Secondary School Students following the presentation of a brief educational video about the lasting and negative effects of bullying. This suggests that there was no anti-bullying bias shown in participant responding on any occasion, which may reflect that where there was no pro-bully bias identified in the first instance, the intervention was not shown to exert influence. Thus, it is

possible that if a pro-bully bias was evident in participant responding, the intervention may have exerted some influence in such circumstances. This is a speculative interpretation, and future research could further explore this by determining the relative strength of the intervention technique if pro-bullying bias was evident in participant responses in the first instance.

No statistically significant change in rate of responding may also be due in part to the fact that at present, there is still much to learn with respect to interventions in bullying research. To date, there are very little evidence-based criteria for developing an intervention programme (Tokunaga, 2010) and most intervention techniques within the bullying literature have been used with explicit self-report measures, and delivered to participants at a group or school-wide level. Thus, results of the current study may be due, in part, to the lack of research dedicated to the development of psychologically validated bullying intervention techniques. Future research could certainly benefit from developing a validated and more effective intervention programme. Evidence suggests that bullying attitudes in the past have benefited from measuring an individual's implicit attitudes and their correlation with bullying behaviour (van Goethem et al., 2010). Furthermore, intervention techniques employed within the bullying literature should be attributable to both explicit and implicit processes.

A primary aim of the current research was to contribute to the literature by providing and enriching knowledge of the prevalence and predictors of bullying and cyberbullying behaviour, as well as attitudes in a demographic sector and geographical area not studied extensively in prior literature. The study attempted to achieve this by exploring the IRAP as a way to target implicit evaluations of bullying (i.e. the relative strength of brief and immediate relational responses) among Secondary School Students and University Students in South East Ireland. It focused specifically on attempting to identify a casual and relaxed attitude amongst students and adolescents towards bullying, as evidenced within previous literature.

While the current study certainly adds to the literature in its attempts to produce the most appropriate measure for assessing implicit bullying attitudes, a pro-bullying bias was not identified amongst participants in either studies, as initially hypothesised. However, one finding of particular interest was that the explicit measures used in both Study 1 and Study 2 were consistent with findings from previous literature which affirm that students may be accurately reporting levels of victimisation, but under-reporting levels of bullying (Hartung et al., 2011). Only 3% of participants reported that they had been cyberbullied at University, while over 40% of participants reported that they knew someone who had been cyberbullied. Thus, future research could benefit from designing an IRAP that might more accurately detect both bullying and victimisation attitudes. There is a vast array of research within the literature which explores both experiences of and attitudes towards bullying and victimisation, with many often reporting high levels of victimisation amongst participants (e.g. Dilmac, 2009; Hartung et al., 2011; Xiao & Wong, 2015). Thus, further exploration of the IRAP as a way to target implicit evaluations of both bullying and victimisation seems promising as an avenue for future research.

Another direction for future research on implicit bullying attitudes could be the development of IRAPs that are more aligned with explicit measures. The current research was exploratory, and attempted to look at attitudes towards bullying by using abusive and harmless phrases. However, while the words 'bully' or 'bullying' were used specifically within the explicit measures, they were not used within the IRAP. To elaborate further, let us revisit Fazio's (1986, 1990) Motivation and Opportunity as Determinants (MODE) model as previously discussed. Although the MODE model was initially formulated to explain relationships between attitudes and behaviour, it can be easily generalised to explore the relationship between implicit and explicit attitude measures. The MODE model suggests that when individuals are willing and able to consider all attitude-relevant information, then

implicit and explicit attitude measures should correlate (see Fazio & Olson, 2003). When an attitude domain is important to an individual, that individual is inclined to "selectively seek out information relevant to it, think frequently about the attitude and relevant information, and focus that thinking on the attitude's relation to relevant knowledge and other attitudes" (Bizer & Krosnick, 2001, p. 567). As a result, important attitudes (i.e. socially sensitive topics such as bullying) are more accessible and more likely to be automatically activated when the attitude is encountered. Implicit attitude measures such as the IRAP attempt to measure these automatic evaluations with an attitude object (Greenwald et al., 1998). If these evaluations are already highly accessible following exposure to explicit measures relating to the topic, or even from intervention procedures evoking the issue, then people are likely to make use of this same information they have been exposed to when constructing their implicitly assessed representations (see Wilson & Hodges, 1992). Therefore, the use of explicit and implicit measures that are both very specifically and equally aligned to the attitude in question (i.e. using similar phrases, wording, etc.), means implicit and explicit attitude measures are much more inclined to correlate (see Fazio & Olson, 2003). There is also research to support the development of more explicit measures on the topic of bullying and cyberbullying. For example, previous surveys on cyberbullying have been predominantly descriptive, having examined only specific aspects of cyberbullying. Such studies have also included only very general questions about whether the student had been cyberbullied, or were conducted simply as part of a larger research programme (Smith, Mahdavi, Carvalho & Tippett, 2006; Sourander et al., 2011). Thus, the development and design of an IRAP that is more aligned with explicit measures seems promising as an avenue for future research.

