Implementing an Intervention Based on Dialogic Argumentation to Prevent Incidents of Cyber-Bullying/ Victimisation

by

Christos Zenios

A thesis submitted in partial fulfilment for the requirements for the degree of Doctor of Philosophy at the University of Central Lancashire

JULY 2024

RESEARCH STUDENT DECLARATION FORM

Type of Award **Doctor of Philosophy**

School **Psychology**

1. Concurrent registration for two or more academic awards

I declare that while registered as a candidate for the research degree, I have not been a registered candidate or enrolled student for another award of the University or other academic or professional institution.

2. Material submitted for another award

I declare that no material contained in the thesis has been used in any other submission for an
academic award and is solely my own work.

3. Collaboration

This thesis is not part of a collaborative project.

4. Use of a Proof-reader

No proof-reading service was used in the compilation of this thesis.

Signature of Candidate: 

Print name: Christos Zenios

ABSTRACT

The literature shows the negative consequences of bullying/cyberbullying incidents and the need for more effective interventions for prevention. Risk and protective factors may also play a role in these incidents. Recent dialogue-based interventions seem promising for the prevention of bullying/cyberbullying. Thus, the current research project attempted to address the above issues with the implementation of 3 studies. Study 1 aimed to examine potential relationships among bullying and victimisation, argumentation skills, alexithymia, and self-efficacy. It was hypothesised that bullying and victimisation would be correlated to argumentation skills, alexithymia, and self-efficacy. Primary schools in Cyprus were approached and 100 early adolescents were recruited to measure their frequency of bullying and victimisation, their level of alexithymia, their level of self-efficacy for peer interactions, and their argumentative performance. The results showed significant correlations between bullying and victimisation and alexithymia, and between victimisation and self-efficacy for peer interactions, but no correlations between bullying and victimisation and argumentation skills, and between bullying and self-efficacy for peer interactions. Therefore, the results in Study 1 partially supported the hypotheses set initially. Study 2, aimed to examine potential relationships among cyberbullying and cyber-victimisation, argumentation skills, and generalised self-efficacy. It was hypothesised that cyberbullying and cyber-victimisation would be correlated to argumentation skills and generalised self-efficacy. University-level students from Cyprus and the United Kingdom were recruited, 100 in total to measure the frequency of cyberbullying and cyber-victimisation incidents, their level of generalised self-efficacy, and their argumentative performance. The results showed significant correlations between academic self-efficacy and cyber-victimisation, and between academic self-efficacy and arguments strengthening the other position only. No correlations were found between cyberbullying and cyber-victimisation and argumentation skills. Thus, the results in Study 2 did not support the hypotheses set initially.

The main experimental study of this research project was Study 3, which aimed to examine potential changes that engagement in dialogic argumentation would elicit in argumentation skills, cyberbullying and cyber-victimisation, and generalised self-efficacy. It was hypothesised that dialogic argumentation would trigger changes in argumentation skills, cyberbullying and cyber-victimisation, and generalised self-efficacy. University-level students, 40 in total were randomly allocated to the intervention group *(n=20)* and the control group *(n=20)*. Then, the intervention group engage in an intervention based on dialogic

argumentation. The main task of this intervention was the exchange of arguments between students on a social topic in the form of dialogues through an instant messaging platform. The argumentation skills of students, their frequency of cyberbullying and cyber-victimisation, and their level of generalised self-efficacy were assessed before the intervention and 1 month after. The most salient findings came from Study 3, where the participants from the intervention group exhibited larger gains in their argumentation skills and reported fewer incidents of cyber-victimisation compared to the control group. However, significant changes were not found in the frequency of cyberbullying incidents and the level of generalised self-efficacy after comparing the intervention group to the control group. Overall, the results in Study 3 partially supported the hypotheses set initially. Thus, it was concluded that dialogic argumentation can advance argumentation skills, which can help students avoid cyber-victimisation incidents. These findings highlighted the importance of investigating further this programme based on dialogic argumentation to determine whether it can contribute to the effective prevention of cyberbullying and cyber-victimisation.

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACKNOWLEDGEMENTS

To my supervisors Prof Kalypso Iordanou and Dr Mike Eslea, I would like to express my gratitude for their support and patience. This project is now complete because of their valuable guidance. Many thanks are not enough to say.

To my research degree tutor Dr Emma Threadgold, I deeply appreciate all her assistance and would like to thank her for being there ready to help.

To the Youth Board of Cyprus "O.NE.K", I value the significant grant offered to me. I am grateful to have such an association to recognise my work and efforts.

To all the participants of my project and those who helped me find more participants, I am thankful for their time and contribution.

To my parents, I know how much they anticipated the completion of this project. Despite their everyday difficulties, they were always there by my side.

GLOSSARY OF TERMS

Alexithymia: difficulties with emotion regulation, such as identifying and describing feelings, and externally oriented thinking.

Argumentation skills: cognitive skills used to produce arguments that strengthen or weaken a claim.

Bullying: aggressive behaviours occurring more than once with the intention to hurt others who are feeling defenceless.

Cyberbullying: bullying that occurs in cyberspace among individuals.

Cyber-victimisation: the situation where individuals are cyberbullied by someone else.

Dialogic argumentation: the process where individuals engage in dialogues opposing each other to develop argumentation skills.

Self-efficacy: perceptions individuals possess about their own abilities to cope academically, emotionally and socially.

Theory of mind: Ability to understand others' minds, such as thoughts, feelings, beliefs and intentions of other individuals.

Victimisation: the situation where individuals are bullied by someone else.

Chapter 1: General Introduction

Bullying and cyberbullying incidents cause serious consequences to both victims and perpetrators. The mental health of those involved in these incidents can be severely affected with many of them experiencing symptoms of depression and anxiety (Baldwin et al., 2021), delinquent behaviours and substance misuse (Ganesan et al., 2021). Many theories have attempted to explain why individuals are getting involved in bullying and cyberbullying incidents, such as peer-oriented theories (Espelage et al., 2013) that highlight the influence of peers on students and theory of mind (Sutton et al., 1999) that shows how students can use cognitive skills to manipulate their victims. Then, several studies found risk factors of individuals involved in these incidents like lack of empathy in perpetrators and low self-esteem in victims (Cook et al., 2010). More recent studies showed factors like alexithymia (Aricak & Ozbay, 2016) and self-efficacy (Kokkinos et al., 2015) to play a role in incidents of both perpetration and victimisation. Regarding the effectiveness of anti-bullying interventions that have been implemented up until now, the findings are not clear yet with Gaffney et al. (2019a) showing that a great number of interventions were unsuccessful and even a small number of those presented negative outcomes. Many of those interventions were directed towards specific individuals or even took a whole-school approach using various ways from adopting anti-bullying policies to offering workshops for social and emotional learning. More recent studies provided promising indications about the use of dialogue-based interventions to prevent bullying and cyberbullying incidents more effectively (Roca-Campos et al., 2021; Villarejo-Carballido et al., 2019).

The educational method for the development of students' argumentation skills called "Argue With Me" has evolved into one of the most effective dialogue-based interventions (Iordanou & Rapanta, 2021). Important scientists in this field like Toulmin (1958) set the foundations by explaining what makes an argument valid and how it can be produced, and Kuhn and colleagues (Kuhn et al., 2008) built on these foundations by designing the "Argue With Me" method. Different methods for the development of argumentation skills have appeared throughout the years trying to explain different ways in which argumentation skills can be developed (Iordanou & Rapanta, 2021). However, the focus of the current project was on the "Argue With Me" method, where an earlier study by De Fuccio et al. (2009) showed indications that alongside the development of argumentation skills, juveniles in a detention facility became less aggressive towards each other, assuming that argumentation skills might play a role in human behaviour. Since then, this method has continued to evolve in different versions either in long-

term duration or short-term, and in paper-based format or computer-based (Iordanou & Rapanta, 2021). Studies (Iordanou, 2022; Iordanou, 2016) also explored how dialogic argumentation might contribute to aspects like epistemic understanding and theory of mind, which seem important and might impact bullying and victimisation.

The current research project involves 3 related studies. The aim of Study 1 was to examine the potential relationships between bullying/victimisation, argumentation skills, alexithymia, and social self-efficacy and if these relationships would remain stable over time. According to the literature, this might be the first time that a potential relationship was examined between bullying/victimisation and argumentation. The 1st research question was whether bullying and/or victimisation would be significantly correlated to alexithymia. The 2nd question was whether bullying and/or victimisation would be significantly correlated with self-efficacy for peer interactions. Finally, the 3rd question was whether bullying and/or victimisation would be significantly correlated with argumentation skills. Early adolescents (11-13 years), 100 in total from primary schools in Cyprus were recruited. The frequency of their involvement in bullying and/or victimisation incidents was measured alongside their level of alexithymia, their level of self-efficacy for peer interactions and their argumentative performance. Although, significant correlations resulted between bullying/victimisation and alexithymia and between victimisation and self-efficacy for peer interactions, no significant correlation was found between bullying/victimisation and argumentation.

The poor argumentative performance of early adolescents led us to consider a different age group for the next two studies. Study 2 was used as a pilot study for our main study, which was Study 3. The aim of Study 2 was to examine the potential relationships between cyberbullying/cyber-victimisation, argumentation skills, and generalised self-efficacy. As far as we are aware, this might be the first time that a potential relationship was examined between cyberbullying/cyber-victimisation and argumentation skills. The 1st question was whether cyberbullying/cyber-victimisation would be significantly correlated to generalised self-efficacy. The 2nd question was whether cyberbullying/cyber-victimisation would be significantly correlated to argumentation skills. Undergraduate students, 100 in total from the University of Central Lancashire (UCLan), based in the United Kingdom (UK) or Cyprus (CY) campuses, were recruited. The frequency of their involvement in cyberbullying and/or cyber-victimisation incidents was measured alongside their level of generalised self-efficacy and their argumentative performance. No significant correlations were found between bullying-related variables and argumentation-related variables. However, significant correlations were found

between academic self-efficacy and cyber-victimisation and between academic self-efficacy and argumentation skills, particularly the ability to construct arguments supporting the other position.

The low variability of students' argumentative performance and cyberbullying frequency might make it difficult to detect significant correlations in Study 2. Thus, we moved on to our main experimental study, which was Study 3. The aim of Study 3 was to examine the potential effect of an intervention based on dialogic argumentation on students' argumentation skills, their frequency of cyberbullying/cyber-victimisation, and their level of generalised self-efficacy. As far as we know, this might be the first time that the potential effect of an intervention based on dialogic argumentation was examined on the frequency of students' involvement in cyberbullying and/or cyber-victimisation incidents. The 1st research question was whether the intervention could advance students' argumentation skills. The 2nd question was whether the intervention could trigger a reduced frequency of cyberbullying/cyber-victimisation in students. The 3rd question was if the intervention could trigger advanced levels of generalised self-efficacy in students. All these after comparing the scores between the intervention and control groups. University-level students from UCLan campuses in the UK and CY were recruited alongside other university-level students from universities in CY, all 40 students in total. These students were randomly allocated either to the intervention group, 20 of them or the control group, the rest of the 20. The frequency of their involvement in cyberbullying/cyber-victimisation incidents was measured alongside their level of generalised self-efficacy and their argumentative performance, all before and 1 month after the intervention. The results showed that the intervention advanced students' argumentation skills and elicited a reduced frequency of their involvement in cyber-victimisation incidents after we compared the intervention group to the control group.

Overall, the results of this research project from the 3 studies partially support the hypotheses we set initially. In conclusion, this dialogue-based intervention seems promising for the prevention of cyber-victimisation incidents. It can be implemented in educational settings like in schools as part of students' curriculum. Also, it can be used in universities as part of anti-bullying campaigns. This intervention was implemented fully remotely here without any significant difficulty. Thus, it gives the advantage of distance learning to suit students who cannot attend physically for any reason.

Regarding the structure of the thesis, after this introduction in Chapter 1, two chapters follow regarding the literature review. Chapter 2 provides an overview of the research area of bullying and cyberbullying and then, Chapter 3 provides an overview of the research area of argumentation skills and dialogic argumentation. After Chapter 3, the three research studies follow. Chapter 4 deals with the introduction, method, results and discussion of Study 1. Chapter 5 includes the introduction, method, results and discussion of Study 2. Chapter 6 continues with the introduction, method, results and discussion of Study 3. Finally, we can find in Chapter 7 the general discussion of this research project.

Chapter 2: Literature Review on Bullying/Cyberbullying

2.1 Introduction of Chapter 2

This chapter provides an overview of how bullying and cyberbullying are affecting people, both victims and perpetrators. To make it clear, definitions are provided early in this chapter. Following up, there is a brief presentation of different theories that attempt to explain the phenomena of bullying and cyberbullying. We present below the various factors that can act protectively against bullying and cyberbullying or can put people at risk. Closing up this chapter, we describe and evaluate interventions that have been used to resolve or prevent incidents of bullying and cyberbullying.

2.2 Definitions of Bullying and Cyberbullying

The phenomenon of bullying represents a range of aggressive behaviours that are directed systematically towards individuals who are feeling unable to defend themselves (Eslea, 2010; Olweus, 1994). Bullying can be divided into direct and indirect forms. Physical (e.g. hitting) and verbal (e.g. name-calling) happen directly, whereas relational (e.g. spreading rumours) happen indirectly (Eslea, 2010; Olweus, 1994). The most recent form of bullying, cyberbullying is defined as a form of aggression occurring in cyberspace intentionally and repeatedly towards particular individuals who cannot defend themselves (Smith et al., 2008).

Concerning cyberbullying/cyber-victimisation incidents, in a study by Peled (2019), undergraduate students and secondary school students reported various technological means that are used for cyberbullying. The most common were text messages, emails, instant messages, internet forums and social media platforms. The content of abusive messages usually included threats of harming the other or the other's family, name-calling, relationship endings, inappropriate demands, hateful speech and intimate photos or videos (Rivers & Noret, 2010). Pyzalski (2012) presented a lengthy list of different cyberbullying behaviours and Watts et al. (2017) revised this list. Examples of these behaviours involved sending hurtful messages to a person (sometimes called flaming), monitoring and threatening online a person (called cyber-stalking), tricking or persuading a person to reveal personal content (called trickery or phishing), pretending to be someone else to harm a person (called masquerade) and impersonating someone for teasing by accessing this person's account or making fake ones

(called fraping or catfishing). Other examples of such behaviours were sharing private material to cause shame (called outing or doxing), persistently insulting someone online to get their response (called trolling), ignoring or even deleting someone from an online group (called shunning or exclusion), sharing intimate material with sexual content or bullying the other person to make them share the material (called sexting) and threatening to reveal a secret (called blackmail).

2.3 The Impact of Bullying and Cyberbullying

Bullying began to be recognised as a social problem at the beginning of the 1970s (Olweus, 1994). Cyberbullying appeared several years later with the development of technological means of communication (Smith & Steffgen, 2013). Bullying and cyberbullying cause serious consequences to both victims and perpetrators. Moore et al. (2017) conducted a systematic review finding causal associations between victimisation by bullying and mental health problems in young people. More specifically, they found that victims of bullying have suffered from depression and anxiety. Also, victims reported experiencing self-harming behaviours, suicidal thoughts and even suicide attempts. Baier et al. (2019) found similar results based on a representative cross-sectional survey, where victimisation by bullying was related to depressive and psychosomatic symptoms in adolescents. Regarding the phenomenon of bullying in Cyprus, Solomontos-Kountouri et al. (2017), found that adolescent students who got involved in bullying incidents were also experiencing social and emotional problems. Furthermore, a longitudinal cohort study (Ganesan et al., 2021) showed that bullying behaviours were associated with other conduct problems and could predict further behavioural problems later in life. Especially in early adolescence, bullying was associated with antisocial behaviour and substance misuse and especially in early adulthood, bullying was associated with criminal behaviour and academic difficulties. An earlier study has also shown that undergraduate bullies tend to score high on criminal thinking and report a variety of criminal infractions (Ragatz et al., 2011). Based on the above studies, we can see how negative the impact of bullying and cyberbullying can be on victims and perpetrators.

Regarding cyberbullying/cyber-victimisation, a study by Schenk and Fremouw (2012) found college cyber-victims showing a higher frequency of suicidal thoughts and a higher number of suicide attempts compared to a control sample. Additionally, Schenk et al. (2013) found college cyberbullies showing increased levels of hostility and mistrust and a need to continue acting

aggressively, which led them to other delinquent behaviours. We have more evidence from the study by Baldwin et al. (2021) about the adverse effects of cyber-victimisation on young people's mental health. The authors noted examples of internalising problems like anxiety, depression, suicidal ideation, and self-harm, examples of externalising problems like antisocial behaviour and substance misuse and even examples of psychotic experiences like paranoia. The co-twin control design was also used to assess the impact of genetic and shared environmental vulnerabilities among young people. They recruited 7,708 participants for repeated measures from 2010 to 2019. The participants' ages varied progressively from birth (parental reports were used) up to 22 years. The findings indicated that monozygotic twins who experienced more cyber-victimisation also experienced more mental health problems. Also, monozygotic twins seemed to experience more of an association between cyber-victimisation and mental health problems. Another important finding is that pre-existing psychopathology and face-to-face victimisation reinforced this association. Therefore, we could also view cyber-victimisation as a phenomenon largely dependent on pre-existing vulnerabilities and diverse victimisation incidents (Baldwin et al., 2021).

2.4 Prevalence Rates

The estimated prevalence of students presenting bullying behaviours is 4 to 9 per cent in most Western countries and the estimated prevalence of students being victimised by bullying is 9 to 25 per cent with most of the students at the ages of 12 to 15 years (Menesini & Salmivalli, 2017). A study by Lobe et al. (2020) was conducted in 11 countries in the EU with 6,195 young people aged between 10 to 18 and found that 49 per cent of the participants were victims of cyberbullying. Also, 44 per cent of those cyber-victims reported more frequent incidents of cyberbullying during the COVID-19 lockdown. Anderson (2018) completed a similar study in the US with 743 young people aged 13 to 17. It was found that 59 per cent of the participants experienced cyberbullying. Myers and Cowie (2019) and Larranaga et al. (2018) indicated that cyberbullying tends to be the most prevalent form of bullying among university-level students. We also had indications about a significant minority of adolescent students in Cyprus getting involved in bullying incidents (Paradeisioti et al., 2018; Georgiou et al., 2015). It is important to mention the risk of social desirability here, where prevalence rates could be even higher since bullies might not admit their aggressive behaviour or recognise it as aggressive (Garandeau et al., 2024). Thus, several studies point out that more work needs to be done to

reduce the number of students who are involved in bullying incidents to the lowest possible level.

2.5 Individuals' Roles in Bullying/Cyberbullying

As we can see in the literature there are more than two categories of individuals involved in bullying incidents (Kennedy, 2021). Apart from victims and perpetrators, we can also find bully-victims, who act both as perpetrators and victims. We can also find bystanders, who observe bullying incidents and either ignore the whole situation, assist the perpetrators to a certain degree, applaud the perpetrators or defend the victims (Salmivalli, 2014). Regarding bully-victims, previous studies have shown that are the most negatively affected by presenting common academic, emotional and social problems compared with both perpetrators and victims alike. Even among bully-victims, we can observe those who tend to be more of a victim, those who tend to be more of a perpetrator, those who are a bully-victim at a moderate frequency and those who are a bully-victim at a higher frequency. Again, bully-victims at a higher frequency seemed to be more vulnerable with more severe academic, emotional and social problems (Kennedy, 2021). Regarding bystanders, previous studies have shown that factors influencing bystanders to act in favour of perpetrators are the prospect of becoming more popular and being perceived as stronger. On the other side, factors influencing bystanders to act in favour of victims are the appearance of high levels of empathy and self-esteem. Finally, a factor that maintains the silence in bystanders is the fear of becoming victimised if they attempt to defend the victims (Salmivalli, 2014).

2.6 Similarities and Differences between Bullying and Cyberbullying

Most researchers agree that cyberbullying is a form of bullying. However, some researchers argue that cyberbullying is distinctive from other forms of traditional bullying (Smith & Steffgen, 2013). The three elements that characterise an incident as bullying, which are the intention for harm, the imbalance of power and the repetition of the aggressive act cannot always characterise a cyberbullying incident. Starting with the intentionality, cyberbullies are not able to see the harm that is caused to cyber-victims because this occurs indirectly contrary to physical bullying. Therefore, someone cannot be certain of a perpetrator's intention since harmful acts are also occurring unintentionally, for example in the form of a joke. Regarding

the power imbalance, cyber-victims might not view the physical strength or the psychological confidence that cyberbullies possess to make them feel powerless. Thus, the only element that can be considered as an imbalance of power is the perpetrator's hidden identity which can make cyber-victims feel powerless. Regarding the repetition of the aggressive act, researchers are not certain whether repetition is happening due to the nature of cyberbullying attacks to remain accessible anywhere and anytime or due to the number of posts that are forwarding the cyberbullying attacks. Nevertheless, the online violation of cyber-victims' privacy can make them feel upset repeatedly anywhere and anytime (Smith & Steffgen, 2013).

We can expand on a few points, where cyberbullying seems to differ from traditional bullying. First, cyberbullies can potentially preserve a sense of power over cyber-victims by hiding their identity and protecting their anonymity more efficiently in cyberspace (Watts et al., 2017; Smith, 2012). Second, the motive of reaching a wider audience in cyberbullies is tempting for them and at the same time, harmful to cyber-victims. Third, cyber-victims are constantly exposed to cyberbullies since cyber-victimisation continues to occur in all electronic devices that cyber-victims use. It is technically difficult to remove the content completely from cyberspace and as a result, this can potentially re-traumatise them (Watts et al., 2017; Smith, 2012).

Studies were conducted to find out which form of bullying causes the most damage. Evidence showed a large overlap between traditional forms of bullying and cyberbullying, where many bullies and victims tend to get involved in both forms (Salmivalli & Poyhonen, 2012; Smith et al., 2008). Studies showed the devastating effects of various forms of bullying. Gradinger et al. (2009) found that both cyber-victims and traditional victims have presented depressive and somatic symptoms and these symptoms were more severe in individuals who suffered from both forms of bullying. Also, Brighi et al. (2012) found that victims who suffered from both cyberbullying and traditional bullying have shown the lowest level of self-esteem and the highest level of loneliness.

The purpose of a more recent meta-analysis by Li et al. (2022) was to explore the prevalence of traditional bullying and cyberbullying in relation to mental health problems. They reviewed previous studies that examined the impact of victimisation by traditional bullying and/or cyberbullying in samples of young people. They found that victims of bullying were double in number compared to victims of cyberbullying. They also found a larger number of victims of cyberbullying who also suffered from bullying compared to the number of victims of bullying

who also suffered from cyberbullying. Moreover, victims of cyberbullying seemed at greater risk of suicidality and self-harming compared to victims of bullying. Another finding was about victims of both bullying and cyberbullying who seemed at greater risk of depression and suicide compared to victims of either bullying or cyberbullying separately. Thus, it seems that the distress becomes greater when the victim is suffering from more forms of bullying.

On the other hand, we had researchers like Olweus and Limber (2018), and Wolke et al. (2017) who were more sceptical about the distinctiveness and impact of cyberbullying. Olweus and Limber (2018) suggested that cyberbullying has become an overrated phenomenon in the media and evidence from research does not show such an impact on victims. The authors found a high overlap between cyberbullying and traditional bullying after reviewing numerous articles and more specifically, 90 per cent of cyber-victims were also victims of traditional bullying. At the same time, Olweus and Limber (2018) did not find cyberbullying to cause a distinctive negative impact compared to any other form of traditional bullying. Instead, they recommend measures against cyberbullying to be part of a holistic prevention of bullying to achieve a positive outcome. However, in the author's concluding remarks, they urge that although cyberbullying cannot be treated as a separate entity from other forms of traditional bullying due to inconsistent findings, this phenomenon can still have a significant effect in some circumstances.

Wolke et al. (2017) compared the prevalence of cyber-victimisation and traditional victimisation in a sample of 2,745 students aged between 11 and 16 years. They found that pure cyber-victimisation was rare, close to one per cent of the total sample and only 4 per cent of those who reported being victimised. However, traditional victims also experienced cyber-victimisation 85.2 per cent of the time, showing a greater prevalence of cyber-victimisation among adolescents who already experienced other forms of victimisation. Regarding the effects of victimisation, both cyber-victims and traditional victims presented low self-esteem and similar behavioural difficulties. Especially, the students who experienced multiple forms of victimisation presented the lowest self-esteem and the most behavioural difficulties. Therefore, the authors supported the notion that cyber-victimisation can be viewed as an additional form of victimisation rather than a distinctive phenomenon (Wolke et al., 2017).

2.7 Theories about Bullying and Cyberbullying

Different theories attempted to explain why perpetrators bully their victims, as can be seen in the reviews by Ettekal et al. (2015) and Espelage et al. (2013). A combination of more classical and more contemporary theories is followed. Starting first with peer-oriented theories like the Social Learning Theory, the Social Norms Theory and then the Social Dominance Theory. We move on to the General Strain Theory which attempts to explain aggressive behaviour in general and the Online Disinhibition Effect Theory which attempts to explain cyberbullying specifically. Finally, we have here the two theories in conflict, which are the Social Information Processing and the Theory of Mind.

2.7.1 Social Learning Theory

One of the earliest theories is the Social Learning Theory from Bandura (1986). This classical theory explains how inappropriate reinforcement from peers can promote traditional bullying and cyberbullying (Espelage et al., 2013). Perpetrators consider that their peers are rewarding them when for example, their peers keep watching or even appear to enjoy a bullying incident. That peer attitude works like a rewarding mechanism, where perpetrators are reinforced to continue harassing their victims. Specifically, in cyberbullying incidents, a perpetrator might receive “likes” and “shares” for their actions, which again would act as a reinforcement to continue harassing their cyber-victims (Espelage et al., 2013; Bandura, 1986). However, this theory could not explain why some students instead of vulnerable might be resistant to peer influence. Other peer-oriented theories went further to explain more how bullying and cyberbullying can occur.

2.7.2 Social Norms Theory

Following the review by Espelage et al. (2013) on classical theories, we can find the Social Norms Theory recommended by Perkins and Berkowitz (1986), which explains how peer norms implemented by young individuals might promote traditional and cyberbullying. A peer norm can be the involvement of group members in bullying incidents as perpetrators or victims otherwise, they will be excluded from the group and remain isolated. In cyberbullying incidents, the perceived consequence is the exclusion of a group member from any virtual connection with the rest of the group (Espelage et al., 2013). Another peer norm is the perceived

rule of silence, requiring group members to remain silent over misbehaviours or otherwise, they will be punished through victimisation. Something significant about these norms is that are not set in stone, which means that most of the time they are misinterpreted by young individuals and blindly followed in order to belong to their group of peers (Perkins & Berkowitz, 1986). However, this theory might be weak to explain why some students are acting alone while bullying others instead of being part of a particular group of bullies.

2.7.3 Social Dominance Theory

An additional peer-oriented theory is the Social Dominance Theory proposed by Sidanius and Pratto (1999). According to this theory, there is an innate desire in some individuals to dominate others and show superiority, which is more common among boys and highlights the presence of gender differences in this area of study. Boys will try to establish a hierarchy even aggressively based on how powerful they are. At the same time, they create groups to feel more powerful and capable of dominating (Blumenfeld, 2013). Bullying and cyberbullying might be used by members of a group to achieve dominance over other groups. Interestingly, such tendencies are also employed by individuals who assume to belong to a perceived group, for example, the perceived dominance of older children over younger ones (Blumenfeld, 2013; Sidanius & Pratto, 1999). However, some researchers did not emphasise peer influences and provided alternative explanations on what causes bullying. Someone could say that peer influence alone might not be enough to explain bullying and cyberbullying. As Blumenfeld (2013) suggested, some individuals are less susceptible to peer influences. Therefore, the idea that individuals' acts are shaped by relying only on social interactions could not explain all instances of bullying and cyberbullying. That is why theories other than peer-oriented were developed and some of those are illustrated below.

2.7.4 General Strain Theory

One more theory that became popular in the area of bullying and cyberbullying is the general strain theory developed by Agnew (1992). The theory suggests that people in reaction to their feelings of frustration and stress are acting out aggressively to get a sense of relief. The theory goes on to identify three experiences that trigger these feelings in people (Patchin & Hinduja, 2011; Agnew, 1992). Failing to achieve a significant goal like academic success can be a

triggering experience. Losing a vital source of happiness like a romantic relationship can also be a triggering experience. Suffering from a devastating event like being victimised can be another triggering experience. The general strain theory was used to explain the phenomenon, where victims of bullying became perpetrators. Bullying as a source of strain can make victims feel distressed and need to do something to overcome it. Therefore, victims might become perpetrators as a way to retaliate and feel better. Particularly in cyberbullying instances, victims of traditional bullying might become perpetrators of cyberbullying because they might find anonymous online interaction as a safer way to encounter their perpetrators (Espelage et al., 2013). However, something to consider is that it might not be possible for all researchers to agree with the theory that all bullies had similar experiences in their lives that shaped them. Having said that, we also need to be mindful that other individuals with similar experiences might not end up as bullies. Instead, we can use this theory to understand that some specific experiences could indeed drive some individuals towards the direction of becoming bullies.

2.7.5 Online Disinhibition Effect Theory

A significant theory that can explain specifically cyberbullying instances is the theory of the online disinhibition effect suggested by Suler (2004). In general terms, this theory describes how people can experience a sense of freedom while interacting online and they might open up and peacefully express themselves or they might abuse that freedom and act aggressively towards others (Espelage et al., 2013; Suler, 2004). We can identify several factors causing that effect in cyberspace like anonymity, invisibility, asynchronicity, imagination, seriousness and authority. Anonymity is giving a sense of protection to the cyberbully's true identity. Invisibility during online interactions allows the cyberbully to remain unseen. Asynchronicity protects the cyberbully from an instant response by the cyber-victim. The cyberbully's imagination can be limitless through fantasies about the cyber-victim's actual personality. The misconception that acts happening online are not considered as serious since are not happening in the physical world. The misconception that authority is absent because of the unawareness of who governs cyberspace (Espelage et al., 2013; Suler, 2004). In conclusion, we can see how the above factors can establish such a disinhibition effect. However, we cannot see whether a single factor or a number of factors is required for that effect to occur. Also, this theory fell short of explaining beyond this effect why someone becomes a cyberbully.

2.7.6 Social Information Processing Theory

The theory by Crick and Dodge (1994) named Social Information Processing Theory is a classical theory which is not peer-oriented. Based on this theory, bullies tend to misattribute the intentions of others as hostile and they use aggressive behaviours to defend themselves. In other words, bullies are susceptible to assuming that others have the intention to hurt them, so they perceive a threat where there is not. This makes bullies act aggressively to protect themselves from any potential threat (Espelage et al., 2013; Crick & Dodge, 1994). At the same time, cyberbullies might exhibit the same social information processing in the online context, especially with written content which can easily be misinterpreted. However, as it is explained in the next section, instead of viewing bullies with a cognitive deficit, Sutton et al. (1999), suggested the opposite assumption that some bullies possess cognitive skills that make them experts in manipulating their victims.

2.7.7 Theory of Mind and Bullying/Victimisation

Sutton et al. (1999) based their theory on theory of mind which can be defined as the ability to understand others' minds. It involves one's competence in recognising that others may possess different thoughts, feelings, intentions and beliefs. Therefore, bullies' theory of mind which can encompass perspective-taking skills can help them to identify their victims by understanding how they feel. Perspective-taking skills can partially overlap with empathic skills which help bullies to recognise people's emotions. As Rueda et al. (2015) suggested, empathy can be separated into cognitive and affective components, something that we will revisit in the following sections. A manipulative bully could be high on cognitive but low on affective empathy. Thus, bullies might still lack the empathic skills which help them to feel people's emotions (Ettekal et al., 2015; Sutton et al., 1999). Similarly, cyberbullies might manipulate their cyber-victims. The virtual interaction might still give cyberbullies those indications showing the susceptibility of other people to easily become their victims like finding out sensitive information.

Faro et al. (2023), and Smith (2017) conducted systematic review studies to examine the potential relationship between bullying and theory of mind. The researchers identified a tendency in children who were victims to perform worse than other children on theory of mind tasks. On the other hand, a tendency was found in children who were seen as the leading bullies by peers to perform better than other children on those tasks. However, several bullies who did

not fit the role of a leading bully did not perform well. A classic example of assessing theory of mind was the false belief task designed by Wimmer and Perner (1983), and the "Sally-Anne" test designed by Baron-Cohen et al. (1985) and intended for young children at the early age of 4 years old. In this test, the children are told that a person "Sally" put an object into a specific place and went away, and then another person "Anne" came and relocated that object to a different place. The children are asked to indicate where "Sally" would expect to find the object. The latest review by Faro et al. (2023) included 14 studies conducted from 1999 to 2020. The age range of students who participated in these studies was 4 to 19 years old. Faro et al. (2023) concluded that current evidence partially supports the theory by Sutton et al. (1999) about theory of mind assisting bullies in manipulating their victims since some bullies still showed poor theory of mind ability.

Researchers found other factors that could be related to theory of mind, such as alexithymia (Pisani et al., 2021) and self-efficacy (Imanparvar & Khademi, 2016), both factors will be revisited in the following sections. Alexithymia refers to difficulties with emotion regulation and contains three components, which are the difficulty identifying feelings, the difficulty describing feelings, and the tendency to have externally oriented thinking (Bagby et al., 1994). Pisani et al. (2021) conducted a systematic review to examine the relationship between alexithymia and theory of mind. They reviewed 63 studies and found mixed results, some studies supported an association between alexithymia and theory of mind and other studies did not support such an association. The researchers highlighted the complexity of measuring the theory of mind ability since numerous tests exist to assess different aspects of this ability, such as the theory of mind ability involving emotion recognition. However, this review concluded that theory of mind can be associated with alexithymia when tasks involve emotion recognition. Therefore, it can be said that it is the underdeveloped ability of emotion recognition that could potentially link alexithymia with theory of mind.

Self-efficacy refers to self-perceptions of one's abilities in achieving based on three different domains of her/his life. These domains are the academic which refers to the ability to acquire knowledge, the emotional which refers to the ability to manage emotions, and the social which refers to the ability to develop relationships (Muris, 2001). The potential relationship between self-efficacy and theory of mind seemed to be examined to a lesser extent. Assuming that both these factors can be involved in social functioning, we could expect a relationship between the two factors. Based on this hypothesis, Imanparvar and Khademi (2016) examined whether a relationship exists between the level of self-efficacy and the ability of theory of mind in

students with conduct disorder. The researchers recruited 60 students aged between 13 and 15 years and diagnosed with conduct disorder to assess their self-efficacy level and theory of mind ability. They found significant and positive relationships between theory of mind and self-efficacy including its 3 subtypes, suggesting that young individuals with conduct disorder need to advance their performance in theory of mind tasks to increase their levels of self-efficacy. However, the researchers emphasised that more research should follow on to support such an association between the two variables.

It was assumed that bullies might have a cognitive deficit making them misinterpret situations (Crick & Dodge, 1994) and bullies might have cognitive skills making them experts in manipulation (Sutton et al., 1999). These are examples showing that some bullies might possess skills and some bullies might lack skills, so they are not all the same. A position that we can take regarding the debate whether bullies have a cognitive deficit or they have cognitive skills, is that both theories can explain different bullies. Although researchers focused on the negative use of skills relevant to theory of mind in bullying incidents, other researchers indicated a different approach viewing these skills positively (Doenyas, 2017; Shakoor et al., 2012). Shakoor et al. (2012) suggested that victims' theory of mind can be developed to make them more capable of negotiating conflicts and defending themselves. Also, Doenyas (2017) recommended that bullies might need help finding motivation to use theory of mind in a proper way that will not harm others. An example of a motivating factor could be the development of bullies' argumentation skills, as it is explained further in the current research.

2.8 Protective and Risk Factors of Bullying/Cyberbullying

A new tendency appeared after the development of numerous theories about bullying and cyberbullying. Since examining the accuracy of these theories became a difficult matter, researchers turned their attention to a new approach more evidence-based. Many attempted to find predictors of bullying and cyberbullying so they could suggest interventions for prevention (Cook et al., 2010). This led them to identify risk and protective factors related to bullying and cyberbullying. Risk factors are factors that put people at risk of getting involved in bullying and cyberbullying incidents and protective factors are factors that protect people against bullying and cyberbullying. Thus, implementing anti-bullying interventions inspired by protective factors could lead to effective prevention of bullying and cyberbullying.

Individuals who belong to minority groups could be at greater risk of victimisation (Peled, 2019). We can see individuals being stigmatised because they are different compared to the majority of their peers. Not everyone accepts diversity in race, colour, appearance, language, religion, sexuality, identity, etc., instead, some individuals use bullying against different groups of people. An unsafe environment could drive people of minority groups to isolation and loneliness, putting them more at risk of getting bullied. Thus, the absence of social interactions and relationships could be a risk factor for potential victims since they might not have a supportive network. This seems the case with university-level students, due to the reason that diversity could be more apparent on university campuses rather than in schools (Peled, 2019). On the other hand, a positive home and school environment could be a strong factor in protecting students to stay away from trouble. It seems like a safe and nurturing place does not allow space for aggression to occur. Students can feel supported and can freely grow without any significant obstacles (Zych et al., 2019). Therefore, the young people's quality of relationship with parents, teachers and peers can highly determine whether they will dismiss involvement in bullying. Especially with cyberbullying, a protective factor could be the moderation of technology use through parental supervision. Reducing the usage of technological devices could reduce the exposure of individuals towards sources that reinforce cyberbullying. Thus, parents could supervise the young person on how to make better use of the technology (Zych et al., 2019).

The purpose of the meta-analytic study by Cook et al. (2010) was to assess predictors of bullying and victimisation in children and adolescents based on previous studies. The results showed that other-related cognitions like empathy were unique predictors of bullying and self-related cognitions like self-esteem were unique predictors of victimisation. Davis (1994) defined the two components of empathy, the affective which refers to the ability to experience analogous feelings with others and the cognitive which refers to the ability to understand and recognise the feelings of others. A systematic review (Van Noorden et al., 2014) showed that bullying was negatively associated with both affective and cognitive empathy and victimisation was negatively associated with cognitive empathy only. Rosenberg and Simmons (1971) defined self-esteem as the personal belief of worth in oneself. A meta-analytic study (Tsaousis, 2016) showed that bullies and victims tend to present low levels of self-esteem, but this tendency was weak for bullies. Zych et al. (2019) conducted a systematic review of both factors of empathy and self-esteem in bullies and victims and found a tendency for bullies to show low levels of empathy and a tendency for victims to show low levels of self-esteem. This could

mean that bullies might have less empathy compared to the general population and victims might have less self-esteem compared to the general population. However, these two factors tend to predict either bullying only or just victimisation. More recent factors that were examined such as alexithymia (Aricak & Ozbay, 2016) and self-efficacy (Kokkinos et al., 2015) tend to have a connection with both bullying and victimisation as can be viewed in the next sections.

2.8.1 Alexithymia and Bullying/Cyberbullying

Studies have shown that there could be a relationship between alexithymia and bullying/victimisation (Aricak & Ozbay, 2016; Guzzo et al., 2014). Di Tella et al. (2020) explained that alexithymia can be tested in both clinical and non-clinical population samples after they reviewed studies relevant to alexithymia. Although alexithymia was initially linked with clinical samples, studies found the presence of alexithymic traits in the general population (Di Tella et al., 2020). Therefore, alexithymia can be viewed as a collection of personality traits rather than a specific psychiatric disorder.

In the study by Aricak and Ozbay (2016), the sample was 1257 students from 14 high schools, aged between 13 and 19 years. The participants were asked to complete a questionnaire about cyber-bullying/victimisation and alexithymia. The results showed that difficulty identifying feelings and externally oriented thinking explained an increase in cyberbullying among students. On the other hand, only difficulty identifying feelings explained an increase in cyber-victimisation among students (Aricak & Ozbay, 2016). Guzzo et al. (2014) administered self-report measures about bullying/victimisation, alexithymia and others to 488 high school students aged 16 or 17 years. They found that victimised students tend to present high levels of difficulty identifying feelings, difficulty describing feelings and overall alexithymia (Guzzo et al., 2014). It is important to note that both studies by Aricak and Ozbay (2016) and Guzzo et al. (2014) recruited a non-clinical sample supporting the existence of an association between alexithymia and bullying, despite that prevalence rates of alexithymia and bullying might be low in a non-clinical sample. Along the same lines, positive relationships between alexithymia and aggression were found by Konrath et al. (2012) after assessing a sample of 126 college students and by Velotti et al. (2016) after comparing a community sample of 617 young adults with a clinical sample of 257 adults suffering from different psychiatric disorders. It can be

concluded from the above studies that alexithymia could be positively related to both bullying and victimisation in a population sample that has no psychiatric history.

2.8.2 Self-efficacy and Bullying/Cyberbullying

Studies have shown that there could be a relationship between self-efficacy and bullying/victimisation (Kokkinos et al., 2015; Kokkinos & Kipritsi, 2012). Kokkinos and Kipritsi (2012) investigated self-efficacy apart from empathy in a sample of 206 students aged between 10 and 13 years and they found that more bullying is related to less overall self-efficacy and less cognitive and overall empathy. On the other hand, more victimisation is related to less academic, emotional, social and overall self-efficacy and less affective and cognitive empathy. Olenik-Shemesh and Heiman (2017) found in a sample of 204 students aged 14 to 16 years that cyber-victims have low social self-efficacy. In the study by Andreou et al. (2015), there was a negative relationship between incidents of bullying or victimisation and self-efficacy for peer interactions in a sample of 178 students aged 10 to 12 years. In other words, they found that students who were involved more frequently in incidents of bullying and victimisation were presented as less socially self-efficient. Kokkinos et al. (2015) found that more engagement with direct bullying is linked with lower levels of social self-efficacy in a sample of 262 pre-adolescent students. They also found negative relationships between the following variables, verbal or indirect bullying or victimisation and academic self-efficacy, verbal or indirect victimisation and social self-efficacy, and finally, indirect victimisation and emotional self-efficacy (Kokkinos et al., 2015). It can be concluded from the above studies that both bullying and victimisation could be negatively related to self-efficacy.

Interestingly, a recent study (Lin et al., 2020) examined the relationship between bullying and self-efficacy by comparing a sample of 5,912 Chinese university students and a sample of 1,935 German university students, both samples with a mean age of 21 years. The results showed that students from both countries who experienced victimisation more frequently presented lower levels of self-efficacy. However, there was a difference between perpetrators in Germany and perpetrators in China. The results indicated that students who were bullied more frequently presented higher levels of self-efficacy, which was apparent only in the sample of German university students (Lin et al., 2020). Therefore, we do not have clear evidence yet about the relationship between factors like self-efficacy with bullying.

Focusing on self-efficacy and alexithymia together, Faramarzi and Khafri (2017) attempted to examine the potential relationship between academic self-efficacy and alexithymia. They assessed the level of alexithymia and academic self-efficacy of 133 college students with a mean age of 21 years. The results showed a significant and negative relationship between alexithymia and academic self-efficacy. The researchers found that alexithymia was prevalent in their sample and students with higher levels of alexithymia showed lower academic self-efficacy. Also, they concluded that further attention needs to be placed on the prevalence of alexithymia in academic students and their level of academic self-efficacy.

2.9 Interventions for the Prevention of Bullying and Cyberbullying

Efforts to criminalise both bullying and cyberbullying according to the law in Western countries have not been successful (Jenkins et al., 2022). A clear reason for that is the uncertainty of whether aggressive behaviours are also bullying incidents or not. At the same time, applying the law in cyberspace brings again the uncertainty over the presumed boundaries that cyberbullies might have crossed (Campbell & Zavrsnik, 2013). Also, since a great number of young adolescents are exhibiting such behaviours, there is the concern of identifying them as delinquents quite early in their lives. Despite these practical difficulties with the law, the preference has been to use other alternative ways for resolving incidents of bullying and cyberbullying like educational campaigns rather than through legal regulations (Jenkins et al., 2022; Campbell & Zavrsnik, 2013).

Recent systematic and meta-analytic studies were conducted by several researchers to examine the effectiveness of anti-bullying intervention programmes in schools. Gaffney et al. (2019a) found that the most recent interventions, for example, those which are based on social and emotional learning succeeded in reducing bullying perpetration between 19 to 20 per cent and bullying victimisation between 15 to 16 per cent. For cyberbullying specifically, the image is less promising with a 9 to 15 per cent reduction in cyberbullying perpetration and a 14 to 15 per cent reduction in cyberbullying victimisation (Gaffney et al., 2019b). Also, Gaffney et al. (2019a) found that large numbers of interventions failed and a few even made things significantly worse. This means that there is still space available for more effective interventions since many are still failing to efficiently reduce bullying and cyberbullying.

Based on the systematic review of Perren et al. (2012), similar interventions were used to prevent both traditional bullying and cyberbullying. Ttofi and Farrington (2011) identified

several components that effective interventions include, starting with disciplinary methods, which were found to significantly reduce both bullying and victimisation by applying sanctions to bullies and depriving them of privileges as part of a whole school anti-bullying policy. Playground supervision with a re-organisation of the playground and an identification of hot spots are significantly reducing bullying during break-time. Activities for social and emotional learning, like advancing empathic skills, perspective-taking skills and problem-solving skills were also found to be effective in reducing bullying and victimisation. A final finding from the study of Ttofi and Farrington (2011), is the effectiveness of parent involvement in the reduction of both bullying and victimisation through parent meetings and training in the schools.