Conclusion

This thesis set out to explore the IRAP as a way to target implicit evaluations of bullying (i.e. the relative strength of brief and immediate relational responses) among

Secondary School Students and University Students in South East Ireland. The research attempted to achieve this by designing a word-based IRAP that consisted of Abusive and Harmless phrases pertaining to bullying, and a picture-based IRAP that consisted of Abusive and Harmless images related to cyberbullying. The research demonstrated that employing word or picture stimuli on the IRAP did not affect participant responses, with both studies producing an anti-bullying bias. That is, for both Study 1 and Study 2, IRAP trial-type analysis showed statistically significant effects on the *Toxic-Abusive* and *Innocuous-Harmless* trial-types. The use of an intervention technique about the negative and lasting effects of bullying did not impact participants' attitudes, and this highlights the necessity for more research on a validated and effective intervention technique. Overall, no divergence was demonstrated between University Students and Secondary School Students, with respondents showing an anti-bullying bias across both studies. However, correlations between implicit and explicit measures in Study 1 seem consistent with Fazio's MODE model, that is, an evident convergence between the pro-social subscale and the IRAP trial types due to the socially acceptable nature of the correlation (i.e. pro-social attitudes correlated with innocuous-harmless-true and toxic-harmless-false). Overall, the IRAP did not detect a negative bias/relaxed attitude towards bullying. As stated, this study was the first of its kind to explore implicit attitudes towards bullying using the IRAP. Of course, a great deal of research is still required in this area, specifically, to enhance the bully IRAP and to develop a greater understanding of acceptable interventions. The work in the current thesis is presented as the first step in developing a programme of research on implicit attitudes towards bullying that is rooted strongly in Relational Frame Theory.

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Appendices

Appendix 1: Bullying Prevalence Questionnaire

The Bullying Prevalence Questionnaire (BPQ)

Show how often the following statements are true of you. To do this tick one of the answers underneath each statement.

	Never	Once in a while	Pretty Often	Very Often
1. I like playing sport	☐	☐	☐	☐
2. I get good marks in class	☐	☐	☐	☐
3. I get called names by others	☐	☐	☐	☐
4. I give soft kids a hard time	☐	☐	☐	☐
5. I like to make friends	☐	☐	☐	☐
6. I play up in class	☐	☐	☐	☐
7. I feel I can't trust others	☐	☐	☐	☐
8. I get picked on by others	☐	☐	☐	☐
9. I am part of a group that goes round teasing other	☐	☐	☐	☐
10. I like to help people are being harassed	☐	☐	☐	☐
11. I like to make others scared of me	☐	☐	☐	☐
12. Others leave me out of things on purpose	☐	☐	☐	☐
13. I get into fights at school	☐	☐	☐	☐
14. I like to show others that I'm the boss	☐	☐	☐	☐
15. I share things with others	☐	☐	☐	☐
16. I enjoy upsetting wimps someone I can easily beat	☐	☐	☐	☐
17. I like to get into a fight with someone I can easily beat	☐	☐	☐	☐
18. Others make fun of me	☐	☐	☐	☐
19. I get hit and pushed around by others	☐	☐	☐	☐
20. I enjoy helping others	☐	☐	☐	☐

(Ken Rigby & Phillip Slee, 1993)

Appendix 2: Revised Pro-Victim Scale

Revised Pro-victim Scale

Read each of the following sentences carefully and show how strongly you agree or disagree with it. To do this tick one of the answers under each statement.

		Agree	Unsure	Disagree
1.	Kids who get picked on a lot usually deserve it.	☐	☐	☐
2.	A bully is really a coward.	☐	☐	☐
3.	Kids should not complain about being bullied.	☐	☐	☐
4.	It's funny to see kids get upset when they are teased.	☐	☐	☐
5.	Kids who hurt others weaker than themselves should be told off.	☐	☐	☐
6.	Soft kids make me sick.	☐	☐	☐
7.	You should not pick on someone who is weaker than you.	☐	☐	☐
8.	Nobody likes a wimp.	☐	☐	☐
9.	It makes me angry when a kid is picked on without reason.	☐	☐	☐
10.	I like it when someone sticks up for kids who are being bullied.	☐	☐	☐

(Rigby, 1997)

Appendix 3: Student Bullying Attitudes Questionnaire Modified (BAQ-MM)

STUDENT BULLYING ATTITUDES QUESTIONNAIRE-MODIFIED

The Bullying Attitude Questionnaire-Modified (BAQ-MM)

Instructions: Please read the six (6) vignettes and respond to the three (3) questions that follow.

Vignette 1:

At the writing center you hear a student call another student "fatty". The child tried to ignore the remarks but sulks at his desk. It is not the first time this has happened.