Another meta-analytic study by Lee et al. (2015) found that anti-bullying interventions are moderately effective. Regarding specific interventions, training in emotion regulation by recognising and understanding feelings seemed to significantly reduce victimisation. Training in peer support is yet another effective intervention, where an opportunity is given to children to build closer relationships between them and to adopt a socially active and useful role in preventing victimisation. Adopting a whole-school policy is an intervention that was found effective once again with clear disciplinary methods in place for children who are violating the right of a child to feel safe in school. Lee et al. (2015) also stated that although whole-school interventions are ideal for preventing bullying, these are difficult to be implemented, because are the most time and resource-consuming. Having that in mind, it is always worth searching for interventions that can be equally effective but also cost and time-efficient. In the next sections of this chapter, some of the most influential programmes implemented in the past for the prevention of bullying and cyberbullying are presented.

2.9.1 Olweus Anti-bullying Project

The first anti-bullying intervention programme was introduced by Olweus in the early 1980s (Olweus, 1994). He implemented a school-wide intervention programme for the prevention of bullying in various schools in Norway and found positive results. As we can observe from the research of Olweus (1997; 1994), 2500 children were recruited, aged 11 to 14 from 42 schools in Bergen, Norway and data were collected from them for two and a half consecutive years. The prevention programme was comprised of interventions on three different levels. At the school level, a whole-school policy was adopted to prevent bullying, a recommended intervention was the use of better supervision during break-time. At the class level, clear rules

for combating bullying were introduced to children together with regular class meetings to monitor the matter. At the individual level, breaking anti-bullying rules led to serious talks between the involved children and the teacher with the possible involvement of the principal teacher and the parents. After the completion of the prevention programme, the results showed a massive reduction in bullying and victimisation, even close to 70 per cent (Olweus, 1997; 1994). However, many attempts were made to replicate the programme in other countries with fewer positive and more mixed results (Olweus, 2004).

2.9.2 The Sheffield Anti-bullying Project

The first large-scale school-wide intervention programme in schools in England was implemented by Smith and colleagues in the early 1990s (Smith et al., 2004; Eslea & Smith, 1998; Smith & Sharp, 1994). These schools were provided with various optional interventions to enhance the prevention of bullying. Interventions like classroom discussions, role-playing, assertiveness training, peer counselling, and problem-solving methods were used. In addition to those interventions, schools had to make some environmental improvements and had to promote anti-bullying values by applying a whole-school policy. This involved cooperation between students, teachers, parents and school staff to work against bullying. The frequency and type of bullying were assessed in students before the programme, right after the programme and one year after the programme. Parts of the assessment were also if students reported the incident of being bullied and if students perceived effective prevention of bullying. Head teachers were also interviewed about the progress that happened against bullying in their school one year after the programme. There were mixed results, some schools indicated a decrease in bullying and some schools indicated an increase in bullying between girls. Also, the number of victims who reported the bullying incident did not change. Finally, the head teachers reported that schools have made some progress against bullying (Eslea & Smith, 1998; Smith & Sharp, 1994).

2.9.3 KiVa Anti-bullying Project

An anti-bullying programme that seems promising is the KiVa programme implemented in Finland since 2007 (Johander et al., 2021). This anti-bullying programme was initially implemented for students between 4th and 6th grades aged between 10 and 12 years (Karna et

al., 2011). Questionnaires were given to measure bullying and victimisation, self-efficacy for defending behaviour, and well-being at school. The intervention included group discussions, role-playing, short films and a computer game. After the intervention, the students of the intervention group presented less victimisation rate, less reinforcement for the bully, more defending of the victim and more well-being at school compared to the students of the control group. Also, this intervention significantly reduced bullying and victimisation in students of 5th and 6th grades. The reduction of bullying and victimisation was maintained after a follow-up period of 1 year. One of the objectives of a more recent study by Johander et al. (2021) was to examine the effectiveness of the KiVa programme in Finland between 2009 and 2015. The data of this study was derived from school personnel of 1221 primary and secondary schools and was collected each year through online questionnaires. The results showed that the KiVa programme seemed to be less effective in secondary rather than primary schools. Also, the number of years did not seem to have changed the impact of this programme in schools.

2.9.4 Friendly Schools Anti-bullying Project

One more programme that has shown positive outcomes in Australia since 1999 is the Friendly Schools' programme (Cross et al., 2021). This programme implemented a whole-school approach to promote social and emotional learning for healthy social relationships that can reduce bullying and victimisation in primary and secondary schools. More specifically, interventions that were incorporated into this programme are whole-school anti-bullying policies, material for teaching, parent resources, website news, home learning and links with local health professionals. Studies showed significant reductions in bullying and victimisation among students in primary school (Cross et al., 2012) and cyberbullying and cyber-victimisation among students in secondary school (Cross et al., 2019).

2.9.5 ViSC Anti-bullying Project

The ViSC programme was implemented in Cyprus among other countries showing positive findings (Solomontos-Kountouri & Strohmeier, 2018; Solomontos-Kountouri et al., 2016). It was implemented in Cyprus between 2012 and 2014 and involved 6 middle schools with 1652 students. The students were either in 7th grade or 8th grade with a mean age of 12.6 years. The programme was based on the method of train-the-trainer, so the researchers trained multipliers,

multipliers trained teachers and teachers trained their students. Also, the programme used interventions targeting 3 levels, the school, the class and the student. At the school level, teachers agreed on preventive measures and procedures to resolve incidents of bullying, and arranged activities with parents. At the class level, teachers assisted students in getting involved with interactive activities to develop their skills for resolving real-life problems. At the student level, teachers intervened when aggressive behaviour occurred to support victims and encourage bullies to act appropriately. The students completed self-assessments in 3 time periods, before and after the intervention programme, and also in a follow-up after a year. The results showed a significant decline in physical aggression and physical victimisation among students in 7th grade (Solomontos-Kountouri & Strohmeier, 2018; Solomontos-Kountouri et al., 2016).

2.9.6 Interventions Specifically Designed for Cyberbullying

Interventions to confront specifically cyberbullying incidents were separated into two categories, proactive interventions and reactive interventions (Chakraborty et al., 2021). Proactive interventions were used as preventive measures before new cyberbullying incidents occurred and reactive interventions were used to help victims to manage the harm after the cyberbullying incident occurred. The general level of success of these interventions is low and only those interventions that were implemented through technological means stand out. Examples of these were online forums and social network applications that could act both as proactive by allowing members of the public to share helpful information and experiences for prevention and reactive by providing links to report incidents and get instant support (Chakraborty et al., 2021). Online safety measures like blocking contact, ignoring or confronting the bully and asking for help were recommended as effective to combat cyberbullying (Perren et al., 2012). According to Parris et al. (2012), the effectiveness of such online safety measures was still considered moderate since cyberbullies continue to victimise other individuals. An effective intervention which was the most difficult to implement is emotional support. Based on the study by Murray-Harvey et al. (2012), younger adolescents tend to receive emotional support from a parent or a teacher and older adolescents tend to receive emotional support from a peer. However, many adolescents did not receive emotional support because they were unaware of their school's anti-bullying policy or because there was a lack of communication between them and their teachers. Another reason for avoiding asking

for emotional support was the fear of possible retaliation by bullies and the shame of being considered weak by their peers (Murray-Harvey et al., 2012).

2.10 Dialogic Models for the Prevention of Bullying and Cyberbullying

In recent years, a new tendency appeared for the prevention of aggression and marginalisation that was called the dialogic model of prevention (Roca-Campos et al., 2021). This tendency evolved from educational programmes that were funded by the European Commission as part of the research project INCLUDE-ED, which became one of the most successful in Europe. These programmes attempted to introduce new strategies for inclusion and social cohesion in Europe from education. The theoretical foundation of these programmes was based on the egalitarian dialogic learning introduced by Flecha (2000). In these programmes, students learn through the evaluation of argument validity and not through the position of power that teachers possess in the learning environment. According to Habermas (1984), argumentation is used by all parties as a process of assessing the validity of claims to arrive at rational conclusions. Based on these ideas, programmes of INCLUD-ED attempted to get involved the whole educational community into a dialogue. Through dialogue, teachers, students and families could reach together agreements, reject aggression and promote socialisation. Therefore, a safe environment could be created, where kindness would be used and become normalised instead of aggression until each member of the community is attracted by non-aggressive behaviours. An example of such a programme is the Zero Violence Brave Club which was first implemented in 2014 (Roca-Campos et al., 2021).

The Zero Violence Brave Club was implemented in different schools in Spain from the pre-primary level to the secondary level (Roca-Campos et al., 2021). Students were invited to share their experiences and beliefs through dialogues daily. They learned the importance of staying non-aggressive as the ultimate rule to be part of a group of peers. In the case of an aggressive incident, the students should provide support to the victim and the perpetrator will not continue to be part of the group until the issue gets resolved. Also, the students learned the importance of an active bystander, where a student reporting an aggressive incident will get rewarded by the group and also protected from any future harassment. Therefore, an environment of zero violence, the bravery of active bystanders and friendship in a club of students are promoted. Teachers from schools that implemented this programme for 2 to 3 years were invited by the researchers for structured individual interviews. The data were analysed qualitatively and the

researchers reached some important conclusions. The findings from this analysis pointed out four benefits that the programme provided to students and the wider educational community (Roca-Campos et al., 2021). The first benefit was the safe environment that helped to break the silence of students and speak up about aggressive incidents. The second benefit was the strong bonds that students form with each other protecting them against aggression. The third benefit was the impression of aggression in students' minds that became less attractive since perpetrators were no longer popular among their peers but instead disregarded by them. The fourth benefit was the example of healthy relationships that students can carry with them in adulthood after participating in this programme.

The effectiveness of the dialogic model was also examined for the prevention of bullying among students with disabilities (Duque et al., 2021). The data collection consisted of interviews with teachers of special schools and focus groups with students who have a disability. The data analysis revealed important themes that show the effectiveness of this model. First is the impact on improving the climate and preventing violence within classrooms. This could happen by overcoming barriers, such as acknowledging rather than underestimating the consequences of violence, defending victims instead of justifying perpetrators, starting talking about victimisation instead of staying silent, and responding to requests of victims for help instead of ignoring their calls. This could also happen by using reinforcements, such as praising for breaking the silence and reacting immediately for the support of victims. Other reinforcements involved considering each violent behaviour no matter how serious it was, establishing a whole school anti-bullying approach, and isolating perpetrators and supporters of perpetrators. The findings of this study showed that the dialogic model was successfully implemented by following strategies like a whole school agreement about zero tolerance on violence, dialogues within the whole educational community, and interactive practices that could help students adapt to non-violent interactions (Duque et al., 2021). Also, the inclusion of each student in the educational community was achieved by encouraging all students to voice themselves, breaking the law of silence through the collection of complaints, and promoting the importance of friendship among students. Another finding was about the improvement of student relationships and the formation of a supportive network, which were achieved by immediately supporting victims, learning how to form genuine friendships, and promoting a sense of safety and protection among students.

Villarejo-Carballido et al. (2019) examined cyberbullying incidents in a school that implemented the dialogic model of prevention. This was a primary school in Spain that

implemented the model between 2014 and 2017. Three research techniques were used to analyse the data collected from this school. The documentary analysis involved all documents collected from the school regarding the implementation of this model. The communicative observation was delivered by one of the researchers who participated in dialogues as an observer. The in-depth interviews were conducted individually with members of the educational community, where an incident of cyberbullying was recorded. More specifically, the person responsible for the smooth run of the model in that school was invited together with the teacher of the class where the cyber-bullying occurred, the director of the school and the mother of a student. The analysis of the data provided evidence supporting the dialogic model of prevention (Villarejo-Carballido et al., 2019). Once again, the dialogic model provided a safe environment for students to be active bystanders and speak about incidents of bullying. The involvement of teachers and family in the dialogues increased the safety of students with online interactions as well. Regarding the supportive network, this was available to both students, the victim and the bystander, contrary to the cyberbully who was condemned for this attack.

2.11 Conclusion of Chapter 2

This chapter attempted to explain the phenomena of bullying and cyberbullying and to show the negative impact of these on people who are involved like victims and perpetrators. Different theories were presented to understand better how bullying and cyberbullying occur between people. We also saw that different factors exist that can either help individuals stay away from bullying and cyberbullying incidents or make them more vulnerable to getting involved in such incidents. To conclude, although we can see interventions that were used some more, and some less successfully to diminish incidents of bullying and cyberbullying, there is still a space to examine and try out interventions that can be more effective. More focus was placed on dialogue-based interventions that will be examined further in the next chapter.

Chapter 3: Literature Review on Dialogic Argumentation

3.1 Introduction of Chapter 3

In this chapter, we present some of the intervention programmes implemented to foster the development of argumentation skills. Several studies, such as Iordanou (2022), Iordanou and Kuhn (2020), Iordanou et al. (2019), Iordanou and Constantinou (2015), Crowell and Kuhn (2014), De Fuccio et al. (2009), and Kuhn and Udell (2003) invited young people to engage in dialogic argumentation with the intention to examine its impact on young people's argumentation skills. We are going to expand on the above studies to give a clearer picture of what constitutes this intervention programme, which was also implemented during the current research project. A brief comparison will also be presented between various dialogue-based models. Towards the end of this chapter, we can get an idea of how this intervention might help in the prevention of both perpetration and victimisation.

3.2 Essential Concepts in Dialogic Argumentation

Starting with some essential concepts in this area of study, dialogic argumentation is the process where two or more individuals engage in dialogues while holding opposing positions as a way to develop their argumentation skills (Kuhn et al., 2016). The terms argument and argumentation are used as a product and a process respectively and the production of an argument is essential for the support of a claim. Argumentation skills are assumed to belong to higher-order intellectual skills and are a significant component of critical thinking ability since an advanced critical thinker needs to possess advanced argumentation skills (Kuhn, 2017).

Researchers found that dialogic argumentation can enhance learning since producing arguments (Zohar & Nemet, 2002) and engaging in dialogues (Mason, 2001) can both expand the knowledge of students on any specific topic. Mason (2001) invited children to engage in dialogues exploring a scientific topic and as a result, the students became more knowledgeable about that particular topic. Similarly, Zohar and Nemet (2002), invited adolescents to a training programme that combined argumentation skills with the subject of human genetics and as a result, students reached an advanced level of understanding on this subject after they engaged in an exercise to produce arguments relevant to the subject.

According to Kuhn (2001), young adolescents tend to focus on producing arguments to strengthen their position rather than arguments to weaken the opposite position, which indicates poorer argumentation skills. Iordanou and Rapanta (2021) reviewed studies that examined interventions based on dialogic argumentation and concluded that dialogic argumentation could affect human behaviour as it affects thinking. They assumed that cognitive gains from this pedagogical programme could be transferable making individuals responsible citizens in their communities.

3.3 Prominent Scientists in Dialogic Argumentation

Vygotsky (1978) is among those who support the claim that argumentation skills can be developed through common everyday dialogues. The work of Vygotsky (1978) underlined the importance of social interaction in children's learning. He used the term internalisation to explain how children internalise the dialogues they had with the grown-ups as a way to learn from them. Therefore, children start to make a better sense of the reality around them based on this pile of internalised dialogues. According to Fernyhough (2008), children end up gathering a collection of multiple perspectives of the external world as resources for their internal world to grow their higher-order intellectual skills like argumentation skills.

Toulmin (1958) was one of the first researchers who laid the foundations in the field of argumentation. According to Toulmin's model (1958), a strong argument is an argument that provides adequate justification for its claim. He goes on to explain that an argument needs to have three essential elements. The first is the claim which is basically a statement that someone makes. Then, what follows the statement is evidence to back up that statement, which is the second element named as the grounds. Finally, we have the third element named the warrant, which acts as the bridge to connect the claim with the grounds or in other words, it connects the statement with the evidence. Karbach (1987) used the following example to explain Toulmin's essential elements of an argument. *"Ann's bedroom is on fire."* the claim, *"Smoke is pouring from Ann's bedroom."* the grounds, *"Smoke is a primary sign of fire."* the warrant.

Walton (1989) is a prominent researcher in the area of argumentation, who proposed five rules for dialogue. The first rule refers to the two sides, explaining that at least two individuals (the proponent and the respondent) are needed to hold opposite sides on a specific topic. The second rule is about the moves, which are turns that each individual should take to respond to each other. The third rule is on the commitments, which are the set of propositions that each side

should prepare for their discussion. The fourth rule deals with procedural rules, such as the sequence of moves (turns) that should be followed and the additions and removals that should be made in the set of commitments (propositions). The last rule is about the goal of dialogue, explaining that each dialogue should have a specific way of closure, a clear point showing the proper end of the discussion. According to Walton (1989), in persuasion dialogue, the goal is for either the proponent or the respondent to persuade the other based on the commitments of their opponent. In other words, a successful argumentation takes into consideration the opposing position and attempts to confront that by revealing its weakness with the use of a counterargument. An example of an argument followed by a counterargument was provided by Kuhn and Udell (2003): Person 1 stated *"I think I'm in favor of capital punishment because if you did a crime and took away many lives like the Unibomber, I think you should pay for that crime…"*, then Person 2 replied *"Yeah, I thought the same thing at first but then I thought that it was wrong because you are taking a life away and I think that's plain out wrong because the only person who could take a life away is God…"*.

3.4 Differences between Dialogue-based Models

An example of an old intervention that was used effectively in various contexts and has similarities with dialogic argumentation is the Socratic method also called Socratic dialogue or questioning. Socratic dialogue and dialogic argumentation are both learning processes that use dialogue for the exchange of arguments to drive individuals to a better understanding of themselves and their world (Dillon, 2016). Rahmawati and Suwarjo (2021) recommended the Socratic method as a possible anti-bullying intervention, they interviewed 19 counsellors from 15 secondary schools about the potential effectiveness of the Socratic method to reduce bullying. The Socratic method derived from the ancient Greek philosopher Socrates evolved into an effective pedagogical tool involving two or more individuals in a dialogue for the production of valid arguments. Rahmawati and Suwarjo (2021) found that school counsellors appreciated highly the importance of implementing such an intervention in their school. The school counsellors were optimistic that the Socratic method would make a difference in the reduction of bullying among students. Similarly, we could recommend dialogic argumentation as a possible anti-bullying intervention.

Although dialogic argumentation, egalitarian dialogue (see section **2.10**) and Socratic dialogue have in common the use of dialogues as a way of learning and development, these share also

significant differences. Dialogic argumentation focuses on developing argumentation skills that become transferable for advanced critical thinking and understanding (Iordanou & Rapanta, 2021). Egalitarian dialogue focuses on bringing together what is already known equally and expanding knowledge collectively (Flecha, 2000). Socratic dialogue focuses on questioning ideas and concepts consistently to uncover deeper meanings and reach higher levels of awareness (Dillon, 2016). Thus, the goal of dialogic argumentation is to develop argumentation skills, the goal of egalitarian dialogue is to bring equality in reasoning, and the goal of Socratic dialogue is to go deeper into concepts. Also, we can highlight here that dialogic argumentation offers measurable means for the assessment of argumentation skills, which makes it stand out from other models that rely exclusively on theoretical concepts.

It is also important to explain that other models of dialogic argumentation also exist in the literature. What differentiates one from the other are elements like being persuasive or deliberative and adversarial or collaborative. Here, we are going to explain the differences between the model by Kuhn and colleagues (Iordanou & Rapanta, 2021) and other models of dialogic argumentation. Special focus will be placed on the model by Nussbaum (2021) and the model by Felton and Crowell (2022), who followed similar approaches. Starting with deliberative dialogue, Felton and Crowell (2022) explained that individuals who engage in dialogues should work together to reach an agreement about a topic by exchanging arguments. On the other hand, Kuhn suggested that individuals should work against each other in the form of a debate, so they can persuade the other side by exchanging arguments (Iordanou & Rapanta, 2021).

Continuing with the collaborative argumentation, similar to deliberative dialogue, Nussbaum (2021) emphasised the collaboration between two sides rather than the opposition. However, the model by Kuhn is not completely focused on the debate since it includes components, where individuals work collaboratively to agree on arguments (Iordanou & Rapanta, 2021). Also, researchers who support collaborative argumentation suggested that the competitive nature of adversarial argumentation, which involves more persuasion might make individuals feel dismissed or make introverted individuals feel pressured (Nussbaum, 2021). On that note, Kuhn mentioned that argumentation is like a game, where everyone needs to strive for the win (Iordanou & Rapanta, 2021). Also, Thiebach et al. (2016) explained that maintaining collaboration and reaching an agreement might leave two individuals without adequate evaluation of alternative viewpoints that would otherwise see if they worked against each other. Thus, it can be said that appropriate competition is not bad, on the contrary, competition can

give additional motivation to individuals to put more effort into developing their argumentation skills.

3.5 Overview of the "Argue With Me" Method

It would be useful to briefly illustrate here the method based on dialogic argumentation that was implemented and tested in previous studies (Iordanou, 2022; Iordanou & Kuhn, 2020; Iordanou et al., 2019; Iordanou & Constantinou, 2015; Crowell & Kuhn, 2014; De Fuccio et al., 2009; Kuhn & Udell, 2003). The individuals who were engaged in this programme were instructed to produce the most persuasive arguments in order to increase their chances of being awarded as the winner at the end of the programme. There are three different stages during the programme, the first is called pregame, the second is the game and finally, we have the endgame. During the pregame, the participants were invited to work in small groups and produce their reasons why they chose a particular side on a given debate. They also had two additional tasks in this stage, to evaluate their reasons and to predict the possible reasons of the opposite side. During the game, the participants were paired with participants from the opposite side in order to engage in dialogues and exchange arguments. While the participants were engaging in dialogues, different pairs were formed with participants from the opposite side until each participant would get the chance to engage in dialogues with all other participants. During the endgame, the participants were placed back in the wider groups to evaluate their arguments and the opposite side's arguments in preparation for the showdown. In the showdown, the participants took turns each one at a time exchanging arguments. Finally, there was a debrief of the showdown, where the participants had to mark the produced arguments in order to find out the winner of the showdown, the team that scored the highest mark.

As it can be understood, each of the above stages had its main activity and cognitive objective (Iordanou, 2022; Iordanou & Kuhn, 2020; Iordanou et al., 2019; Iordanou & Constantinou, 2015; Crowell & Kuhn, 2014; De Fuccio et al., 2009; Kuhn & Udell, 2003). The activity of the pregame was to brainstorm reasons within the same-side group. Following on, the activity of the game was to confront the opponent's arguments and to reflect on the participants' own arguments. Eventually, the activity of the endgame was to engage in a same-side group reflection and to participate in a one-to-one debate. Regarding cognitive objectives, the pregame's objective was that participants would understand how reasons support opinions and how different reasons can be better than each other. On the other hand, the game's objective

was that participants would anticipate the opponent's reasons while they would find the best way to counter those reasons. At last, the endgame's objective was that participants would master the ability to use arguments and accurately strengthen and weaken statements.

Regarding the assessment of individuals' argumentation skills, this usually happens through essays, where individuals write their arguments based on a two-sided debate (Iordanou, 2022; Iordanou & Kuhn, 2020; Iordanou et al., 2019; Iordanou & Constantinou, 2015). Then, the assessors are getting into a process where they assess the validity of each written argument. An argument is considered valid when it includes evidence for its claim making it an evidence-based argument. However, a valid argument is also considered functional when the evidence is used in a logically acceptable way that is in line with the standards of cohesiveness. An example of a non-functional argument followed by a functional argument was provided by Iordanou and Rapanta (2021): *"I think we should ban the plastic because it kills many animals…"* What makes this argument non-functional is that the arguer did not explain the reasoning behind this statement. However, if the same arguer continues with the following statement: *"There are many alternatives to replace it, for example glass…"* then, this argument is considered functional since the arguer provides a specific example of an alternative. Subsequently, we can use arguments in a direction that strengthens or weakens either our position or the other position on a given topic. Regarding the previous example of functional argument, it also strengthens the arguer's position about banning plastic with alternatives. Therefore, an important part of the argumentation process is the use of counterarguments, where each party exchanges arguments in a dialogue to either strengthen their position or weaken the other position as we saw in the example in section **3.3** above, by Kuhn and Udell (2003).

3.6 Review Studies of the "Argue With Me"

In this section, we can delve into specific studies and their findings that accompany this method starting with Kuhn and Udell (2003), one of the first studies that provided some initial findings. Followed by Crowell and Kuhn (2014) with a computerised and lengthier version of this method. Then, we focus on Iordanou and Constantinou (2015) with a web-based version of the method and a special consideration of argumentation skills like evidence-based and functional arguments. Also, Iordanou et al. (2019) evaluated the duration of the method on two occasions and the sources of evidence for arguments to reveal important findings. Other matters to

consider are the two sides of a debate and the transferability of skills to different topics, which were addressed by Iordanou and Kuhn (2020) with a focus on arguments that weaken the other's side claim. Additionally, a special reference was made to the connections between argumentation, epistemic understanding and theory of mind (Iordanou, 2016; Iordanou, 2022). Finally, we can review De Fuccio et al. (2009), a study that involved individuals with experience of aggression engaging in this method.

3.6.1 Initial Findings for the "Argue With Me"

The study of Kuhn and Udell (2003) was one of the first that introduced an educational programme based on dialogic argumentation. The authors intended to find out whether dialogues are essential for the development of argumentation skills. The sample in this study consisted of students who were at risk for academic failure from low-performing public middle schools. The reason for choosing this population was to diminish the possibility that the expected skill development would happen due to students' schoolwork curricula and students' normal age development. A topic was given to the participants requiring them to decide on a two-sided position. A comparison group was used to see the difference in the effect of dialogue in the experimental group. The 13 students of the comparison group participated in the production of arguments without engaging in dialogues contrary to the 21 students of the experimental group. The results showed that the argumentation skills of the experimental group improved more than the comparison group. The students from the experimental group produced more arguments after engaging in dialogues. This was evidenced by the production of an increased number of counterarguments that strengthened the position of the same side and weakened the position of the opposite side (Kuhn & Udell, 2003). Thus, the findings showed that proper advancement of argumentation skills can happen through dialogues.

3.6.2 Computerised and Lengthier Version

Crowell and Kuhn (2014) used the computerised version of the intervention, first implemented by Kuhn et al. (2008) and expanded it to its lengthier version. The peer dialogues among students aged 11 and 12 years occurred through instant messaging software and lasted for 3 years, each year was divided into 4 quarters of about 13 sessions. Similar to earlier studies of the authors, the goal for the participants was to find the winning team in the debate between

two opposite sides and the goal for the researchers was to examine whether the participants would produce more counterarguments. Therefore, the purpose of this intervention was to increase the instances of counterargument as an indication of the development of students' argumentation skills. During the 3 years, the 56 participants of the intervention group had developed their argumentation skills significantly more contrary to the 23 participants of the control group. This was also evidenced by the use of significantly more counterarguments strengthening the position of the same side and weakening the position of the opposite side within the intervention group (Crowell & Kuhn, 2014). Similarly, Kuhn et al. (2008) found that early adolescent students could easily engage in reflective activities of the computerised version of dialogic argumentation and were successful in addressing the other person's position.

3.6.3 Web-based Version with Database

An important element to expand on is whether the computerised versions of this intervention can provide appropriate opportunities for participants to develop their argumentation skills. Examples can be the SOCRATES web-based learning environment used by Iordanou and Constantinou (2015) with high school students and the STOCHASMOS web-based learning environment used by Iordanou and Constantinou (2014) with university students. In these web-based versions of dialogic argumentation, dialogues between participants occurred through instant messaging alongside a rich database of sources to help them construct their arguments (Iordanou & Constantinou, 2015). The total number of high school students was 32 and their ages varied between 15 and 16 years. Half of them got involved in dialogic argumentation as an experimental group and the other half prepared presentations in pairs on a specific social topic as a control group. The computerised nature of dialogic argumentation allowed participants to reflect more efficiently on their arguments since these were saved and were instantly available to them at any time. The experimental group produced significantly more evidence-based arguments, functional arguments and arguments weakening the other side in the last assessment compared to the first assessment. On the other hand, the control group did not present any change from the first to the last assessment. Similarly, Iordanou and Constantinou (2014) found that university students of pedagogy produced more evidence-based arguments and counterarguments after they engaged in dialogic argumentation compared to university students of pedagogy who participated as a control group and did not engage in

dialogic argumentation. This shows the importance of taking into consideration all these argumentation-related variables when we assess the argumentation skills of individuals. Also, the computerised versions of dialogic argumentation seemed to be a reliable method for advancing argumentation skills (Iordanou & Constantinou, 2015).

3.6.4 Duration and Type of Source

Exploring further this intervention, a question arises about the proper duration of the intervention and a second question about the use of questions and answers or a short text for the production of arguments. Iordanou et al. (2019) compared a longer and less intensive programme of dialogic argumentation with a shorter and more intensive one. The longer programme included 9 sessions over 5 weeks and the shorter programme 6 hours over 2 days. 88 elementary students aged 10 to 12 years were recruited for the longer programme, half of them as an intervention group and the other half as a comparison group. Middle school students aged 11 to 14 years were included in the shorter programme with 58 students as an intervention group and 49 as a comparison group. The findings showed that the shorter and more intensive programme helped students to develop their argumentation skills similarly to the longer and less intensive programme, which means that the duration of the programme does not affect its efficiency. More specifically, the participants of both programmes presented a significant rise in the number of functional arguments. Also, another important finding came from the comparison between using questions and answers to help students produce their arguments or using a short text. The questions and answers were more helpful than the short text since the participants who had questions and answers produced significantly more functional arguments than the participants who had the short text. Again, this shows that focus should be placed on functional arguments when we want to evaluate participants' argumentation skills. Therefore, the use of questions and answers remains the best source of evidence for the production of arguments and both a long and a short duration are equally appropriate for this intervention (Iordanou et al., 2019).

3.6.5 Sidedness and Transferability

Other important matters were to find out whether this intervention could be implemented between individuals of the same side or the opposite side and whether the development from a topic could then be transferred to another topic. Iordanou and Kuhn (2020) asked middle-school students aged 10 to 11 years to participate in pairs engaging in dialogues. The students were allocated to 2 groups, 66 in the experimental group engaging with opposite-side dialogues and 65 in the control group engaging with same-side dialogues to examine the effectiveness of opposite-side compared to same-side dialogues. As was expected the participants of the experimental group presented a greater development of their argumentation skills even after the passage of a whole school year highlighting the importance of the exchange of opposing arguments in the development of argumentation skills. More specifically, the participants of the opposite-side group presented a significant increase in the production of arguments weakening the other side compared to the same-side group, which did not present any change. As it was mentioned above, attention should be given to the arguments weakening the other side when we test for the development of argumentation skills. Another significant finding from the above study was how well the participants of the experimental group could transfer their argumentation skills to a different topic from the one they processed a year ago which shows that argumentation skills can be retained and transferred to a novel topic (Iordanou & Kuhn, 2020). Therefore, we can say that when two people use a topic to develop their argumentation skills, is better to hold opposite sides and they can transfer this process to a novel topic without losing any gains.

3.6.6 Theory of Mind, Epistemic Understanding and Metacognition

Iordanou (2016) suggested a continuous link between theory of mind and epistemic understanding. Epistemic understanding can be defined as the ability to understand knowledge. It represents the cognitive process relevant to the formation and revision of beliefs. We can see that while individuals are growing up from early childhood, both their ability to form and revise beliefs and their ability to understand others' different beliefs are gradually developing. According to Iordanou (2016), epistemic understanding is essential for argumentation by assisting individuals to produce arguments using more convincing evidence to strengthen their position and weaken the other position. Thus, theory of mind can complement epistemic understanding. To form and revise beliefs someone would need to understand others' different

beliefs. We can then assume that argumentation skills such as evaluating the evidence that strengthens someone's perspective or weakens the others' perspective are related to both epistemic understanding and theory of mind. A task such as engaging in dialogues in the form of a debate would require both the ability to revise beliefs and to understand others' different beliefs. Thus, the development of argumentation skills through dialogues can facilitate better use of epistemic understanding and better use of theory of mind.

Epistemic understanding follows a developmental path based on 3 levels and dialogic argumentation can trigger such cognitive development from one level to the other (Iordanou, 2022). The development of epistemic understanding starts from the absolutist level, where arguers believe in their perspective by denying the existence of others. The next level is the multiplist, arguers at this level believe that other perspectives exist together with their own but they are not willing to evaluate those. The final level is the evaluativist, arguers are willing to evaluate other perspectives and find the evidence supporting those (Iordanou, 2022). At such a level, it might be assumed that arguers would also be better at regulating behaviour along with cognition enabling them to lessen involvement in incidents like perpetration and victimisation.

A final question to answer was about the usefulness of the reflective component of this intervention. Iordanou (2022) used 2 classes of 21 and 20 students aged 11 to 12 years as an experimental and a control group. The control group engaged in dialogic argumentation without reflection and the experimental group engaged in dialogic argumentation with reflection to examine the usefulness of the reflective component of dialogic argumentation. The findings showed that the participants who engaged in dialogic argumentation with its reflective component exhibited further development of argumentation skills contrary to the participants who engaged in dialogic argumentation without reflection. More specifically, the participants who engaged in the reflective exercise used significantly more evidence in their arguments, especially evidence to weaken the opposite side compared to the participants who did not engage in the reflective exercise. Once again, this shows the importance of evidence-based arguments as an indication of more advanced argumentation skills. The reflective component of dialogic argumentation helped the participants to reflect on what arguments they used, what arguments their opponents used and how they could improve their arguments to become stronger than their opponent's arguments with proper and accurate use of evidence. These findings highlighted the significant impact of the reflective component of dialogic argumentation on advancing argumentation skills at a metacognitive level (Iordanou, 2022).

3.6.7 Aggression, Victimisation and Argumentation

This section could not end without reviewing the study that provides indications about a potential link between argumentation and aggression. In the study by De Fuccio et al. (2009), delinquent male juveniles aged between 14 and 18 were recruited from a juvenile detention facility to participate in dialogic argumentation. 28 participants were allocated to the experimental group, and 24 to the control group. The participants of the control group had their regular academic instruction, while the participants of the experimental group engaged in the intervention for 2 days per week and overall, for 6 consecutive weeks. Results showed that participants produced more arguments in quantity and of better quality after the preparation, execution and reflection of dialogues. Additionally, trained staff of the detention facility were interviewed after the intervention to share their observations. The most common comment they made about the participants was about their behaviour after engaging in dialogic argumentation. The participants were observed less aggressive towards each other and more in control. This was the first sign indicating that dialogic argumentation and argumentation skills could facilitate behaviour management. De Fuccio et al. (2009) suggested that argumentation skills might have a significant role in cognitive regulation. They assumed that advanced argumentation skills could facilitate the ability to express yourself freely and to view alternative perspectives respectfully, which in return could result in better cognitive regulation and less aggressive behaviours (De Fuccio et al. 2009).

We could use the theory by Doenyas (2017) to explain the observed behavioural change of offenders in the study of De Fuccio et al. (2009). According to Doenyas (2017), it is not only a matter of whether someone has a strong or weak theory of mind ability but how someone uses it, either to act aggressively towards others or in a socially desirable way. The researcher went further to explain that both children and adults are prone to interpret something in an egocentric manner. So, even if bullies are exhibiting the theory of mind ability at a high level still, they may not be motivated enough to resist their egoistic act of bullying others. On the other hand, individuals who are not engaging in incidents of bullying either as bullies or victims can exhibit the theory of mind ability at a high level and it may be easier for them to act in an altruistic manner. As we viewed previously (Iordanou, 2022), advanced argumentation skills could assist epistemic understanding to grow at higher levels, where an individual can become more of an evaluativist and probably think and act less egocentrically. Such a development would probably motivate bullies to begin acting in a non-aggressive manner.

Regarding victims' argumentation skills, we can use the example by Roca-Campos et al. (2021), where students engaged in dialogues exchanging arguments that helped them avoid victimisation. Also, Shakoor et al. (2012) highlighted the importance of theory of mind for victims. They explained that individuals with poor theory of mind ability may find it difficult to negotiate conflicts and defend themselves or even recognise signs of malevolent intentions in others, which can put them at risk of being viewed as an easy target by bullies. The researchers recommended training tasks such as discussing scenarios of false belief similar to the false belief tests (Taylor, 1996) to help children improve their theory of mind ability. In our case, instead of discussing scenarios, discussing and exchanging arguments in dialogues could be an alternative way to use the theory of mind ability more efficiently, especially for adolescents and adults, who may find false belief tasks less challenging.

3.7 Conclusion of Chapter 3

In this chapter, we attempted to provide an overview of the "Argue With Me" method together with a review of the most important studies in dialogic argumentation. Essential concepts from prominent scientists were not left out from the literature review of this area of study. The findings of studies from different dialogue-based models showed promising indications of preventing perpetration and victimisation. This made us move on and study this potential link between argumentation and aggression with a special focus on bullying/cyberbullying. Then, we attempted to implement an intervention based on dialogic argumentation to examine whether argumentation skills can play a role in the prevention of cyberbullying/cyber-victimisation, as follows in the next chapters of this research project.

Chapter 4: Study 1 – Correlational Study of Bullying and Argumentation among Primary School Students

4.1 Introduction of Study 1 – Correlational Study of Bullying and Argumentation among Primary School Students

It can be concluded from the literature that bullying is a serious problem with devastating consequences on students' mental health. Following the literature review, an attempt was made to further explore potential protective or risk factors of bullying and victimisation that were mentioned above like alexithymia (in section **2.8.1**) and self-efficacy (in section **2.8.2**). Additionally, the potential link between argumentation and aggression (in section **3.6.7**) was explored here potentially for the first time, building on the initial findings that were presented above and with special reference to bullying and victimisation. Thus, the aim of Study 1 was to examine the potential relationships between bullying and victimisation, argumentation skills, alexithymia, and self-efficacy for peer interactions and if these relationships would remain stable over time. The 1st research question was whether bullying and victimisation would be significantly correlated to argumentation skills. The 2nd question was whether bullying and victimisation would be significantly correlated to self-efficacy for peer interactions and finally, the 3rd question was whether bullying and victimisation would be significantly correlated to alexithymia.

To answer the research questions, the participants were asked to complete questionnaires measuring the frequency of bullying and victimisation, the level of self-efficacy for peer interactions, and the level of alexithymia. The participants were also asked to write their arguments on a given topic to assess their argumentative performance. These assessments were repeated after a period to see whether the results would remain similar. Regarding the 1st question, it was hypothesised that bullying and victimisation would be negatively correlated with argumentation skills since we have promising indications from the study by De Fuccio et al. (2009), where young offenders seemed less aggressive after they developed their argumentation skills. We also had promising indications from Roca-Campos et al. (2021), who observed students responding positively towards adopting policies against aggressive behaviours after they engaged in whole-school dialogues. Concerning the 2nd question, it was hypothesised that bullying and victimisation would be negatively correlated to self-efficacy for

peer interactions as it occurred in the studies by Andreou et al. (2015) and Kokkinos et al. (2015), where bullies and victims exhibited low levels of social self-efficacy. Regarding the 3rd question, it was hypothesised that the frequency of bullying and victimisation would be positively correlated to alexithymia, something that was noticed by Aricak and Ozbay (2016) and Guzzo et al. (2014), who found bullies and victims exhibiting high levels of alexithymia.

The relationship between argumentation and bullying has probably not been examined yet. This occurred here potentially for the first time and the results can be observed below. These results can shed more light on where the attention should be drawn regarding the development of new anti-bullying interventions. The design, participants, materials and procedure of this study are also described next. The analysis of the data will also follow with a discussion and further reference to potential limitations, implications and future research.

4.2 Method of Study 1 – Correlational Study of Bullying and Argumentation among Primary School Students

A correlational research study was conducted to examine whether relationships exist between bullying/victimisation and argumentation, alexithymia, and self-efficacy. A group of 100 participants was used to examine their responses to four questionnaires at two time periods. The same group of participants was re-assessed using the same questionnaires after two months to find out whether the initial results would be confirmed by the subsequent results. There were three research questions, the 1st question was about potential correlations between bullying/victimisation and argumentation skills. The 2nd question was about potential correlations between bullying/victimisation and self-efficacy for peer interactions. The 3rd question was about potential correlations between bullying/victimisation and alexithymia.

4.2.1 Participants

Power analysis was conducted before the recruitment of participants using G*Power, indicating that at least 85 participants were required to provide 80 per cent power with an effect size of 0.3 based on previous studies, which were included in the systematic review by Cook et al. (2010). The participants of the present study were 100 students in total from 5 different primary schools, all located in the city of Limassol in Cyprus. The largest number of participants belonging to the same school was 39 and the smallest was 10, with 3 other schools of 16, 17 and 18 participants. According to Berger (2007) and Eslea and Rees (2001), bullying tends to be more apparent in students aged 11 to 13 years. Thus, 60 participants were recruited from the 5th grade, aged 11 to 12 years and 40 participants were recruited from the 6th grade, aged 12 to 13 years. Regarding their gender, 62 participants were female and 38 participants were male.

Before any scientific procedure, the researcher approached the appropriate organisations to gain ethical approvals for the research. First, an application was submitted to the research committee of the Ministry of Education and Culture in Cyprus, where the research was approved (Appendix A). Second, an application was submitted to the Bioethical Committee for Research in Cyprus, where again, the research was approved (Appendix B). Third, one final application was submitted to the Ethical Committee of the University of Central Lancashire, where the final approval was received (Appendix C). After all ethical approvals, the researcher received permission from principals and teachers (Appendix D) in schools and finally, he

received the consent of both parents (Appendix E) and children (Appendix F) regarding the participation of the students in the research.

4.2.2 Materials

4.2.2.1 Toronto Alexithymia Scale (Appendix G): The Greek version of this scale by Tsaousis et al. (2010) was given to the participants to measure their level of alexithymia. This scale was developed by Taylor et al. (1992) and was adjusted into a simpler version more applicable to children by Rieffe et al. (2006). Alexithymia refers to difficulties with emotion regulation and contains three components, which are the difficulty identifying feelings, the difficulty describing feelings, and the tendency to have externally oriented thinking (Taylor et al., 1992). These three components of alexithymia are also subscales of the Toronto Alexithymia Scale. Thus, the participants who score higher in alexithymia, have more difficulties with emotion regulation. An example of items in this scale is: *"I am often confused about the way I am feeling inside"* with three possible responses, which are *"often true"*, *"occasionally true"*, and *"not true"*. The internal consistency reliability of the questionnaire was adequate since Cronbach's Alpha was 0.74.

4.2.2.2 Children's Self-efficacy for Peer Interactions (Appendix H): The Greek version of this scale by Galanaki and Kalantzi-Azizi (1999) was given to the participants to measure their level of social self-efficacy. This scale was developed by Wheeler and Ladd (1982), who defined social self-efficacy as self-perceptions of one's ability to have efficient social interactions (Wheeler & Ladd, 1982). The scale contains two subscales, which measure the level of social self-efficacy in conflicting and non-conflicting situations. Therefore, a high score in social self-efficacy implies positive self-perceptions for one's efficacy in social interactions. An example of items in this scale is: "Some kids want to play a game. Asking them if you can play with them is…" with four possible responses, which are *"very hard"*, *"hard"*, *"easy"*, and *"very easy"*. A high internal consistency reliability was found for this questionnaire as Cronbach's Alpha was 0.83.

4.2.2.3 Student Questionnaire on Bullying and Victimisation (Appendix I): The Greek version of this questionnaire by Pateraki and Houndoumadi (2001) was given to the participants to measure the frequency of bullying and victimisation among them. This questionnaire was developed by Olweus (1993) to examine how often students bully other students or how often students get victimised by other students. All recognised types of bullying were involved as

subscales. Additionally, a definition of bullying was provided to the students to help them understand what would be measured. An example of items in this scale is: *"How often have you been bullied at school in the past couple of months?"* with five possible responses, which are *"one or two times only"*, *"two or three times per month"*, *"about once per week"*, *"several times in a week"*, and *"did not happen to me"*. The internal consistency reliability of the bullying subscale was adequate since Cronbach's Alpha was 0.77. Also, good internal consistency reliability was found for the subscale of victimisation as Cronbach's Alpha was 0.80.

4.2.2.4 Essay Task for the Assessment of Argumentation Skills (Appendix J): Similar to previous studies (Iordanou, 2022; Iordanou et al., 2019), the participants were asked to write an essay on a given topic as a way to assess their argumentation skills. An English version of this instrument was made available for review purposes. The question *"Why are some people more aggressive than others?"* was given to the participants with two possible answers *"Were they born in this way, or does it depend on how they were brought up?"*. Then, they were invited to choose a position, either one of the two answers above or both answers and to justify their position. They were also provided with a list of evidence in the form of 9 questions and answers to help them construct their arguments. 4 of these questions and answers support the position that aggressive people were born in this way, the other 4 support the position that aggressive people were brought up in this way and 1 more question and answer supports both positions. As we saw in the literature above, the method of questions and answers was found to be more helpful for participants to use more evidence in their arguments (Iordanou et al., 2019). Additionally, providing evidence would assist in eliminating the possibility that students' argumentation skills would be affected by a lack of knowledge of the topic (Iordanou, 2010) after considering the relationship between prior knowledge and argumentation skills (Baytelman et al., 2020). An example of evidence in the given list was: *"Question: Can aggression be inherited through the genes? Answer: Humans inherit the trait of aggression from their genes. Genes contain genetic information about the development and function of the human organism. Some genes have been shown to have a relationship with aggressive behaviours. This can be seen from studies that involved identical twins who share the same genetic material, one of those studies is that by Reif, Rosler, Freitag, and others from the collaboration between universities of Germany and Wales."* We chose this particular topic because first, is a classical scientific debate, where both sides can present accurate evidence.