Questions:

    1.   How serious do you rate this conflict?

5= very serious 4= serious 3= moderately serious 2= not very serious 1=not at all serious

2. Would you call this bullying?

Yes   No

3. I would be upset by the student's remarks and feel sympathetic toward the victim?

5=Strongly Agree 4= agree 3= neither disagree or agree 2= disagree 1=Strongly disagree

Vignette 2:

Your class is getting ready to go to lunch and students are in line at the door. When you hear one student say to another student, "Hey, give me your lunch money, or I'll hit you." The child gives in and eventually gives his/her lunch money to the student. It is not the first time this has happen.

Questions:

1. How serious do you rate this conflict?

5= very serious 4= serious 3= moderately serious 2= not very serious 1=not at all serious

2. Would you call this bullying?

Yes   No

3. I would be upset by the student's remarks and feel sympathetic toward the victim?

5=Strongly Agree 4= agree 3= neither disagree or agree 2= disagree 1=Strongly disagree

Vignette 3:

A student brings a Harry Potter pencil to school. He is bragging that it was a prize from a game arcade. A jealous student approaches and threatens him demanding the pencil at once. The child refuses at first but eventually gives in.

Questions:

1. How serious do you rate this conflict?

5= very serious 4= serious 3= moderately serious 2= not very serious 1=not at all serious

2. Would you call this bullying?

Yes   No

3. I would be upset by the student's remarks and feel sympathetic toward the victim?

5=Strongly Agree 4= agree 3= neither disagree or agree 2= disagree 1=Strongly disagree

Vignette 4:

As your class returns from music class, you observe a student hit another student in the hallway. You can see that it has caused bruising. It is not the first time this has happened.

Questions:

1. How serious do you rate this conflict?

5= very serious 4= serious 3= moderately serious 2= not very serious 1=not at all serious

2. Would you call this bullying?

Yes   No

3. I would be upset by the student's remarks and feel sympathetic toward the victim?

5=Strongly Agree 4= agree 3= neither disagree or agree 2= disagree 1=Strongly disagree

Vignette 5:

During centers, you overhear a student say to another, "If you don't let me have the purple marker, I won't invite you to my birthday party." It is not the first time this has happened.

Questions:

1. How serious do you rate this conflict?

5= very serious 4= serious 3= moderately serious 2= not very serious 1=not at all serious

2. Would you call this bullying?

Yes   No

3. I would be upset by the student's remarks and feel sympathetic toward the victim?

5=Strongly Agree 4= agree 3= neither disagree or agree 2= disagree 1=Strongly disagree

Vignette 6:

Your class has been awarded free time because they have worked so hard today. You witness a student say to another, "No, absolutely not. I already told you that you can't play with us." The student is isolated and plays alone for the remaining time with tears in her eyes. It is not the first time this has happened.

Questions:

1. How serious do you rate this conflict?

5= very serious 4= serious 3= moderately serious 2= not very serious 1=not at all serious

2. Would you call this bullying?

Yes   No

3. I would be upset by the student's remarks and feel sympathetic toward the victim?

5=Strongly Agree 4= agree 3= neither disagree or agree 2= disagree 1=Strongly disagree

The BAQ survey was developed by Craig et al. (2000). The BAQ-M was adapted by Yoon and Kerber (2003) and Kinan (2010). The BAQ-MM was created by Guillory (2013).

Appendix 4: Cyberbullying Survey (CS)

Please answer each of the following questions as accurately as you can.

For those in which multiple responses are provided, you need only fill in the appropriate response(s) for you.

For the others, please place your answer in the blank space provided for each.

1. **I am a _____ female _____ male.**

2. **My age is, please check one**: _____ 18 – 24 _____ 25 & above

3. **During this university semester I am living: Please check one**

   _____ At home with parent/guardian

   _____ In campus housing

   _____ Off campus but not at home

4. How do you describe yourself, please check one:

   _____ Asian _____ Hispanic _____ Black

   _____ Indian _____ White _____ Other

5. My school grade average is usually, please check one:

   _____ A - B range _____ B - C range _____ C - D range

   _____ Lower that D range

6. **I use technology (computer, cell phone, PDA, etc.), please check one**:

   _____ Less than an hour a day

   _____ Between 1 and 2 hours a day

   _____ Between 3 and 4 hours a day

   _____ More than 4 hours a day

I understand that completion of this survey implies informed consent and voluntary participation.

1) Have you heard of students at University using technology to bully/harass other students, if yes please **check all that apply**:

EXPLORING ATTITUDES TO BULLYING USING THE IRAP

_____ E-Mail

_____ Cell phones [text, pictures, video or messages]

_____ Video cameras, Web cam

_____ AIM

_____ Facebook

_____ My Space

_____ Blogging

_____ Twitter

_____ Chat Rooms

2) I have experienced cyberbullying at THE UNIVERSITY (e.g. email, cell phones, video/Web cams, AIM, Facebook, My Space, Blogging, Twitter, Chat Rooms, other) **If no; please go to question #6.**

_____ Yes

_____ No

3) If **yes**, I experienced cyberbullying via (**check all that apply**):

_____ E-Mail

_____ Cell phones [text, pictures, video or messages]

_____ Video cameras, Web cam

_____ AIM

_____ Facebook

_____ My Space

_____ Blogging

_____ Twitter

_____ Chat Rooms

_____ Other: please explain_____

                                        _____

4) **If yes**, I was cyberbullied by (**check all that apply**):

_____ University classmates

_____ Someone outside of university

EXPLORING ATTITUDES TO BULLYING USING THE IRAP

_____ I don't know

5) If yes, I have been cyberbullied, please check one:

_____ Less than 4 times

_____ 4 – 10 times

_____ Over 10 times

6) I know someone who has been cyberbullied:

_____ Yes

_____ No

7) When I was cyberbullied, I told a parent/guardian/or other adult about it:

_____ Yes

_____ No

Has anyone ever undesirably and obsessively communicated with or pursued you through computer or other electronic means by (CHECK ALL THAT APPLY):

a. _____ Sending tokens of affection (e.g. poetry, songs, electronic greetings, praise, etc.)

b. _____ Sending exaggerated messages of affection (e.g. expressions of affections implying a more intimate relationship than you actually have, etc.)

c. _____ Sending excessively explicit messages (e.g. inappropriately giving private information about his/her life, body, family hobbies, sexual experiences, etc.)

d. _____ Sending excessively 'needy' or demanding messages (e.g. pressuring to see you, assertively requesting you to go out on a date, arguing with you to give him/her 'another chance,' etc.

e. _____ Sending pornographic/obscene images or messages (e.g. photographs or cartoons of nude people, or people or animals engaging in sexual acts, etc.)

f. _____ Sending threatening written messages (e.g. suggesting harming you, your property, family, friends, etc.)

g. _____ Sending sexually harassing messages (e.g. describing hypothetical sexual acts between you, making sexually demeaning remarks, etc.)

h. _____ Sending threatening pictures or images (e.g. images of actual or implied mutilation, blood, dismemberment, property destruction, etc.)

i. _____ Exposing private information about you to others (e.g. sending e-mail out to others regarding your secrets, embarrassing information, unlisted numbers, etc.)

j. _____ Pretending to be someone he or she wasn't (e.g. falsely representing him/ herself as a different person or gender, claiming a false identity, status or position, pretending to be you, etc.)

k. _____ 'Sabotaging' your private reputation (e.g. spreading rumors about you, your relationships or

activities with friends, family, partner, etc.)

l. _____ 'Sabotaging' your work/school reputation (e.g. spreading rumors about you, your relationships or activities in organizational networks, electronic bulletin boards, etc.)

m. _____ 'Friended' people you know to get personal information about you

n. _____ Other: Please explain

_____
_____
_____
_____
_____
_____

Appendix 5: Principal Consent Form

SAINT KIERAN'S COLLEGE
SECONDARY SCHOOL
KILKENNY

27th July 2015

To whom it may concern

I wish to confirm that Aisling Curtis has permission to conduct research for her Doctoral Thesis at St Kieran's College, College Road, Kilkenny in 2015 – 2016.

Yours sincerely

John Curtis
Principal

Appendix 6: Parent/Adolescent Information Sheet

Dear Parent(s)/Guardian(s):

My name is Aisling Curtis and I am a Doctoral student in Psychological Science (Behaviour Analysis and Therapy) at Maynooth University (MU) under supervision of Dr Carol Murphy, and I would like to inform you about the research I am undertaking for my doctoral thesis. The research will involve a brief investigation into bullying and victimization. The study itself will involve two phases, each of which should take 30- 60 minutes of your child's time. The first phase will involve completing a questionnaire about bullying, while the second phase will involve a computerised task in which the participant is asked to agree with various postive/negative statements about bullying. The researcher will show the participant how to do this task. The researcher will involve exposure to some printed phrases related to bullying that may be deemed hurtful and offensive (e.g. 'Nobody likes you', 'You're so ugly.'). A brief educational intervention about negative and lasting effects of bullying (e.g., video or a literature) will also be shown during this phase.

It is anticipated that the research will be conducted within the school from September 2015 – March 2016. The information obtained will be anonymised immediately after each participant has left the experimental setting, meaning all information is <u>entirely</u> confidential and no one will be identified by name <u>at any time.</u> Also the school will not be identified in any research publication. It will also be made clear to all participants that they are under no obligation to participate if they do not wish to do so, and they will be asked to provide verbal consent prior to commencement of the study. There is no obligation to participate and no penalty of any kind for not participating.

Both the school principal and school counsellor have been told about the nature of the study and should any issues arise, for example in relation to bullying, the researcher will

recommend that this be conveyed to the Principal and or Counsellor. The researcher has obtained Garda Clearance to work with adolescents.

As with any visual electronic device, there is a minimal risk of potential seizures for those with a history of seizures or epilepsy. Parents of adolescents with a history of seizures are advised to exclude their child as a participant.