Second, a topic relevant to aggression would give children the chance to gain more knowledge about the possible causes of aggression.

4.2.3 Procedure

Right before the assessment, the students were informed again about the procedure of this study and about their right to withdraw from the study before or after the assessment. Additionally, the students had to give their written consent on a separate form (Appendix F) to conform to the regulations of the Ethics Committees. The students completed the four questionnaires following the same order as these are presented above. When the assessment was completed by all students, the researcher collected the papers to start analysing the data. The duration of the assessment was two teaching periods, hence 90 minutes. After two months, the same assessment was repeated on the same sample to check if the results were consistent over time. Therefore, there was a 1st round of measures and a 2nd round after 2 months. However, because the assessment was anonymous, students' responses could not be exactly linked to their previous responses.

The coding scheme based on Iordanou et al. (2019) was used to assess the argumentation skills of students. A single argument produced by a student was considered a unit of analysis. The arguments were then separated into three stages. The first stage was to identify how many arguments were with evidence and how many arguments were without evidence. The second stage was to identify how many arguments with evidence were functional and how many arguments with evidence were non-functional. The third stage was to identify how many functional arguments were supporting and/or weakening someone's own position and how many functional arguments were supporting and/or weakening the other position. The number of functional arguments could give an indication of someone's level of argumentation skills. Thus, a small number of functional arguments would indicate a basic level of argumentation skills and a large number would indicate a higher level. An example of a non-functional argument was *"I think that knowledge gained from educational programmes helps people to avoid the use of drugs."*. An example of a functional argument was *"I feel the use of illegal drugs is best reduced by educating people on the dangers of using drugs because I feel that armed with information people are able to make better choices."*

4.3 Results of Study 1 – Correlational Study of Bullying and Argumentation among Primary School Students

The aim of this chapter is to present the findings produced in Study 1 of the current research project. In Study 1, we attempted to examine whether there is a relationship between bullying/victimisation and argumentation, alexithymia, and self-efficacy. Thus, the following 3 research questions had to be addressed. The 1st research question was whether bullying and/or victimisation would be significantly correlated to argumentation skills. The 2nd question was whether bullying and/or victimisation would be significantly correlated to self-efficacy for peer interactions and finally, the last question was whether bullying and/or victimisation would be significantly correlated to alexithymia. Due to the low scores that resulted in both argumentation and bullying, we repeated the same assessment with the same sample after a 2-month interval period. Thus, we had a 1st round and a 2nd round of measures to see whether different scores would occur. The statistical software of SPSS was used to analyse the data and test the relationships between the variables. According to Tanni et al. (2020), a correlation analysis can help us quantify the strength and direction of a relationship between two variables. On the other hand, a regression analysis can help us test a model using multiple variables as predictors. Since our hypotheses had to deal with identifying potential relationships between variables, it seemed more applicable to use a correlation analysis to find out which individual variables to include in the next stages of this research. We did not use a regression analysis because we did not intend to propose a multivariate model. The non-normal distribution of data led us to non-parametric tests. The following tables contain percentages, mean scores and correlational results with no missing data to report.

4.3.1 Descriptive Statistics

Table 1 presents the number of participants who indicated an involvement or not in bullying and/or victimisation incidents during the 1st and/or 2nd rounds of measures. The same measures were repeated in the 2nd round after a 2-month interval period to assess whether the initial results would remain stable or not across time. According to Table 1, those participants who reported involvement in victimisation incidents only and in both bullying and victimisation incidents were fewer and those who reported involvement in bullying incidents only and no involvement in either bullying or victimisation incidents were more in the 2nd round compared to the 1st round. Especially those participants who did not report involvement

in either bullying or victimisation incidents were 13 more in the 2nd round compared to the 1st round. Additionally, the overall low number of those who reported involvement in bullying incidents only during both rounds of measures is noteworthy.

Table 1

Participants' Involvement in Bullying/victimisation

Bullying/victimisation incidents[a]	n^b (1st round)	n^c (2nd round)
Victimisation only	43	35
Bullying only	4	5
Both bullying & victimisation	24	18
No bullying/victimisation	29	42

Note. N=100.

[a]*Indicated involvement or not in bullying and/or victimisation incidents at least twice.*
[b]*Number of participants indicated involvement in incidents from the 1st round of measures.*
[c] *Number of participants indicated involvement in incidents from the 2nd round of measures.*

Table 2 presents the mean scores of the participants' responses on how many times they were victimised based on different acts of bullying. According to Table 2, the highest mean score of the participants involved verbal victimisation (e.g. being called mean names, being threatened). The lowest mean score of the participants involved things taken away or damaged. In the 2nd round, similarly to the 1st round, the highest mean score of the participants involved verbal victimisation, although lower in the 2nd round. Once again, the lowest mean score of the participants involved things taken away or damaged. Therefore, lower mean scores can be generally observed in the 2nd round according to Table 2.

Table 2

Mean Scores for Frequency of Victimisation Acts

Victimisation act*	1st round		2nd round	
	M	*SD*	*M*	*SD*
General victimisation	0.58	1.05	0.44	1.00
Physical victimisation	0.40	0.85	0.22	0.54
Damage/Steal	0.23	0.63	0.19	0.54
Verbal victimisation	1.17	1.78	0.68	1.53
Social isolation	0.96	1.83	0.55	1.43
Cyber-victimisation	0.26	0.75	0.24	0.64

Note. N=100.

**0=Did not happen to me, 4=Happened several times a week.*

Table 3 presents the mean scores of the participants' responses on how many times they got involved in different acts of bullying as perpetrators. According to Table 3, the highest mean score of the participants involved verbal bullying (e.g. called mean names, threatened) in the 1st round. The lowest mean score represents damaging/stealing things that was zero. In the 2nd round, similarly to the 1st round, the highest mean score of the participants involved verbal bullying. Once again, the lowest mean score of the participants involved damaging/stealing things. Therefore, slightly higher mean scores can be generally observed in the 2nd round according to Table 3.

Table 3

Mean Scores for Frequency of Bullying Acts

Bullying act*	1st round		2nd round	
	M	*SD*	*M*	*SD*
General bullying	0.19	0.69	0.12	0.33
Physical bullying	0.16	0.61	0.20	0.64
Damage/Steal	0.00	0.00	0.03	0.22
Verbal bullying	0.25	1.74	0.4	1.42
Social isolation	0.14	0.69	0.19	0.89
Cyberbullying	0.09	0.45	0.10	0.58

Note. N=100.

**0=Did not get involved, 4=Got involved several times a week.*

The coding process based on Iordanou et al. (2019) was used to assess the argumentation skills of students. The initial task of the coding was to separate the written arguments of students into units. Each argument represented a unit. Then, arguments were checked for evidence either based on the given list or based on the knowledge of students. The total number of evidence-based arguments was calculated for each student together with the total number of no evidence in arguments. Afterwards, arguments were assessed to find the total number of functional arguments for each student together with the total number of non-functional arguments. Arguments with evidence that link back to the arguer's position were coded as functional arguments (see section **5.4** for an explanation of this). Further coding was followed to calculate the total number of functional arguments that either strengthen or weaken the arguer's position and strengthen or weaken the opponent's position. A second assessor was used apart from the researcher with adequate knowledge of the current subject. The two assessors kept comparing their coding until they reached a substantial agreement of 80 per cent. Also, good inter-rater

reliability was found for the assessment of arguments since Cohen's Kappa was 0.75 based on the identification and codification of functional units by the two assessors.

As can be observed in Table 4, the participants' argumentation skills were measured by the number of units and evidence used in their arguments and especially by the functionality of their arguments. According to Table 4, almost all mean scores of the participants' argumentation were lower in the 2nd round compared to the 1st round. The mean score of participants' functional arguments was near to the mean scores of non-evidenced and non-functional arguments if we add these together both in the 1st and 2nd rounds. This could indicate a poor argumentative performance. Apart from the mean score of arguments strengthening own position, the mean scores of arguments strengthening the other position, arguments weakening own position, and arguments weakening the other position were zero or almost zero. This could show once again the poor argumentative performance of the participants.

Table 4

Mean Scores for the Argumentation-related Variables

Argumentation*	1st round		2nd round	
	M	*SD*	*M*	*SD*
Units	2.06	1.91	1.21	1.17
Non-evidenced	0.57	1.00	0.31	0.56
Evidenced	1.50	1.57	0.90	1.10
Non-functional	0.33	0.89	0.15	0.63
Functional	1.16	1.45	0.75	1.02
Strengthen-own position	1.14	1.45	0.73	1.00
Weaken-own position	0.00	0.00	0.00	0.00
Strengthen-other position	0.02	0.20	0.01	0.10
Weaken-other position	0.00	0.00	0.01	0.10

Note. N=100.

**Number of times participants presented each argumentation-related variable in their writing exercise.*

4.3.2 Histograms of Normality

Figure 1 presents the non-normal distribution of scores based on how the participants responded to how frequently they got victimised by others during both rounds of measures.

Figure 1

Distribution of Scores for Victimisation (both rounds)

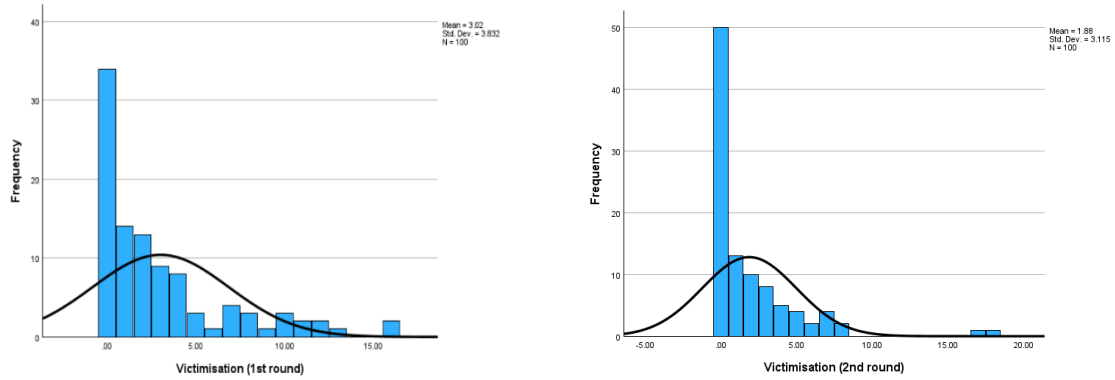


Figure 2 presents the non-normal distribution of scores based on how the participants responded to how frequently they got involved in bullying others during both rounds of measures.

Figure 2

Distribution of Scores for Bullying (both rounds)

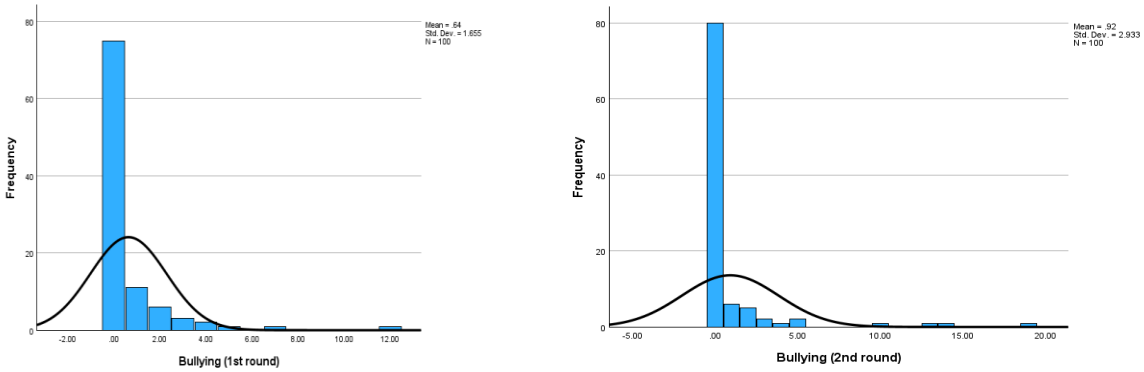


Figure 3 presents the non-normal distribution of scores based on the level of alexithymia the participants indicated during both rounds of measures.

Figure 3

Distribution of Scores for Alexithymia (both rounds)

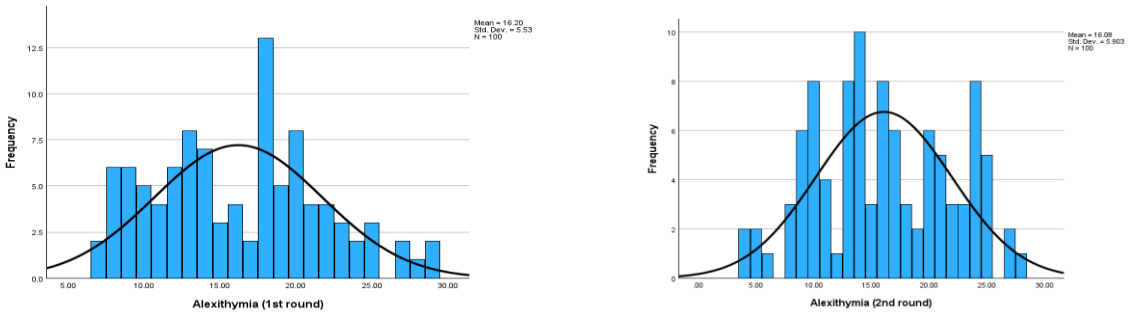


Figure 4 presents the non-normal distribution of scores based on the level of social self-efficacy the participants indicated during both rounds of measures.

Figure 4

Distribution of Scores for Social Self-efficacy (both rounds)

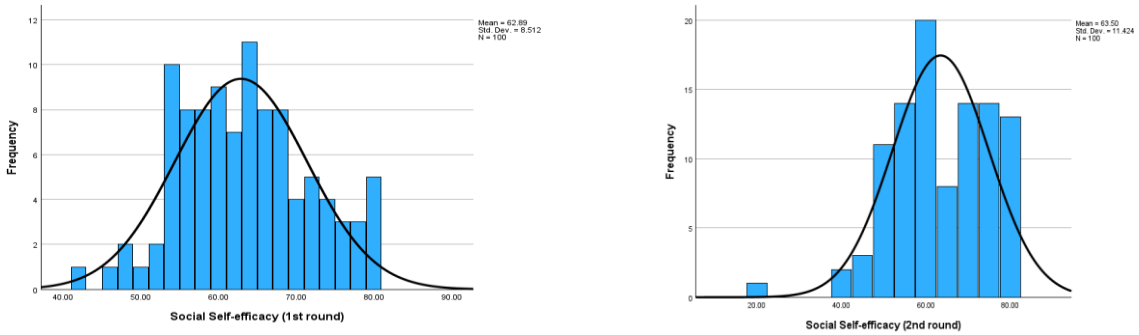
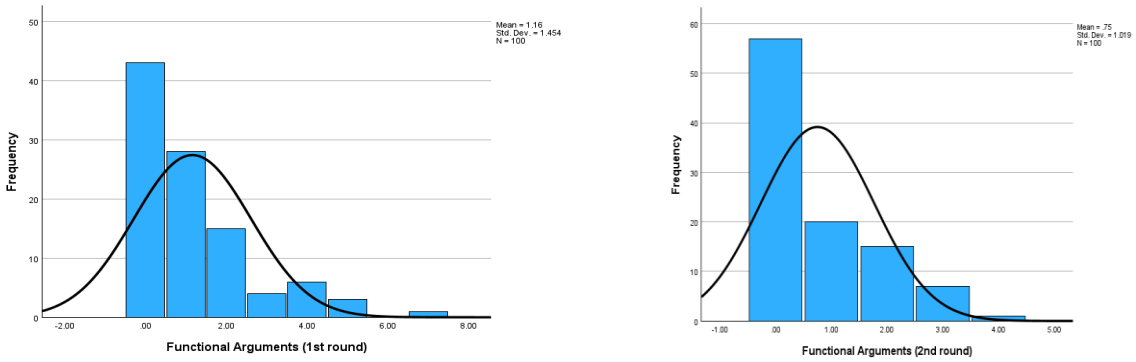


Figure 5 presents the non-normal distribution of scores based on the number of functional arguments the participants produced during both rounds of measures.

Figure 5

Distribution of Scores for Functional Arguments (both rounds)



4.3.3 Gender Differences

Since examining gender differences seems a common practice (Feijoo et al., 2021; Olweus, 1994) in the area of bullying/victimisation, this was also implemented here. A Mann-Whitney U test was performed to evaluate whether there were any significant gender differences across all acts of bullying and victimisation. The results indicated that only verbal bullying *(U=1359, n=100, p=0.04)* and verbal victimisation *(U=1421.5, n=100, p=0.007)* presented significant gender differences only in the 1st round of measures. More specifically, males used verbal bullying (e.g. called mean names, threatened) significantly more *(mean rank of 55.26)* than females *(mean rank of 47.58)* and also, males experienced verbal victimisation (e.g. being called mean names, being threatened) significantly more *(mean rank of 56.91)* than females *(mean rank of 46.57)* in the 1st round.

4.3.4 Correlational Analyses

Non-parametric correlational analyses were conducted to check for potential relationships between the variables due to a large number of low scores both in response to the bullying and argumentation variables resulting in a non-normal distribution of scores. As can be observed in Table 5, the 2nd round of measures has brought several similar results compared to the 1st round of measures. Regarding the 1st research question, no significant correlations can be

observed between bullying or victimisation and argumentation both in the 1st and 2nd rounds. Thus, our 3rd hypothesis was not supported since we did not find a relationship between either bullying or victimisation and argumentation.

Regarding the 2nd question, we can observe in Table 5, a strong, significant and negative correlation between the participants' frequency of victimisation and the participants' level of social self-efficacy in the 1st round. The correlation between the participants' social self-efficacy level and the participants' frequency of victimisation was strong, significant and negative in the 2nd round as well. Therefore, our 2nd hypothesis was partially supported because we found a relationship between victimisation and social self-efficacy that was maintained, but we did not find a relationship between bullying and social self-efficacy.

Regarding the 3rd question, there was a strong, significant and positive correlation between the frequency of victimisation incidents and the level of alexithymia of participants in the 1st round. The correlations between the participants' alexithymia level and the participants' frequency of victimisation was strong, significant and positive in the 2nd round as well. Additionally, there was a strong, significant and positive correlation between the frequency of bullying incidents and the level of alexithymia of participants but only in the 1st round. Thus, our 1st hypothesis was partially supported since we found a relationship between victimisation and alexithymia that was maintained in the 2nd round. Although we found a relationship between bullying and alexithymia in the 1st round, this was not maintained.

It is noteworthy to say that strong, significant and negative correlations between alexithymia and social self-efficacy have also resulted in the 1st round and 2nd round. Finally, Table 5 also presents three further significant correlations, one negative between alexithymia and the number of evidenced arguments, one positive between social self-efficacy and the number of evidenced arguments and one strong and positive between social self-efficacy and the number of functional arguments, all in the 2nd round. This might show potential relationships between being more socially confident and emotionally regulated and using more easily evidenced and functional arguments.

Table 5

Spearman Correlational Results between Variables

	1st round				2nd round			
	1	2	3	4	1	2	3	4
1	---	---	---	---	---	---	---	---
2	**0.36 (p=0.001)**	---	---	---	**0.36 (p=0.001)**	---	---	---
3	**0.37 (p=0.001)**	**0.25 (p=0.01)**	---	---	**0.32 (p=0.001)**	0.16 (p=0.09)	---	---
4	**-0.3 (p=0.002)**	-0.06 (p=0.53)	**-0.38 (p=0.001)**	---	**-0.33 (p=0.001)**	-0.09 (p=0.33)	**-0.55 (p=0.001)**	---
5	-0.19 (p=0.056)	-0.02 (p=0.8)	-0.12 (p=0.21)	-0.11 (p=0.25)	-0.001 (p=0.99)	0.03 (p=0.7)	-0.19 (p=0.056)	**0.25 (p=0.01)**
6	-0.11 (p=0.26)	-0.06 (p=0.5)	-0.15 (p=0.12)	-0.05 (p=0.6)	-0.04 (p=0.68)	0.01 (p=0.86)	**-0.20 (p=0.03)**	**0.23 (p=0.02)**

Note. N=100. Variables: 1. victimisation frequency, 2. bullying frequency, 3. alexithymia level, 4. social self-efficacy level, 5. functional arguments, 6. evidence in arguments. Bold equals significant.

4.4 Discussion of Study 1 – Correlational Study on Bullying among Primary School Students

This chapter aims to provide a discussion based on the results produced in Study 1 of the current research project. We begin with the first correlational study and explain what relationships we found and what relationships we did not find between our variables. Further sections about originality, limitations and future research for Study 1 of the research project are included. Analyses were conducted to examine whether there are relationships between bullying/victimisation and argumentation, alexithymia, and self-efficacy. The 1st research question is about a potential correlation between bullying/victimisation and argumentation. The 2nd question is about a potential correlation between bullying/victimisation and self-efficacy for peer interactions. The 3rd question is about a potential correlation between bullying/victimisation and alexithymia. The findings showed that alexithymia could be related to victimisation but not related to bullying. Similarly, self-efficacy for peer interactions could be related to victimisation but not related to bullying. Finally, the findings showed no relationship between either bullying or victimisation and argumentation.

4.4.1 Argumentation and Bullying/Victimisation

In regard to the 1st question, there were no significant correlations between the frequency of both bullying and victimisation and the argumentative performance of students in the 1st and 2nd rounds of measures. The hypothesis that the argumentation skills of students could be related to the frequency of their involvement in bullying and victimisation incidents remained unsupported. This is in contrast to the theory based on De Fuccio et al. (2009) that there could be a link between aggressive behaviours and argumentation skills. This is also in contrast to the theory based on Roca-Campos et al. (2021) that students who experience exchanging arguments in dialogues could be more resistant to getting involved in incidents of aggression and victimisation.

A possible explanation for our findings might be the large number of students who showed a low level of argumentation skills. Again, the question remains whether the argumentation skills of young individuals can somehow be related to their involvement in bullying and/or victimisation incidents. Due to the lack of variability in participants' argumentation skills, we were not able to examine this relationship. Therefore, we did not find evidence to suggest that more advanced argumentation skills could act as protective factors preventing young people

from getting involved in bullying/victimisation, something that can be addressed by future research.