Many thanks for your kind attention and co-operation,

Yours Sincerely,

Aisling Curtis (BA Hons. Psych.),

Doctoral Candidate

Doctorate in Psychological Science - Behaviour Analysis and Therapy

Department of Psychology

Maynooth University

Co. Kildare

Please note

If you would like to receive further information on any aspect of the study, or should you have any further questions, please feel free to contact myself, the researcher, at 085-7591553 or by email; aisling.curtis.2012@nuim.ie. Alternatively, please feel free to address any questions or concerns to Doctor Carol Murphy, the Research Supervisor, at Carol.A.Murphy@nuim.ie

Appendix 7: Parent Consent Form

Aisling Curtis (BA Hons. Psych.),

Doctoral Candidate

Doctorate in Psychological Science - Behaviour Analysis and Therapy

Department of Psychology

Maynooth University

Co. Kildare

In agreeing that my child participates in a research study carried out by a registered Doctoral student, namely Aisling Curtis, at Maynooth University, I understand the following:

- The researcher is responsible for adhering to ethical guidelines set out by the Psychological Society of Ireland and the Behaviour Analyst Certification Board in all dealings with my child.

- My child's identity will not be provided in any subsequent presentation or publication of data. All data will be anonymised once participation is complete. The school will not be identified in the research thesis or other publication.

- I have read and understand the accompanying Information Sheet

- If I have any concerns about my child's participation I understand that I may refuse consent to participate without any negative consequences for my child or me.

- If I want to withdraw my child's participation at any time I can do so, but I will not be able to withdraw his or her data after it has been anonymised.

EXPLORING ATTITUDES TO BULLYING USING THE IRAP

I confirm that I have read and understand the accompanying information sheet and that I agree to allow my child to participate in this study.

Signed:

_____ Parent(s)/Guardian(s)

_____ Parent(s)/Guardian(s)

_____ Researcher

_____ Date

Appendix 8: Student Consent Form

SELF-REPORT BULLYING QUESTIONNAIRE

My name is Aisling Curtis and I am a Doctoral student at Maynooth University.
I am interested in researching aspects of bullying in Irish society today and attitudes towards
this phenomenon.

You are in no way obliged to complete this questionnaire, but I would be very grateful if you
did, as it would really help me in my research. Anything that you write will be treated as
confidential and will be analysed by the researcher on a group basis only so please answer all
questions as truthfully as you can.

Please do not write your name or any personal details on the questionnaire.
The completion of this phase of the study should take no more than 40 minutes of your time.
In most cases, you are asked to simply tick the box that most applies to you. In some cases,
you will be asked to include your reason(s) for your answer or a few short suggestions. These
need only be very brief and you are not obliged to answer anything if you do not feel
comfortable doing so.

Thank you very much for your help.

Aisling Curtis (BA Hons. Psych.),
Doctoral Candidate
Doctorate in Psychological Science - Behaviour Analysis and Therapy
Department of Psychology
Maynooth University
Co. Kildare

PLEASE TURN OVER THE PAGE

In agreeing to participate in this research I understand the following:

This research is being conducted by **Aisling Curtis**, a doctoral student at the Department of Psychology, Maynooth University. The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.

- I have been informed as to the general nature of the study and agree voluntarily to participate.
- I will complete questionnaires in this phase of the study, some of which will ask about experiences with bullying. I will also complete a number of computer based pairing tasks at a later stage where I will be asked to pair phrases related to bullying.
- There are no known expected risks associated with any aspect of participation.
- All data from the study will be treated confidentially. The data from all participants will be irrevocably anonymised, compiled, analysed, and submitted in a thesis to the Department of Psychology, Maynooth University in 2017. The data will be retained for approximately 10 years before being destroyed. Computer files will be overwritten and all hard copy files will be shredded. No participant's data will be identified by name at any stage of the data analysis or in the final report.
- At the conclusion of my participation, any questions or concerns I have will be fully addressed.
- I may withdraw my data at the immediate conclusion of my participation if I still have concerns.

Participant's signature   *Researcher's signature*

Participant name (print)   *Date*

Appendix 9: Debriefing Form

Debriefing Sheet

I would like to thank you for taking part in this experiment. I really appreciate you giving

your time and am happy to answer any questions you might have about this study. If you have

further concerns you can contact Doctor Carol Murphy (carol.a.murphy@mumail.ie), who

can arrange an appointment to discuss the research project and its implications in detail if

necessary.

Any information given to Dr. Murphy would be entirely confidential and will not be made

available to anyone else.

If you have been affected by the subject matter and would like an opportunity to discuss this

further you are encouraged to talk to the counsellor who you can speak to confidently and

confidentially and will be completely separate from my research. Additionally, please find

attached a bullying information booklet should you wish to learn more about the topic.

 If during your participation in the study you felt the information and guidelines that were

given to you were neglected or disregarded in any way, or if you are unhappy about the

process you may contact Dr. Andrew Coogan (Head of Department), Department of

Psychology, Maynooth University at andrew.coogan@mumail.ie (01-7086624).

Thank you again for your time and co-operation during the process of this study.