4.4.2 Self-efficacy for Peer Interactions and Bullying/Victimisation

Concerning the 2nd question, the negative correlation that was found between victimisation and self-efficacy for peer interactions in the 1st and 2nd rounds of measures means that more frequently victimised adolescents might lack confidence in social interactions. However, there was not a significant correlation between bullying and self-efficacy for peer interactions in both rounds. Thus, the hypothesis of having negative correlations between both victims and bullies and self-efficacy is partially supported. Something that is partially in agreement with the results by Andreou et al. (2015) who found that both adolescent bullies and adolescent victims presented significantly low levels of self-efficacy for peer interactions. The above findings are fully in agreement with the results by Kokkinos and Kipritsi (2012) who found that only adolescent victims presented significantly low levels of social self-efficacy.

One more question that remains is whether the level of self-efficacy for peer interactions in young individuals can somehow be related to their involvement in bullying incidents in the same way that their level of self-efficacy was negatively correlated to their involvement in victimisation incidents. Again, practically this means that more research needs to be done to clarify whether individuals who are involved in bullying perpetration might feel a lack of confidence in social interactions. This question can be expanded to include a generalised self-efficacy that involves further subtypes of self-efficacy like academic and emotional, which could show an association to young people's involvement in bullying perpetration.

4.4.3 Alexithymia and Bullying/Victimisation

Regarding the 3rd research question, the positive correlation that resulted between victimisation and alexithymia in the 1st and 2nd rounds of measures means that students who were getting victimised more frequently presented more difficulties in regulating their emotions. Although a positive correlation resulted between bullying and alexithymia in the 1st round, this was not maintained in the 2nd round. In this instance, we cannot support the theory that students who were getting involved in bullying more frequently presented more difficulties in regulating their emotions. Therefore, the hypothesis that there would be positive correlations

between both victims and bullies and alexithymia is partially supported. This is in agreement with the results by Guzzo et al. (2014), who found that adolescents who reported being victimised showed high levels of alexithymia. However, the above findings are not in agreement with the results by Aricak and Ozbay (2016), who found that adolescents who scored high on cyberbullying perpetration also scored high on alexithymia.

A question that remains is whether the alexithymia level of young individuals can somehow be related to their involvement in bullying incidents in the same way that their level of alexithymia was positively correlated to their involvement in victimisation incidents. On a practical level, this means that more research needs to be done to clarify whether individuals who are involved in bullying perpetration might experience difficulties with regulating their emotions.

4.4.4 Further Discussion of Findings

Additional significant relationships have also resulted from the current study. One between a high level of alexithymia and a low number of evidenced arguments in the 2nd round only, and a 2nd one between a low level of self-efficacy for peer interactions and a low number of both evidenced and functional arguments in the 2nd round only. Therefore, difficulty in regulating emotions and managing social interactions were both linked to difficulty in producing more arguments, but only in the 2nd round. A final significant relationship was between a high level of alexithymia and a low level of self-efficacy for peer interactions in both rounds. The idea that alexithymia can be related to self-efficacy for peer interactions was already supported by Muris (2001), where emotional self-efficacy which is similar to alexithymia and social self-efficacy similar to self-efficacy for peer interactions are both equal subtypes of generalised self-efficacy.

It seems from the above findings that although some expected correlations were not found, a tendency was observed in some bullies and victims to produce poor arguments. Therefore, we can assume that the low number of adolescents who presented bullying behaviours as can be perceived from the results section could probably make it difficult to find significant correlations. Additionally, a low level of argumentation skills can be perceived in almost all adolescents which could also prevent the occurrence of significant correlations. A potential reason why our data were not normally distributed could also be due to this matter of very low frequency of bullying and poor level of argumentation skills. Overall, the findings in the 1st

round are mainly in agreement with the findings in the 2nd round. Therefore, we can conclude that the results of this study remained relatively stable across time.

It is also important to expand on other findings like the prevalence rates of verbal bullying and verbal victimisation that students indicated compared to other bullying and victimisation forms. In previous studies like Olweus (1994) and the more recent by Feijoo et al. (2021), verbal bullying and verbal victimisation were reported as the most prevalent among students. In this study, verbal bullying and verbal victimisation were the most frequent forms, in agreement with previous studies (Feijoo et al., 2021; Olweus, 1994). Also, an interesting finding was the absence of gender differences among different bullying and victimisation forms. This was in contrast to previous studies by Feijoo et al. (2021) and Olweus (1994), who found that physical bullying and victimisation were more common among males and relational bullying and victimisation were more common among females in participants who were at near age to the current participants' age.

4.4.5 Limitations

We identified four potential limitations in the current study. The dilemma that was given to the students to choose a side and develop their arguments, seemed to be weak. Almost all students pick the same side, making the other side almost completely absent. That could cause complications, by increasing the students' difficulty to identify arguments from the opposite side of a debate. A possible modification could be the use of a dilemma that will first pass from a pilot study. In that way, the certain dilemma will be assessed whether can produce almost equal representatives of both sides.

Another potential limitation could be the identical responses that some students have provided on the scales. This could mean that some students instead of thinking about their response, might just copy the responses of a peer student near to them. A possible modification could be to allow fewer students in the same room and allow more space between them to make the access of responses difficult for each other. The use of computers rather than papers has also been implemented by previous studies (Iordanou & Constantinou, 2015; Crowell & Kuhn, 2014).

An additional limitation could be the age of the participants. Very young adolescents might not fully recognise bullying incidents and consequently, some bullies remain undetected by the

researcher. A possible modification can be the delivery of a brief seminar to them about what bullying is and what is not before the assessment. In that way, the chances of students lacking knowledge about this topic due to their age can be reduced. Also, very young adolescents might not have developed their argumentation skills yet. Another possible modification can be to include older participants, where we can anticipate more developed argumentation skills from them.

One last potential limitation could be that no data were gained through the teachers on how many parents received and rejected the invitation for their children to participate in this research. This could also potentially result in having no equal number of students recruited from each school and instead, having a particular school that was represented significantly more compared to the other schools. A possible modification could be the use of the STROBE flow diagram used by Wolke et al. (2017) to gain more data on the recruitment of candidate participants and probably monitor better the whole process of inviting parents for their children through teachers.

4.4.6 Future Research

The low performance in argumentation skills led the researcher to consider examining a different age group for potential participants more mature to increase the chances of finding greater variability in argumentation skills among the sample in Study 2. Therefore, the intention was to recruit young adults and more specifically, 100 university students, who were expected to be above 17 years old. Studies 2 and 3 were developed during the COVID-19 pandemic, which made it impossible for the researcher to run a further assessment and an intervention programme in schools as was initially intended. Consequently, a specific form of bullying, that seemed more applicable to university-level students was considered for the next two studies, which is cyberbullying (Myers & Cowie, 2019; Larranaga et al., 2018).

The researcher had to use a different topic for the assessment of argumentation skills, a topic that has been used in previous studies (Kuhn et al., 2016) and has the potential to induce arguments supporting both options of a dilemma. This topic introduced the dilemma of reducing the use of illegal drugs either through education or through regulations. Furthermore, the assessment was introduced to them in a way that could help them imagine themselves participating in a debate with someone who held the opposite side, likewise in the study by Zavala and Kuhn (2017) with a clear note of trying to write at least two arguments.

Additionally, the instruments that measure alexithymia and self-efficacy for peer interactions were replaced by the instrument that measures generalised self-efficacy. This instrument incorporates three subtypes, which are academic self-efficacy, emotional self-efficacy (similar to alexithymia) and social self-efficacy (similar to peer interactions) and was expected to be more applicable to more mature young people (Muris, 2001).

Chapter 5: Study 2 – Correlational Study of Cyberbullying and Argumentation among University Students

5.1 Introduction of Study 2 – Correlational Study of Cyberbullying and Argumentation among University Students

Following the results of Study 1, a different age group was considered for Study 2 due to the low argumentative performance that students from primary schools presented. Also, apart from choosing university-level students, the focus turned to cyberbullying/cyber-victimisation, which was considered more applicable to this particular age group (Myers & Cowie, 2019; Larranaga et al., 2018). Another change was the replacement of self-efficacy for peer interactions and alexithymia variables with generalised self-efficacy including its subtypes of academic, social and emotional, which again was more applicable to more mature young people. Regarding self-efficacy, the scale measuring self-efficacy for peer interactions by Galanaki and Kalantzi-Azizi, (1999) was designed for students in primary schools. Instead, the chosen scale for Study 2 measuring generalised self-efficacy by Muris (2001) was designed for students in secondary schools or students at higher education levels. Regarding alexithymia, as can be understood from the definitions, both emotional self-efficacy (Muris, 2001) and alexithymia (Bagby et al., 1994) deal with emotion regulation and could overlap. According to Lundh et al. (2002), emotional self-efficacy could largely cover aspects of alexithymia, where an individual who lacks emotional self-efficacy could potentially possess alexithymic traits. Thus, the alexithymia scale was not used here since the scale measuring emotional self-efficacy was used instead. The final changes from Study 1 to Study 2 were about the task for the assessment of argumentation skills and more specifically, the use of a social topic that could induce arguments supporting both options of a dilemma, and the use of clearer instructions for the participants to help them write more arguments (Kuhn et al., 2016). Thus, the aim of Study 2 was to examine the potential relationships between cyberbullying/cyber-victimisation, argumentation skills, and generalised self-efficacy. The 1st research question was whether cyberbullying/cyber-victimisation would be correlated to argumentation skills. The 2nd question was whether cyberbullying/cyber-victimisation would be correlated to generalised self-efficacy.

To answer the research questions, the participants' frequency of cyberbullying/cyber-victimisation was measured alongside their level of generalised self-efficacy and their argumentative performance. Concerning the 1st question, it was hypothesised that cyberbullying and/or cyber-victimisation would be negatively correlated to argumentation skills if we consider the promising indications from the study by Villarejo-Carballido et al. (2019), where the researchers found that students developed an attitude against cyberbullying after they engaged in dialogues. We also had promising indications from De Fuccio et al. (2009), who reported that young offenders were seen acting less aggressively after they developed their argumentation skills. Regarding the 2nd question, it was hypothesised that cyberbullying and/or cyber-victimisation would be negatively correlated to self-efficacy. This hypothesis is based on the study by Olenik-Shemesh and Heiman (2017), where they found cyber-victims presenting low levels of social self-efficacy. Similarly, Kokkinos et al. (2015), found that victims of indirect bullying showed low levels of emotional self-efficacy and perpetrators of indirect bullying showed low levels of academic self-efficacy.

The relationship between argumentation and cyberbullying has been examined here potentially for the first time and the results can be observed below. This was also the second correlational study of the current research project and was used as a pilot study to examine the instruments that were also used in the next main experimental study of this thesis. The design, participants, materials and procedure of this study are also described next. The analysis of the data will also follow with a discussion and further reference to potential limitations, implications and future research.

5.2 Method of Study 2 – Correlational Study of Cyberbullying and Argumentation among University Students

A correlational research study was conducted to examine whether relationships exist between cyberbullying/cyber-victimisation and self-efficacy, and argumentation. A group of 100 participants were recruited to examine their responses to three questionnaires. Also, this study served as a pilot study of the instruments used in our main experimental study, which was Study 3. The research questions were two, the 1st about potential correlations between cyberbullying/cyber-victimisation and argumentation skills, and the 2nd about potential correlations between cyberbullying/cyber-victimisation and generalised self-efficacy.

5.2.1 Participants

Power analysis was conducted using G*Power to indicate the minimum number of participants that would be required, where at least 76 participants can provide 85 per cent power with an effect size of 0.33 based on previous studies part of the systematic review by Guo (2016). Thus, the aim was to recruit up to 100 university-level students. The reason for choosing university-level students this time was because of the results of Study 1 showing that almost all primary school students exhibited poor argumentation skills and low frequency of bullying incidents making it impossible to find significant correlations. We turned our attention to university-level students in Study 2 expecting more advanced argumentation skills and a higher frequency of cyberbullying incidents. Also, recent studies indicated a significant number of undergraduate students experiencing cyberbullying (Peled, 2019), especially during the Covid-19 lockdown (Lobe et al., 2020). The participants of the current study were from the University of Central Lancashire (UCLan) including both the UK and Cyprus campus and were invited through an online system called SONA, where other students could also advertise their research.

5.2.2 Materials

5.2.2.1 Essay Task for the Assessment of Argumentation Skills (Appendix M): This instrument was the same as the one used in Study 1 (in section **4.2.2.4**). The only difference is the topic of the essay, which was *"Is the use of illegal drugs best reduced by educating people about its dangers or by making drugs less available?"*. The participants were asked to *"Write the argument that you would present to somebody who has the opposite view from yours to*

show that your position is better. Write at least two arguments.". A list of 12 questions and answers adopted by Kuhn (2017) was also given to the students to help them construct their arguments. An example of a question and answer that was included in the list is: *"Can drug education programs be effective in preventing drug use? Programs vary in effectiveness. Studies show that the most effective programs are interactive, focus on drug resistance and social skills, and take place over multiple years. Young people who participate in such programs have lower rates of drug use than those who do not participate."*.

5.2.2.2 Cyberbullying and Victimisation Experiences Questionnaire (Appendix N): Produced by Antoniadou et al. (2016), was used to assess how often the students got involved in cyberbullying/victimisation incidents in the last month based on 24 questions. The participants had to answer how often they experienced statements for cyberbullying like *"Has anybody sent you a message (via cell phone or the Internet) in order to mock you, or talk badly to you?"* or cyber-victimisation like *"Have you sent a message to someone (via cell phone or the Internet), pretending you're somebody else in order to treat her/him badly?"*. Their responses were based on a scale from *"never"*, *"one to two times"*, *"sometimes"*, *"many times"*, and *"every or almost every day"*. A higher score from each participant meant a higher frequency of involvement in cyberbullying/cyber-victimisation incidents. Antoniadou et al. (2016) recruited students aged between 12 and 17 years to assess this questionnaire. The internal consistency reliability of the cyberbullying subscale was high since we found Cronbach's Alpha being 0.82 and the cyber-victimisation subscale was also high since we found Cronbach's Alpha being 0.84.

5.2.2.3 Self-Efficacy Questionnaire (Appendix O): Produced by Muris (2001), consisted of 24 questions measuring the self-efficacy level of young people. The participants had to answer how well they could perform various tasks related either to their academic, social or emotional aspects of one's self. The questionnaire included 3 subscales, one about academic, one about social, and one about emotional self-efficacy. Thus, the score of general self-efficacy represented the sum of the scores of its 3 components. An example of a question about academic self-efficacy was "How well can you study a chapter for a test?". An example of a question about social self-efficacy was "How well can you have a chat with an unfamiliar person?". An example of a question about emotional self-efficacy was "How well can you control your feelings?". The given options to answer these questions were based on a scale from *"not at all"*, *"slightly"*, *"somewhat"*, *"enough"*, and *"extremely"*. The participants who tended to choose the *"extremely"* option it meant they scored towards the highest level of self-

efficacy and those who tended to choose the *"not at all"* option it meant they scored towards the lowest level of self-efficacy. Muris (2001) recruited students aged between 14 and 17 years to examine this questionnaire. The internal consistency reliability of the questionnaire was high since we found Cronbach's Alpha to be 0.85.

5.2.3 Procedure

Before any scientific procedure, the researcher submitted an application to the Ethics Committee of the University of Central Lancashire and approval was granted (Appendix K). Participants from the University of Central Lancashire were invited through an online system called SONA, where students could advertise their study to recruit participants. The participants who responded to the advert received an email asking them to complete the online assessment of this study. They were provided with a link directing them to the website named Qualtrics, where they could complete the assessment. Qualtrics is a website that offers tools for the production, distribution and analysis of online surveys. The participants were not expected to spend more than 40 minutes completing the assessment. At the beginning, the students were informed (Appendix L) about the procedure of this study, their right to withdraw from the study right before and after the assessment, and whether they want to give their consent to proceed. The students completed the three questionnaires following the same order as these are presented above. When the assessment was completed by all students, the researcher collected their data online to start the process of analysis. The same coding scheme as in Study 1 was used based on Iordanou et al. (2019) and presented above in the Procedure section (see **4.2.3**) of Study 1.

5.3 Results of Study 2 – Correlational Study of Cyberbullying and Argumentation among University Students

In Study 2, we shifted our attention to a form of bullying/victimisation, which is cyberbullying/cyber-victimisation. Additionally, in Study 2, the alexithymia variable was not included due to the inclusion of a generalised self-efficacy variable, which has an emotional self-efficacy subtype similar to alexithymia (Muris, 2001). The aim was to examine whether there was a relationship between cyberbullying/cyber-victimisation and argumentation skills, and generalised self-efficacy. Two research questions had to be addressed. The 1st research question was whether cyberbullying and/or cyber-victimisation would be significantly correlated to argumentation skills. The 2nd was whether cyberbullying and/or cyber-victimisation would be significantly correlated to generalised self-efficacy. We conducted statistical analyses of the data using the statistical software SPSS to examine the relationships between the variables. Non-parametric tests were used because the current data were not normally distributed. The following tables illustrate percentages, mean scores and correlational results without any missing data.

5.3.1 Descriptive Statistics

Table 6 presents the number of participants based on their involvement in cyberbullying and/or cyber-victimisation incidents. Most of the participants reported getting involved in both incidents of cyberbullying and cyber-victimisation. A single participant reported getting involved in cyberbullying incidents only compared to the larger number of participants who reported getting involved in cyber-victimisation incidents only. Since cyberbullying/cyber-victimisation can be considered as a subtype of bullying/victimisation, we attempted to examine whether similar patterns could be found between Study 2 and Study 1. After reviewing the findings of Study 2 (Table 6) with the findings of Study 1 (Table 1), we can see that adults had more involvement in both bullying and victimisation incidents compared to adolescents. This shows that adults reported more involvement in both bullying and victimisation incidents and adolescents reported more involvement in victimisation incidents only. Also, we can see that adults reported more cyberbullying incidents compared to adolescents since the number of no involvement in either bullying or victimisation incidents was lower among adults compared to adolescents.

Table 6

Participants' Involvement in Cyberbullying/Cyber-victimisation

Cyberbullying/Cyber-victimisation incidents[a]	*n*[b]
Cyber-victimisation only	38
Cyberbullying only	1
Both cyberbullying & cyber-victimisation	42
No cyberbullying/cyber-victimisation	19

Note. N=100.

[a]*Indicated involvement or not in cyberbullying and/or cyber-victimisation incidents at least twice.*
[b]*Number of participants indicated involvement in incidents.*

Table 7 shows the mean scores of participants' responses based on cyberbullying and cyber-victimisation acts. The highest mean score of the participants for both cyber-victimisation and cyberbullying represents the act of *"sending messages to others to mock, speak badly, or say things that are not true"*. The lowest mean score of the participants for cyber-victimisation represents the act of *"writing or uploading something on your social network profile in order to mock you, or talk badly to you"*. The lowest mean score of the participants for cyberbullying represents the act of *"sending someone a file containing a virus"*. If we compare the findings of Study 2 (Table 7) to the findings of Study 1 (Table 2) we can observe higher mean scores of bullying frequency and victimisation frequency in university students than in primary school students contrary to what we might expect since bullying tends to become more prevalent during early adolescence based on the critical review by Berger (2007).

Table 7

Mean Scores for Cyberbullying/Cyber-victimisation Acts

Act	Cyber-victimisation[a]		Cyberbullying[b]	
	M	*SD*	*M*	*SD*
Send insults	0.99	0.96	0.45	0.70
Pretend someone else	0.55	0.78	0.07	0.32
Share rumours	1.03	1.04	0.50	0.75
Share photos/videos	0.48	0.75	0.24	0.62
Show messages	0.77	0.94	0.49	0.83
Send virus	0.60	0.88	0.03	0.30
Invade phone	0.42	0.71	0.17	0.45
Social media posts	0.32	0.68	0.10	0.33
Make un-friend/block	0.43	0.82	0.17	0.57
Send threats	0.67	0.90	0.10	0.33
Share secrets	0.46	0.78	0.09	0.32
Invade personal account	0.50	0.71	0.19	0.48

Note. N=100.

[a]*0=Never being cyber-victimised, 4=Being cyber-victimised every or almost every day.*
[b]*0=Never cyberbully, 4=Cyberbully every or almost every day.*

The same coding process based on Iordanou et al. (2019) presented in Study 1 was implemented to assess the argumentation skills of participants. Again, two assessors compared their coding until they reached a substantial agreement of 80 per cent. Both assessors had a reasonable understanding of this subject. Adequate inter-rater reliability was found for the assessment of arguments since Cohen's Kappa was 0.72 based on the identification and codification of functional units by the two assessors. Table 8 shows the mean scores of how often participants used argumentation-related variables to demonstrate their argumentation skills. Considering that the participants were at a further educational level, the mean scores of evidenced arguments and functional arguments were greater than the mean scores of non-evidenced arguments and non-functional arguments as was expected. Also, the mean score of arguments strengthening the participants' own position is greater than the mean score of arguments weakening their own position, arguments strengthening the other position, and arguments weakening the other position as expected from participants who might lack further experience in argumentation. If we compare the findings of Study 1 to Study 2, we can observe that the argumentation skills of adults in Study 2 (Table 8) were more advanced compared to adolescents in Study 1 (Table 4) as expected due to a higher educational level.

Table 8

Mean Scores for Argumentation-related Variables (II)

Argumentation*	*M*	*SD*
Units	2.79	1.35
Non-evidence	0.16	0.39
Evidence	2.63	1.27
Non-functional arguments	0.28	0.71
Functional arguments	2.35	1.3
Strengthen-own position	1.33	0.87
Weaken-own position	0.11	0.31
Strengthen-other position	0.18	0.41
Weaken-other position	0.73	0.76

Note. N=100.

**Number of times participants presented each argumentation-related variable in their writing exercise.*

5.3.2 Histograms of Normality

Figure 6 presents the non-normal distribution of scores based on how the participants responded to how frequently they got involved in bullying others.

Figure 6

Distribution of Scores for Cyberbullying

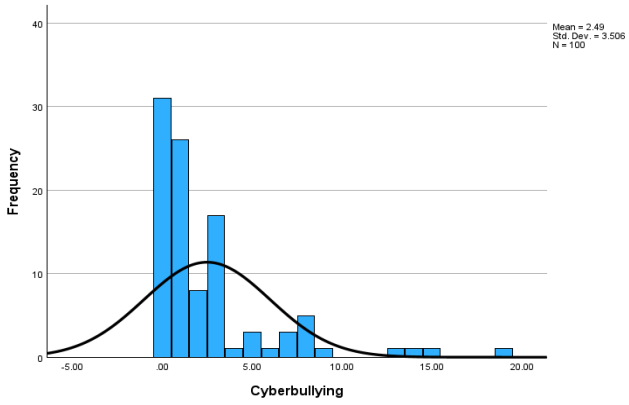


Figure 7 presents the non-normal distribution of scores based on how the participants responded to how frequently they got victimised by others.