Appendix 10:

Inverted mean D-IRAP scores for University students showing attitudes towards bullying pre and post intervention (Study 1)
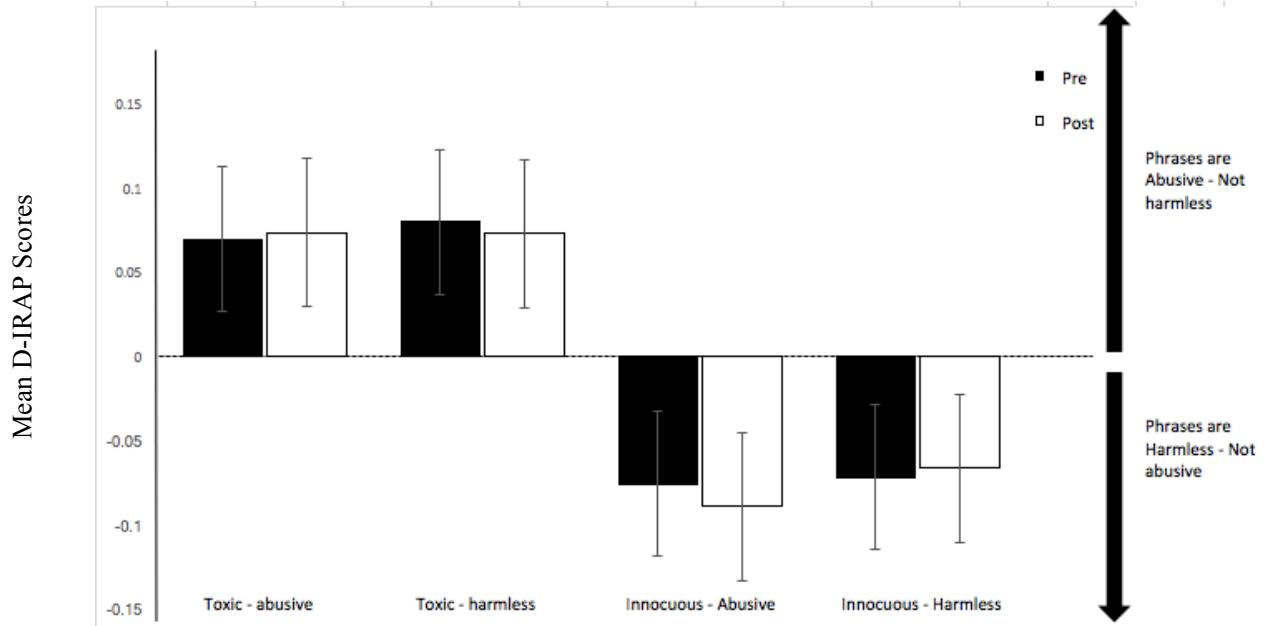
Inverted mean D-IRAP scores for Secondary School students showing attitudes towards bullying pre and post intervention (Study 1)
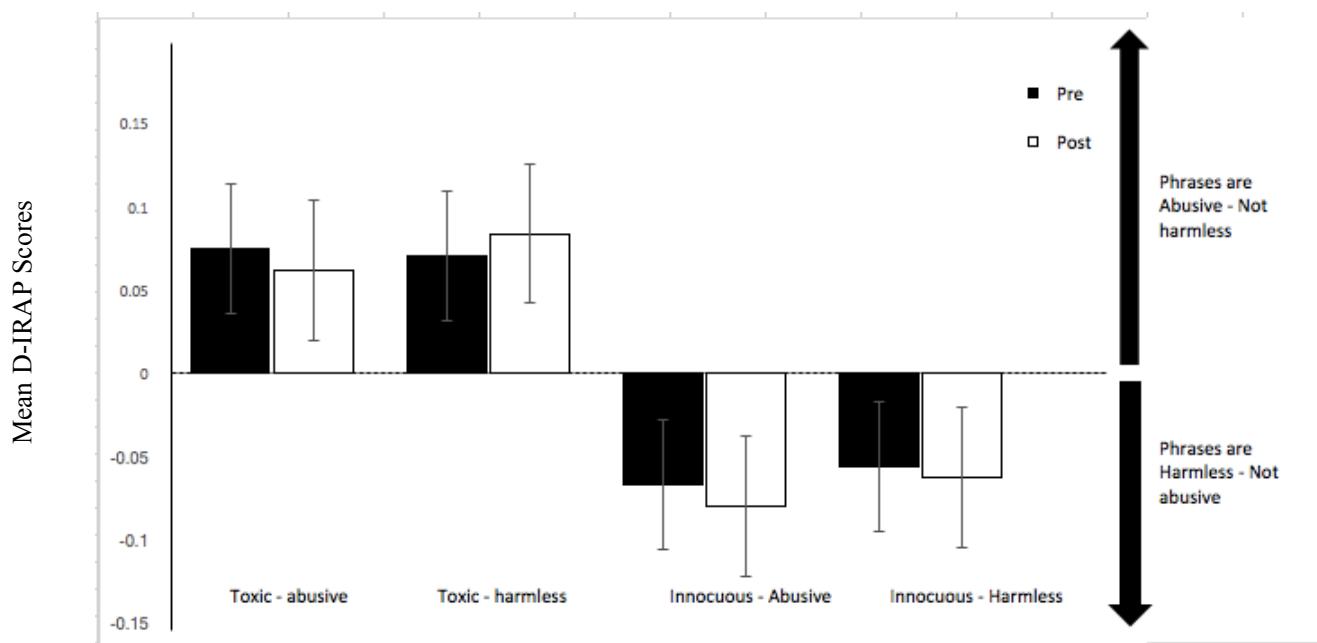
Inverted mean D-IRAP scores for University students showing attitudes towards bullying pre and post intervention (Study 2)
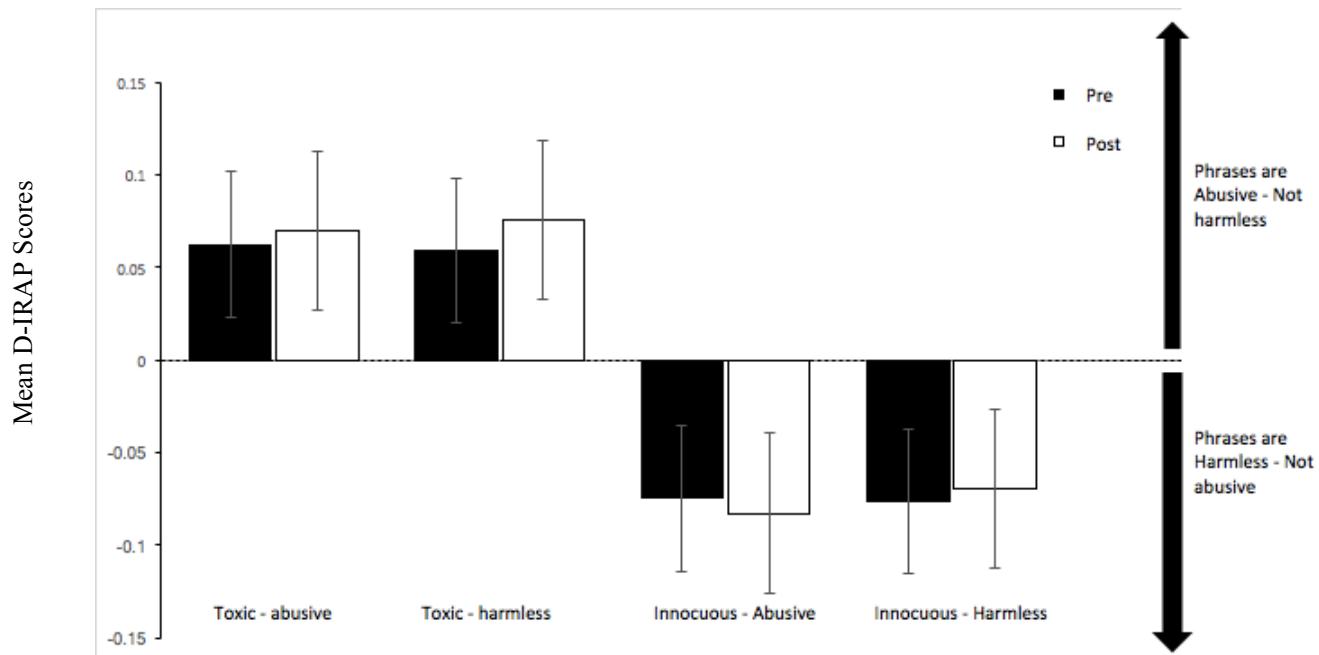
Appendix 11: IRAP Experimenters Script