Figure 7

Distribution of Scores for Cyber-victimisation

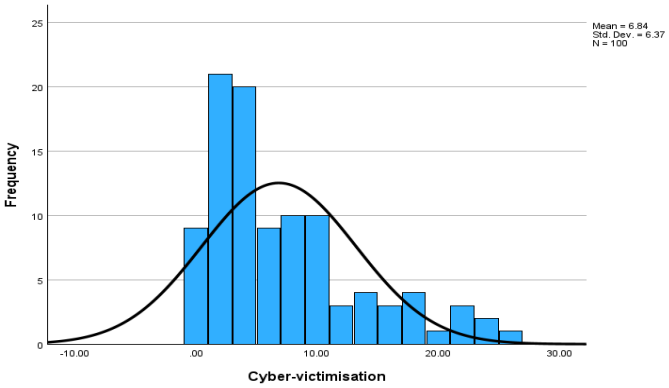


Figure 8 presents the non-normal distribution of scores based on the level of generalised self-efficacy the participants indicated.

Figure 8

Distribution of Scores for Generalised Self-efficacy

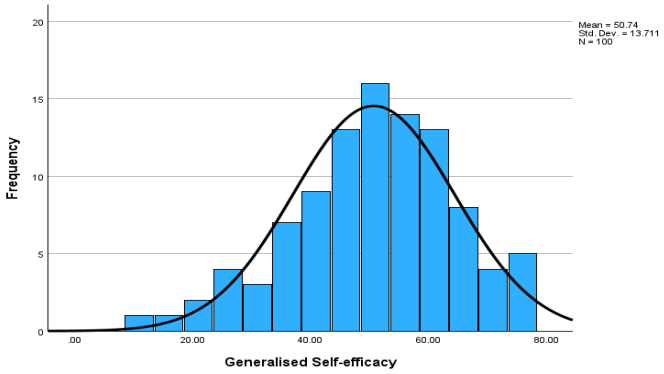
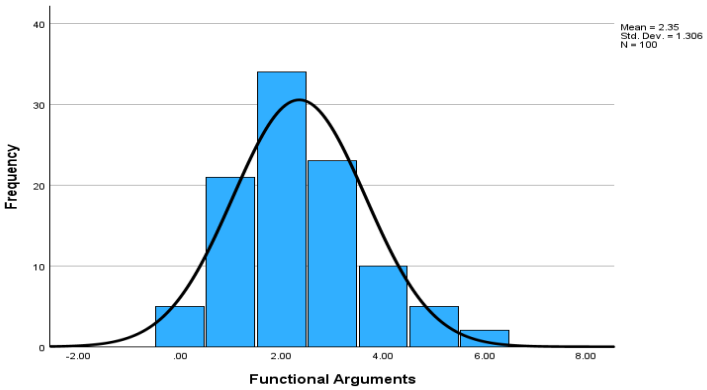


Figure 9 presents the non-normal distribution of scores based on the number of functional arguments the participants produced.

Figure 9

Distribution of Scores for Functional Arguments



5.3.3 Correlational Analyses

Non-parametric correlational analyses were conducted, due to a non-normal distribution of scores in response to the cyber-bullying/victimisation and argumentation-related variables. Regarding the 1st question, there were no significant correlations between the frequency of cyberbullying/cyber-victimisation incidents and the participants' number of functional arguments as can be observed in Table 9. We did not observe a different result in any other argumentation-related variable (evidenced arguments, arguments strengthening own position). Therefore, our 1st hypothesis remained unsupported because we did not find a relationship between either cyberbullying or cyber-victimisation and argumentation skills. Nevertheless, the significant and positive correlation between the number of arguments strengthening the other position and the level of the participants' academic self-efficacy can be noteworthy. This might show that academically confident individuals could recognise more easily the strengths of the other position. Overall, we found fewer significant correlations in Study 2 (Table 9) with the sample of young adults compared to Study 1 (Table 5) with the sample of young adolescents.

Regarding the 2nd research question, there were no significant correlations between the frequency of cyberbullying/cyber-victimisation incidents and the participants' level of generalised self-efficacy as can be seen in Table 9. Thus, our 2nd hypothesis was not supported since we did not find a relationship between either cyberbullying or cyber-victimisation and generalised self-efficacy. However, there was a strong, significant and negative correlation between the frequency of cyber-victimisation incidents and the participants' level of academic self-efficacy. This might show that academically confident individuals could avoid being victimised.

Table 9

Spearman Correlational Results between Variables (II)

Variable	1	2	3	4
1. Cyber-victimisation frequency	---	---	---	---
2. Cyberbullying frequency	**0.53 (p=0.001)**	---	---	---
3. Generalised self-efficacy level	-0.17 (p=0.09)	-0.14 (p=0.14)	---	---
4. Academic self-efficacy level	**-0.28 (p=0.001)**	-0.14 (p=0.14)	**0.78 (p=0.001)**	---
5. Functional arguments	-0.18 (p=0.07)	-0.02 (p=0.83)	-0.11 (p=0.26)	-0.05 (p=0.58)
6. Strengthen-other position	-0.07 (p=0.47)	0.06 (p=0.54)	0.13 (p=0.18)	**0.2 (p=0.04)**

Note. N=100. Bold equals significant.

5.4 Discussion of Study 2 – Correlational Study of Cyberbullying and Argumentation among University Students

The aim of this chapter is to provide a discussion based on the results produced in Study 2 of the current research project. We continue here with the second correlational study and explain what relationships we found and what relationships we did not find between our variables. Further sections about originality, limitations and future research for Study 2 of the research project are included. The analyses in Study 2 were conducted to examine whether there were relationships between cyberbullying/cyber-victimisation, generalised self-efficacy, and argumentation. The 1st research question was about a potential correlation between cyberbullying/cyber-victimisation and argumentation-related variables. The 2nd research question was about a potential correlation between cyberbullying/cyber-victimisation and generalised self-efficacy. The findings showed that argumentation was not related to either cyberbullying or cyber-victimisation. Also, generalised self-efficacy was not related to either cyberbullying or cyber-victimisation.

5.4.1 Argumentation and Cyberbullying/Cyber-victimisation

Concerning the 1st question, we did not find an association between the level of argumentation skills in university-level students and their frequency of involvement in either cyberbullying or cyber-victimisation incidents. Consequently, our 1st hypothesis remained unsupported. Likewise in Study 1, argumentation skills did not seem to be related to aggressive behaviours like bullying or cyberbullying. This is in contrast to the theory based on De Fuccio et al. (2009) that the argumentation skills of students could somehow be related to their involvement in incidents of aggression. It is also in contrast to the theory based on Villarejo-Carballido et al. (2019) that students' experience in the exchange of arguments through dialogues could be linked to students' attitudes against cyberbullying and cyber-victimisation. According to our findings, students with more advanced argumentation skills did not seem to present a low frequency of cyberbullying and cyber-victimisation. A possible explanation might be the participants' number of arguments, making it difficult to find an association. Although we had more diversity in participants' argumentation skills in Study 2 compared to Study 1, we still observed some students writing a small number of arguments, despite their higher educational level. More research needs to be done to answer the question of whether the argumentation skills of young adults can somehow be related to their involvement in cyberbullying/cyber-

victimisation incidents. Practically, we cannot say yet that more advanced argumentation skills could facilitate young adults to avoid getting involved in cyberbullying/cyber-victimisation incidents.

5.4.2 Generalised Self-efficacy and Cyberbullying/Cyber-victimisation

Regarding the 2nd research question, we did not find an association between the level of generalised self-efficacy in university students and their frequency of involvement in incidents of cyberbullying and cyber-victimisation. Consequently, our 2nd hypothesis remained unsupported. This is in contrast to the study by Kokkinos and Kipritsi (2012), where they found significant and negative correlations between overall self-efficacy and both bullying and victimisation in adolescents. Olenik-Shemesh and Heiman (2017) found a significant and negative correlation between social self-efficacy and cyber-victimisation in adolescents, something that was not observed in the results of Study 2. Even a more recent study by Lin et al. (2020) found that young adults who experienced more victimisation presented low levels of self-efficacy. In our study, young adults who experienced more cyber-victimisation and cyberbullying did not present either low or high levels of self-efficacy and its components apart from one. The participants' frequency of cyber-victimisation was related to their level of academic self-efficacy. Thus, the participants who were cyber-victimised more often showed significantly low academic confidence. Something similar was also noticed in the study by Kokkinos et al. (2015) since pre-adolescent victims presented a significantly low level of academic self-efficacy. However, in the study by Kokkinos et al. (2015), pre-adolescent participants were recruited, so the age difference between those participants and the participants of our study could bring about different results. The question remains whether the level of generalised self-efficacy in young adults can somehow be related to their involvement in cyberbullying/cyber-victimisation incidents. On a practical level, this means that more research needs to be done to clarify whether young adults who are involved in cyberbullying/cyber-victimisation incidents might feel a lack of confidence in various aspects of their lives.

5.4.3 Comparisons between Study 1 and Study 2

We could also expand on comparisons between Study 1 and Study 2. In Study 1, an association was found between functional arguments and self-efficacy for peer interactions (part of social self-efficacy). Similarly, in Study 2 an association was found between arguments strengthening the other position (argumentation-related variable) and academic self-efficacy. Based on those associations, we could assume that students with better argumentation skills might be more socially and academically confident. Thus, probably a link might exist between argumentation and self-efficacy.

It was surprising to find a higher frequency of cyberbullying and cyber-victimisation in adults compared to the frequency of bullying and victimisation in adolescents. According to Eslea and Rees (2001), bullying behaviours are generally more prevalent during the early adolescent years. However, Peled (2019) suggested that cyberbullying could be the most prevalent form of bullying among older adolescents and young adults. A possible explanation for this difference might be the assumption that adults could be more familiar with the term 'bullying' and could more easily identify bullying incidents as De Lara noted (2012). Another possible explanation provided by De Lara (2012) might be the tendency of adolescents to avoid disclosing their involvement in bullying incidents because they have concerns about adults reacting negatively. On the other hand, the level of argumentation skills was better in university students as we expected since these students might become more familiar with the process of producing arguments after their passage from higher education to further education.

Similarly, the mean scores were not normally distributed in Study 2 as in Study 1. Therefore, we could suggest that although we found higher mean scores in Study 2, these might remain low. A similar issue we also encountered in Study 1, where we assumed that students in primary schools would find it more difficult to produce a large number of arguments. However, this occurred in Study 2 to some university-level students and this time we cannot assume the same since someone might expect more from university-level students. The only possible explanation could be the students' urge to finish the assessment earlier since they wrote the minimum number of arguments which was 2.

What else stands out is the single participant out of 100 who seemed to be the only pure cyberbully. All other participants who seemed to be cyberbullies reported that they also got cyber-victimised. However, this reminds us of the Social Information Processing theory by Crick and Dodge (1994) suggesting that aggressive individuals tend to perceive other people's

responses as hostile and potentially hurtful. Therefore, they tend to justify their aggressive behaviour as a way to defend themselves, something that could have happened in Study 2 since participants despite reporting getting involved in cyberbullying incidents, also reported their involvement in cyber-victimisation incidents.

5.4.4 Implications

Study 2 went a step forward after Study 1, attempting to contribute to the scientific intersection of cyberbullying and argumentation. Study 2 examined probably for the first time the argumentation skills of university-level students in addition to the frequency of their involvement in cyberbullying and cyber-victimisation incidents. In Study 2, we shifted our investigation to young adults and to the most contemporary form of bullying, which is cyberbullying and we compared our findings to Study 1. The results showed that the argumentation skills of cyberbullies and cyber-victims did not seem to be related to the frequency of their involvement in cyberbullying/cyber-victimisation incidents, similar results that were also observed in Study 1. Nevertheless, this was the first time that a study attempted to examine the potential relationship between argumentation and cyberbullying/cyber-victimisation. After the initial contributions of Study 1 and Study 2, our experimental study was followed, which is the main study of this research project. On the one hand, we had correlation studies about the potential relationship between our variables. On the other hand, we had an experimental study providing indications of the possible interaction between our variables. Therefore, we cannot reject the possibility that the process of developing argumentation skills might elicit a change in the frequency of either cyberbullying or cyber-victimisation, merely because no relationship has been found between either cyberbullying or cyber-victimisation and argumentation yet.

5.4.5 Limitations

A potential limitation to report could be the absence of further demographic information about the participants of this study. Since Study 2 was planned as a pilot study for Study 3, the focus was to consider demographic information for Study 3 instead. However, collecting demographic information could always give a better picture of the particular sample. An obvious modification would be to always prioritise the demographic information that a researcher can collect from a sample.

Another potential limitation could be the inclusion of only university students in Study 2. This made our population sample non-representative. However, due to recruitment difficulties during COVID-19 regulations, this seemed to be the best option to follow. A modification to recommend would be to recruit a population sample that would represent the wider community with participants coming from various educational levels.

5.4.6 Future Research

Further exploration of the potential relationship between bullying-related variables and argumentation-related variables could also happen with a population sample which had a history of aggressive behaviours such as young adults in prisons. A similar population sample was recruited by De Fuccio et al. (2009). Thus, this would allow us to make comparisons between these two studies. However, COVID-19 regulations would not permit access to the researcher in such a facility. Also, after the second correlational study, it was time to move on to the intervention study, so it was not wise to change the sample population again.

Since significant correlations have not been found between argumentation and either bullying or victimisation in Study 1, we chose a more mature sample and a form of bullying more applicable to this particular sample in Study 2. Again, significant correlations have not been found between argumentation and either cyberbullying or cyber-victimisation. We can assume that a direct association between the two variables might not exist, but still argumentation and cyberbullying may be related indirectly, using for example theory of mind (Faro et al., 2023; Iordanou, 2016), which can be related to both of these variables. Thus, we turned our attention to the experimental study expecting different scores in argumentation skills after the implementation of the intervention based on dialogic argumentation. This intervention might also bring different scores in cyberbullying/cyber-victimisation as was observed in studies like

Villarejo-Carballido et al. (2019) in section **2.10** and De Fuccio et al. (2009) in section **3.6.7** after the participants engaged in dialogue-based interventions. This time, an attempt was made to implement an intervention programme to see whether it would trigger any changes in the students. Also, due to the significant correlations that resulted between argumentation-related variables and components of self-efficacy from Study 1 and Study 2, the generalised self-efficacy variable was carried forward to Study 3. This would allow us to check whether the development of argumentation skills through dialogues would also trigger a change in students' self-efficacy levels.

Chapter 6: Study 3 – Experimental Study of Dialogic Argumentation and Cyberbullying

6.1 Introduction of Study 3 – Experimental Study of Dialogic Argumentation and Cyberbullying

Despite the difficulty in identifying relationships between the variables, the theory that dialogic argumentation could elicit potential changes to the variables was examined by using a different type of study, an experimental rather than correlational study. An experimental study could investigate further the theoretical connections of theory of mind with bullying (in section **2.7.7**) and argumentation (in section **3.6.6**) and detect any potential effect of an intervention based on dialogic argumentation on bullying/victimisation behaviours. Similarly, Villarejo-Carballido et al. (2019) in section **2.10** and De Fuccio et al. (2009) in section **3.6.7** found changes in the participants after they engaged in dialogue-based interventions. Thus, the aim of Study 3 was to examine the potential effect of the intervention based on dialogic argumentation on students' argumentation skills, their involvement in cyberbullying/cyber-victimisation incidents, and their level of generalised self-efficacy. The 1st research question was whether the intervention could advance students' argumentation skills. The 2nd question was whether the intervention could trigger a reduced frequency of cyberbullying/cyber-victimisation in students. The 3rd question was if the intervention could trigger higher levels of generalised self-efficacy in students. All these after comparing the scores between the intervention and control groups.

To answer the research questions, the participants' frequency of cyberbullying/cyber-victimisation was measured alongside their level of generalised self-efficacy and their argumentative performance. These measures occurred before and after the implementation of the intervention based on dialogic argumentation. Regarding the 1st question, it was hypothesised that engagement in this intervention would improve the argumentation skills of participants like in the studies of Iordanou et al. (2019) and De Fuccio et al. (2009), where students or young offenders exhibited improved argumentation skills after they participated in dialogic argumentation. Concerning the 2nd question, it was hypothesised that the frequency of cyberbullying incidents would be reduced among the participants after the intervention and after comparing the two groups. Our hypothesis was based on the findings from De Fuccio et al. (2009), where students were observed becoming less aggressive after they participated in dialogic argumentation. Also, Villarejo-Carballido et al. (2019) found students condemning

cyberbullying acts after they engaged in dialogues. Thus, we expected dialogic argumentation to affect students in getting involved less frequently in cyberbullying incidents. At the same time, it was hypothesised that the frequency of cyber-victimisation incidents would be reduced among the participants after the intervention and after comparing the two groups. Our hypothesis was based on the results from Roca-Campos et al. (2021) and Villarejo-Carballido et al. (2019), who found the involvement of students in dialogues to be helpful towards defending themselves against victimisation by any form of aggression even cyberbullying. Therefore, we expected that dialogic argumentation would help students defend themselves and reduce the frequency of cyber-victimisation. Regarding the 3rd question, it was hypothesised that the level of generalised self-efficacy would be increased because of the potential decline in the frequency of cyber-bullying/victimisation and following the negative correlation between self-efficacy and cyber-bullying/victimisation that was found by Olenik-Shemesh and Heiman (2017) and Kokkinos et al. (2015). We can also add here, the associations that were found between argumentation-related variables and components of self-efficacy from Study 1 and Study 2, indicating that a potential change might happen in the participants' level of generalised self-efficacy after their engagement in dialogic argumentation.

As we noted above, the Socratic method (in section **3.4**) is an example of an intervention that has been implemented for purposes rather than purely pedagogical. We could assume that dialogic argumentation can also offer more beyond the development of argumentation skills. Dialogic argumentation can be tested for various purposes by showing that argumentation skills could impact not just the learning of individuals but potentially their behaviour based on theory of mind as we previously saw in the literature review (see sections **3.6.6** & **3.6.7**). Thus, we could insist that an intervention based on dialogic argumentation might be effective in preventing socially undesirable behaviours. To answer the question of why we anticipate dialogic argumentation to help in the prevention of cyber-bullying/victimisation incidents, we can assume that students could make better use of their theory of mind with more advanced argumentation skills. Victims could start negotiating conflicts better and defending themselves or even detecting signs of malevolent intentions. Bullies could start viewing situations as more neutral rather than hostile and acting less egocentrically resisting the urge of harming others.

It is important to point out the several aspects of this research project that are making it original. It is the first to introduce this intervention based on dialogic argumentation as an educational programme for the prevention of cyberbullying/cyber-victimisation among university-level students. Also, no other study seemed to explore the effect of dialogic argumentation on the

frequency of cyberbullying and the frequency of cyber-victimisation among university students. Another unique feature is also the virtual delivery of this intervention making it a distance learning programme for the prevention of cyber-bullying/victimisation to accommodate students remotely. Overall, the potential value of argumentation skills for students who are involved in bullying incidents is addressed here probably for the first time and the results can be observed below. The design, participants, materials and procedure of this study are also described next. The analysis of the data will also follow with a discussion and further reference to potential limitations, implications and future research.

6.2 Method of Study 3 – Experimental Study of Dialogic Argumentation and Cyberbullying

The research design used for this study was repeated measures with 2 sample groups over 2 time periods. The sample groups involved an intervention group that followed a particular intervention and a control group that did not follow the intervention. The 2 time periods involved an initial assessment before the intervention and a final assessment after with 1 month gap in between. The control group did the final assessment after a month without following the intervention. An alternative activity was initially considered for the control group, but due to the practical difficulties during COVID-19 time, the participants of the control group did only the assessments. The research questions were 3, the 1st question was whether changes would be observed in the level of argumentation skills. The 2nd question was whether changes would be observed in the frequency of cyberbullying/cyber-victimisation. The 3rd question was whether changes would be observed in the level of generalised self-efficacy, and all these between the two groups after the intervention.

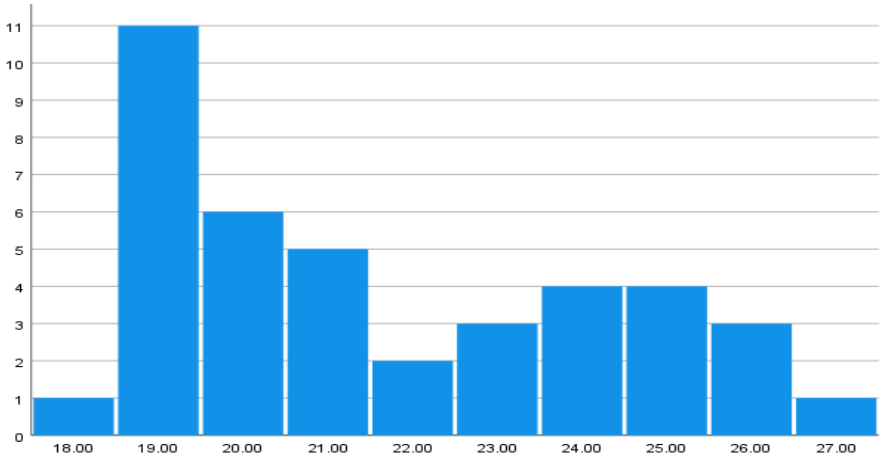
6.2.1 Participants

Power analysis was conducted using G*Power to determine the sample size. An amount of 40 participants were required to give 87 per cent power based on a predicted effect size of 0.51 according to previous studies, which were included in the systematic review by Cleemput et al. (2014). The majority of the students were from the University of Central Lancashire both the UK and CY campuses with 27 participants in total. Only a minority of students came from different universities in CY with 13 participants in total. Other participants from universities in CY were invited through a Facebook advert on their university page. The initial intention was to recruit online students from UCLan only, but the number of participants was not enough since participants in Study 2 who did not provide their email addresses could not proceed to Study 3. Email addresses were essential in order to communicate potential dates and times for the intervention and/or reassessment. Thus, we extended our sample to include students from universities in CY and still all students participated online. 20 participants were randomly allocated to the intervention group and 20 to the control group.

In regard to their gender, 28 participants were female and only 12 were male. The ages of the participants ranged between 18 and 27 years old. However, the majority of them were 19 years old as can be observed in Figure 10.