Experimenter Script
for the Implicit Relational Assessment Procedure

Version

2.0

Author

Ian Hussey Department of Psychology John Hume building National University of Ireland Maynooth Kildare Ireland Ian.Hussey@nuim.ie

License

Due to the fact that the IRAP requires participants to remember and follow a rule rather than simply categorise stimuli, it is objectively harder than tasks such as an IAT. As such, the large majority of published IRAP work has been conducted one-to-one with an experienced researcher. Attempting to deliver the IRAP in groups, or remotely, typically results in very large attrition rates or unusable data, although this has not been systematically explored. As such, we recommend that the researchers deliver the IRAP, as it is currently constructed, in a one-to-one manner with verbal instruction from a trained researcher.

We have found that for participants to complete the IRAP successfully they need to learn the following steps in this specific order. If, for example, participants try to go quickly before first learning to go accurately, or if they try to be accurate without first understanding that they must be accurate to the rule rather than their own opinion, they are unlikely to complete the IRAP successfully. If a participant is responding very quickly at the sacrifice of accuracy, the experimenter needs to undermine this quickly and effectively. The experiment may stop them mid-practice block and emphasise that they need to concentrate on being accurate first before attempting to go quickly.

2. Conceptualization – Does the participant understand that they're not being asked for their personal opinion, but rather to follow a rule?

3. Accuracy - Can they do this accurately?

4. Speed - Are they getting faster with practice?

The following is a list of what we think are the key 'ingredients' that need to be included in the experimenter's verbal frontend to get participants through the IRAP successfully. They aren't always delivered in the order they're presented here, but are used as needed (text in red is dependent on the IRAP stimulus set).

- Unlike a questionnaire, which asks you for your personal opinion, this task just asks you to follow a rule. For the moment, that rule is "flowers are positive and insects are negative".

- You will see words related to either flowers or insects at the top of the screen, and positive and negative words such as "health" or "murder" in the middle of the screen. You can respond with either "True" or "False". According to the rule – and not necessarily what you believe – is this first trial "True" or "False"? What was the rule, again?

- This is just a pairing task. Go as slowly as you need to get them all right according to the rule. You'll naturally start to go faster when you've learned to be accurate.

- Unlike a questionnaire, where you can give whatever answer you want to, in this task if you get one incorrect according to the rule you'll see a red X. Simply give it the correct answer to continue.

- After every block the rule swaps, there are only two rules. As you can see, now the

rule is "flowers are negative and insects are positive".

- Well done. Keep going until the task is complete. Keep being as accurate as you can, and when you're accurate you'll naturally go quickly. You can take breaks during the feedback screens if you need to.

Appendix 12:

Pictures Employed in Study 2 – Harmless Phrases
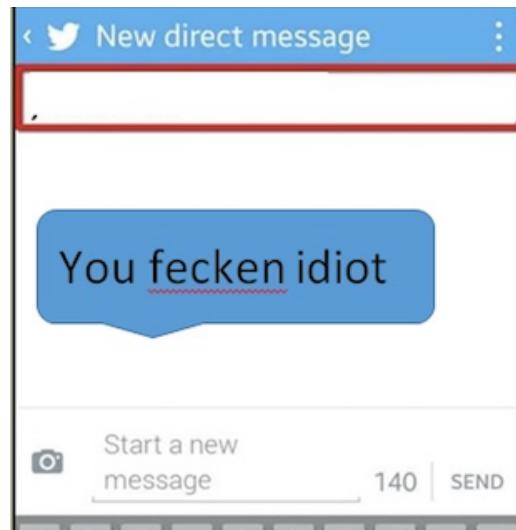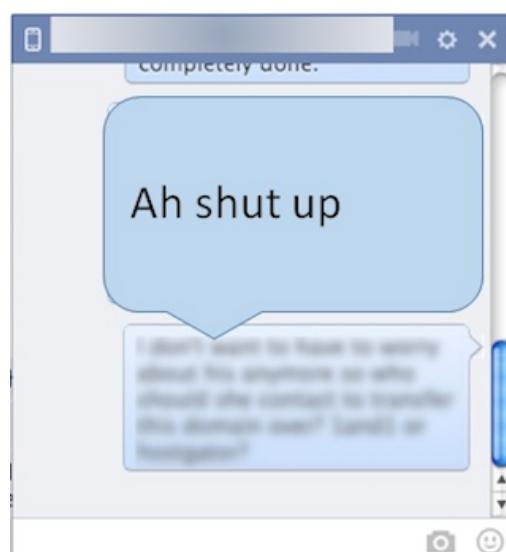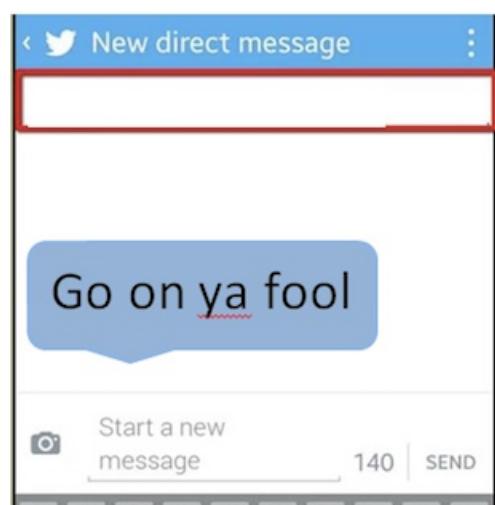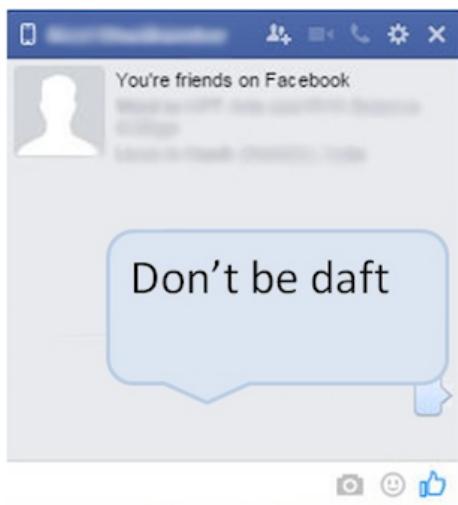
Pictures Employed in Study 2 – Abusive Phrases