Figure 10

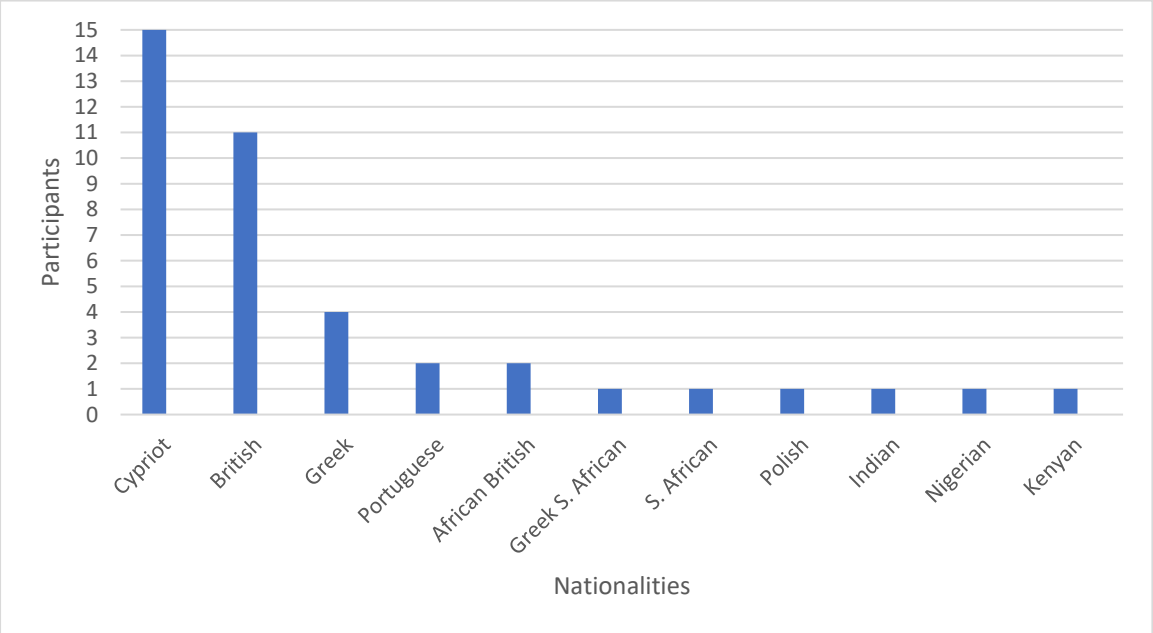
The Different Ages of Participants



The participants who said that their campus was located in CY were 23 per cent and the participants who had their campus located in the UK were 17 per cent. Regarding their nationality, 15 participants were Cypriot, 11 were British and 14 were from other different nationalities as can be seen in Figure 11.

Figure 11

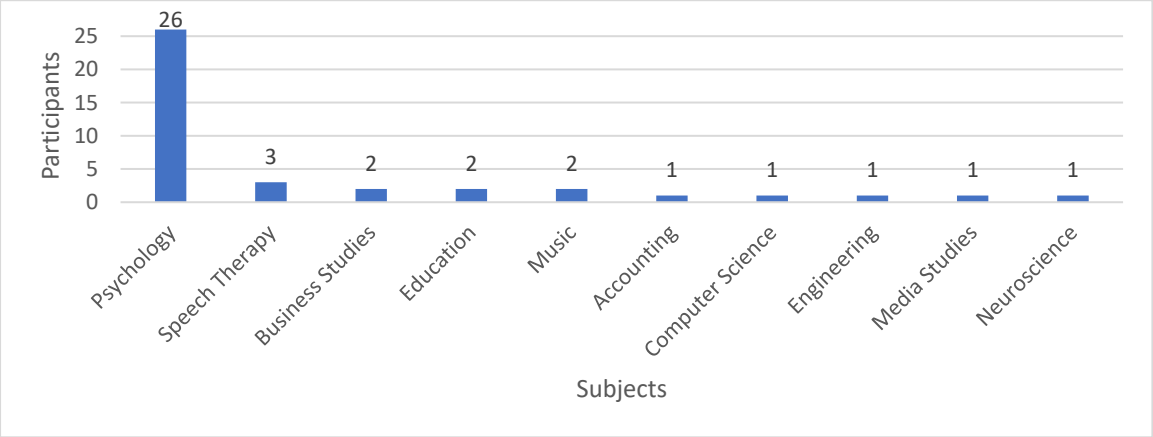
The Different Nationalities of Participants



In regard to their education level, 30 participants were studying for a Bachelor's degree and were randomly allocated, half of them to the intervention group and the other half to the control group. Also, 10 participants were studying for a Master's degree and were randomly allocated, 5 of them to the intervention group and the other 5 to the control group. Concerning their subject, psychology students were 26 in total and students from other different subjects were 14 in total as can be observed in Figure 12.

Figure 12

The Different Subjects of Participants



6.2.2 Materials

6.2.2.1 Essay Task for the Assessment of Argumentation Skills (Appendix M) & Dialogue Task for the Intervention (Appendix P): The assessment instrument was the same as the one used in Study 2 (in section **5.2.2.1**). Also, the same social topic about illegal drugs was given together with the same list of 12 questions and answers adopted by Kuhn (2017) for the final assessment of participants after a month. Those 13 students who came from other universities had to do the initial assessment like those 27 who did that in Study 2. Next, the social topic that was used for the intervention was: *"Should a family arriving from a foreign country be permitted to educate their child at home and not send the child to school?"*, with a list of 12 questions and answers adopted by Kuhn (2017). An example of a question and answer is: *"How do home-schooled students perform on achievement tests? Research shows that home-schooled students perform well on achievement tests. One study found that home-schooled students performed between 18% and 28% better on an achievement test than public school students."*. Both selected social topics represent two popular social issues that can help the participants to engage more easily in dialogues between them.

6.2.2.2 Cyberbullying and Victimisation Experiences Questionnaire (Appendix N): Produced by Antoniadou et al. (2016) was used again from Study 2 (in section **5.2.2.2**) to reassess how often the students got involved in cyber-bullying/victimisation incidents in the last month based on 24 questions.

6.2.2.3 Self-Efficacy Questionnaire (Appendix O): Produced by Muris (2001) consists of 24 questions measuring the self-efficacy level of young people. This was used again from Study 2 (in section **5.2.2.3**) for the reassessment of participants.

6.2.3 Procedure

The ethical approval for Study 3 was granted together with the ethical approval for Study 2 (Appendix K) since both studies were included in the submitted application to the Ethics Committee of UCLan. The same participants from Study 2 were invited through the online system named SONA. Students from UCLan could receive credits for participating, which would help them progress in their courses. All participants completed the initial assessment from Study 2, then a reassessment together with the intervention for the intervention group as part of Study 3. They were provided with a link directing them to the right website named Qualtrics, where they could complete both the initial assessment and the final assessment. They were not expected to spend more than 40 minutes completing the assessment. The students were randomly allocated to the intervention and the control group by assigning a unique number to each of them and then placing them in one group or the other by luck. Those in the control group were just asked to complete the final assessment after a month. There were 2 groups with a random allocation of 12 and 8 students who completed the intervention that was based on the 2-day intensive version of the dialogic argumentation curriculum from Iordanou et al. (2019). The students spent 3 hours with 15 extra minutes for a break in each day and they were simultaneously using online chatrooms to communicate writing to each other and the researcher. The online application used for the intervention was Microsoft Teams. An anonymous account with a unique password was provided to each participant for the purpose of this research and to protect the anonymity of the participants.

Initially, the researcher made a brief introduction about the structure of the intervention to the participants and informed them about their right to withdraw from the study right before and after the assessment. Then, they were invited to indicate their position in a two-sided debate, either against or in favour of home-schooling, before being allocated to the two groups based on their position (6 students against 6 or 4 students against 4). Those who supported both sides have been allocated to the less popular group to have an equal number of participants in both groups. The two same-sided groups were asked by the researcher to find the best reasons and evidence that support their position. Two chatrooms were formed by the researcher for each

same-sided group. The participants wrote and posted their responses in the chatroom and this process lasted for about 10 minutes. Further details of this experimental procedure can be found in Table 10.

Table 10

The Sequence for Each Task of the Intervention

Initial Assessment (essay about illegal drugs)	
1st Intervention Group (dialogues about home-schooling)	2nd Intervention Group (dialogues about home-schooling)
12 Participants (P)	8 Participants (P)
Day 1	
Introduction (5mins to describe the intervention)	
6P & 6P (10mins for same side groups) 6P Vs 6P x 4 rounds (20mins for each opposite side 1-to-1)	4P & 4P (10mins for same side groups) 4P Vs 4P x 4 rounds (20mins for each opposite side 1-to-1)
Break (15mins)	
6P Vs 6P x 4 rounds (20mins for each opposite side 1-to-1)	4P Vs 4P x 4 rounds (20mins for each opposite side 1-to-1)
Day 2	
6P & 6P (10mins for same side groups) 6P Vs 6P x 4 rounds (20mins for each opposite side 1-to-1)	4P & 4P (10mins for same side groups) 4P Vs 4P x 4 rounds (20mins for each opposite side 1-to-1)
Break (15mins)	
6P Vs 6P x 4 rounds (20mins for each opposite side 1-to-1)	4P Vs 4P x 4 rounds (20mins for each opposite side 1-to-1)
Showdown & Poll (15mins)	
Final Assessment - After a month (essay about illegal drugs)	

Subsequently, pairs of opposite sides were formed to get involved in dialogic argumentation. The researcher separated the pairs into different chatrooms and asked them to try to convince each other by writing and posting their arguments about home-schooling in the chatroom. Students were changing pairs frequently, so all students interacted with each other. Each pair of students spent about 20 minutes in a chatroom. They were notified by the researcher before the end of the 20 minutes to post a concluding argument and then, they paired with a different student for 20 minutes again in a new chatroom. Optional sources with 12 questions and answers (Qs and As) about home-schooling (in section **6.2.2.1** & **Appendix P**) were gradually revealed to them to facilitate the production of their arguments.

The next day, the two same-sided groups were formed again and asked to review strong arguments from the previous day by writing and posting their responses in the chatroom. This process lasted for about 10 minutes. Then, they were separated again into pairs of opposite sides to get involved in dialogic argumentation in the same way as the day before. Each dialogue about home-schooling lasted again for 20 minutes. After each participant engaged with all participants from the opposite side, they got together for a final time in the two same-sided groups. They were asked by the researcher to agree on the sequence in which each participant will write and post their argument about home-schooling in the showdown. Then, in a common chatroom among all participants, the researcher asked each participant to share their argument as a reply to a participant of the opposite side. After the participants shared their arguments, they were invited to vote for one student from their side and one from the opposite side who presented the strongest argument based on their own opinion. Once the researcher received the posts from all participants, he announced the two winners. Finally, the students were asked to complete the final assessment after a month, hence the researcher could examine the potential effects of the intervention.

The original version of the dialogic argumentation curriculum from Iordanou et al. (2019) allowed more time for same-sided groups to prepare arguments and reflect on them. Also, instead of the one-to-one debate, the original curriculum involved same-side pairs against opposite-side pairs with extra time spent on the preparation and reflection of arguments. A final modification was that the original curriculum had a winning group instead of a winning individual, where participants were instructed on how to mark a transcript of the showdown to find the winning group. The reason for these modifications was to allow more time for argumentation through dialogues since the participants of the current research were at a higher

education level. The same topic about illegal drugs was used to assess both the intervention and control groups before and after the intervention.

The same coding scheme as in Study 1 based on Iordanou et al. (2019) was used. Additionally, the coding scheme based on Zavala and Kuhn (2017) was used to arrive at an overall score for the argumentative performance of each student. In that way, we added one more argumentation-related variable. Their arguments were classified into different levels of argumentation skills based on the number of arguments strengthening the arguer's position and the number of arguments weakening the opposite position. A greater amount of such arguments meant a higher score (Zavala & Kuhn, 2017). The different levels of argumentation skills can be seen in Table 11.

Table 11

The Different Levels of Argumentation Skills

Criteria of each level	Participant examples of arguments
1st: Single argument to strengthen own position	*"I think educating young people about the dangers of using drugs is the best prevention because they will know facts like recorded deaths due to overdose."*
2nd: Single argument to weaken other position	*"Making drugs less available will decrease drug usage because children are educated on the dangers of drug use, however many still want to experiment with these drugs."*
3rd: Multiple arguments to strengthen own position	*"I believe that the most appropriate method to reduce drug usage is by educational programmes because these can suggest ways to prevent them from indulging in this behaviour and can introduce other methods to deal with their problems."*
4th: Multiple arguments to weaken other position	*"I would say that making drugs less available is what would make the use of illegal drugs reduced, this is because in education we get many lessons at school on how damaging these are. We also see the negative sides of addiction in TV shows but it doesn't make a big enough impact."*
5th: One to strengthen own and one to weaken other	*"Making people more aware of the dangers of drugs will not reduce the use because most people who use them most likely don't even care about the dangers it poses for their lives. If illegal drugs are absolutely are unattainable then eventually their popularity will decrease."*
6th: Multiple arguments to strengthen and weaken positions	*"In my opinion, to reduce drug use, the availability of drugs needs to be reduced because younger people are more likely to use drugs when they are readily accessible on their way and because of gangs that sell them on street corners. Another reason why to make drugs less available is because there are so many programs put in place that explain the risks yet the use has not decreased."*

6.3 Results of Study 3 – Experimental Study of Dialogic Argumentation and Cyberbullying

In Study 3, we attempted to implement an experimental study involving an intervention based on dialogic argumentation to examine its potential effect on argumentation skills, cyberbullying/cyber-victimisation, and generalised self-efficacy. 3 research questions had to be addressed. The 1st question of this study is whether an intervention based on dialogic argumentation could advance argumentation skills. The 2nd question is whether the intervention could elicit a decreased frequency of cyberbullying and/or cyber-victimisation and finally, the 3rd question is whether the intervention could elicit a higher level of self-efficacy. The normality scores of the variables were re-examined since Study 2 and none of those showed a normal distribution for Study 3 as well. Thus, non-parametric tests were conducted to analyse the data. Descriptive statistics were initially used to get some preliminary findings. Further analyses were followed to answer the research questions.

6.3.1 Descriptive Statistics

The same coding process based on Iordanou et al. (2019) presented in Study 1 was implemented to assess the argumentation skills of participants. The inter-rater reliability for the assessment of arguments in Study 2 also included Study 3 (Cohen's Kappa was 0.72) with the same two assessors since most of the participants in Study 2 also participated in Study 3. The only difference was the coding process based on Zavala and Kuhn (2017), which was only used in Study 3 to arrive at an overall score for the argumentative performance of each student from both groups before and after the intervention. All their functional arguments were classified into Zavala and Kuhn's (2017) six levels of argumentation skills based on the number of arguments strengthening the arguer's position and the number of arguments weakening the opposite position as presented in Table 11. Hence, the argumentation skills of each student were classified from the lowest to the highest level. A greater number of arguments from the highest level meant a higher score and consequently, a better overall argumentative performance. A second assessor was used apart from the researcher with adequate knowledge of the current subject. The two assessors kept comparing their coding until they reached a substantial agreement of 80 per cent. Also, good inter-rater reliability was found since Cohen's Kappa was 0.79 based on the identification and codification of arguments weakening the other position by the two assessors.

Table 12 shows that the mean score for the frequency of cyberbullying and cyber-victimisation was decreased in the intervention group after implementing dialogic argumentation as expected. Additionally, Table 12 shows that the mean scores for argumentation-related variables like the level of argumentative performance, the number of functional arguments, and the number of arguments weakening the other position were increased in the intervention group after implementing dialogic argumentation as expected. Noteworthy is the higher mean scores of both cyberbullying and cyber-victimisation frequency in the control group compared to the intervention group before the intervention. Therefore, we ran the Mann-Whitney test due to the absence of normal distribution to check whether the control group engaged significantly more in cyberbullying and cyber-victimisation compared to the intervention group before the intervention. Regarding cyberbullying, we found no significant difference between the two groups ($U=242,\ n=40,\ p=0.26$). Regarding cyber-victimisation, we found no significant difference between the two groups ($U=260,\ n=40,\ p=0.1$).

Table 12

Mean Scores Before and After the Intervention

Variable	Intervention group						Control group					
	Before		After		**Change**		Before		After		**Change**	
	M	*SD*	*M*	*SD*	***M***	***SD***	*M*	*SD*	*M*	*SD*	***M***	***SD***
Cyber-victimisation[a]	5.3	5.87	2.45	3.56	**2.85**	**2.31**	7.6	5.84	7.1	4.59	**0.5**	**1.25**
Cyberbullying[b]	1.9	3.52	0.75	1.25	**1.15**	**2.27**	3.45	4.23	3.65	4.25	**0.2**	**0.02**
Generalised Self-efficacy[c]	56.95	12.58	54.95	13.15	**2**	**0.57**	50.9	13.96	49.85	14.53	**1.05**	**0.57**
Argumentative Performance[d]	2.8	1.85	4.7	1.26	**1.9**	**0.59**	3.6	2.06	3.0	1.86	**0.6**	**0.2**
Functional Arguments[d]	1.7	0.92	2.25	0.55	**0.55**	**0.37**	2.1	1.11	1.8	0.95	**0.3**	**0.16**
Weaken-other Arguments[d]	0.4	0.59	0.8	0.52	**0.4**	**0.07**	0.6	0.59	0.5	0.68	**0.1**	**0.09**

Note. N=40 (*n*=20 for each group).

[a]0=Never being cyber-victimised, 4=Being cyber-victimised every or almost every day.
[b]0=Never cyberbully, 4=Cyberbully every or almost every day.
[c]0=Cannot do well at all, 4=Can do extremely well.
[d]Number of times participants presented each argumentation-related variable in their writing exercise.

6.3.2 Histograms of Normality

Figure 13 presents the non-normal distribution of change scores based on how frequently the participants indicated that got victimised by others from time 1 to time 2 after comparing the 2 groups.

Figure 13

Distribution of Change Scores for Cyber-victimisation (both groups)

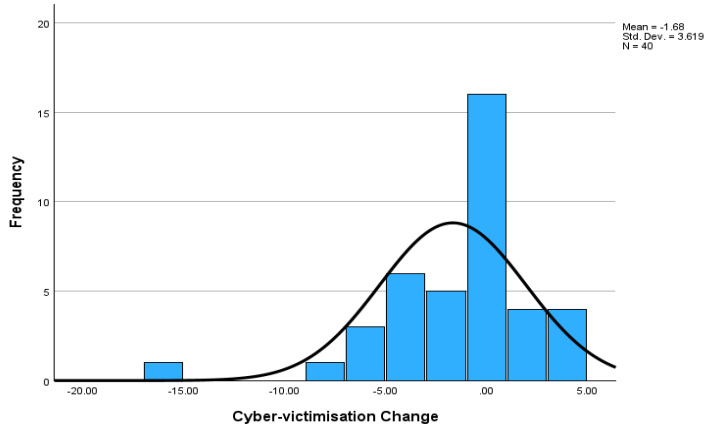


Figure 14 presents the non-normal distribution of change scores based on how frequently the participants indicated that got involved in cyberbullying others from time 1 to time 2 after comparing the 2 groups.

Figure 14

Distribution of Change Scores for Cyberbullying (both groups)

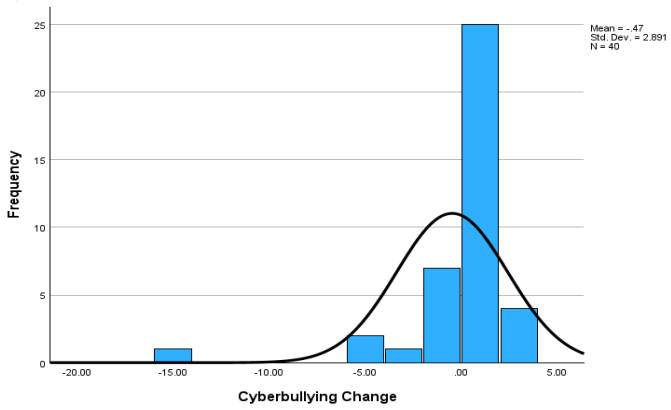


Figure 15 presents the non-normal distribution of change scores based on the level of generalised self-efficacy the participants indicated from time 1 to time 2 after comparing the 2 groups.

Figure 15

Distribution of Change Scores for Generalised Self-efficacy (both groups)

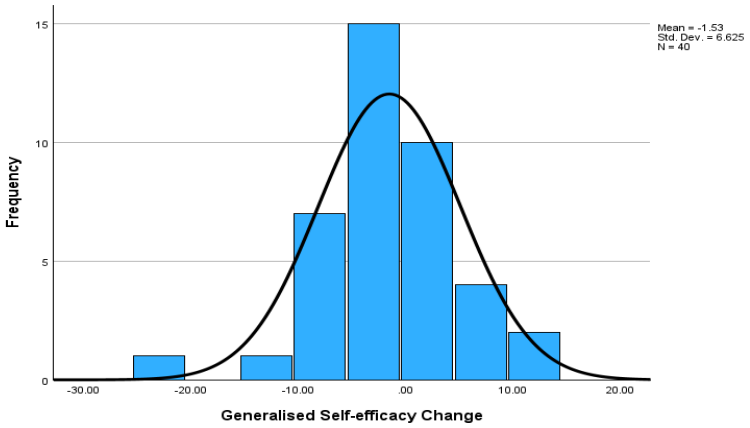
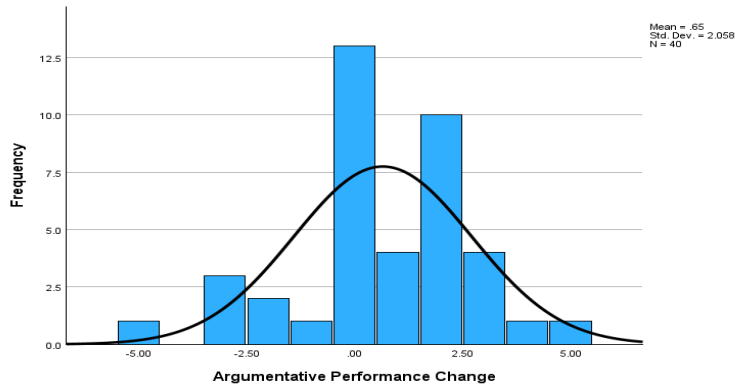


Figure 16 presents the non-normal distribution of change scores based on the level of argumentative performance the participants showed from time 1 to time 2 after comparing the 2 groups.

Figure 16

Distribution of Change Scores for Argumentative Performance (both groups)



6.3.3 Change Scores Analyses

To answer the research questions, we analysed whether changes were significant within and between the intervention and control groups. Initially, we calculated change scores by subtracting time 1 from time 2 and then, we ran the Mann-Whitney test to compare the intervention with the control group. Regarding the 1st research question, we found significant differences in the change scores of argumentative performances (*U=55, n=40, p=0.001*), functional arguments (*U=94.5, n=40, p=0.004*), and arguments weakening the other position (*U=121, n=40, p=0.03*) after implementing dialogic argumentation. The intervention group presented advances in argumentative performance and an increased number of functional arguments and arguments weakening the other position compared to the control group according to Table 13. Therefore, the 1st hypothesis was supported because dialogic argumentation seemed to have an effect on the argumentation-related variables.

In regard to the 2nd question, we found no significant difference in the change scores of cyberbullying after implementing dialogic argumentation (*U=262, n=40, p=0.09*). As can be observed in Table 13, although the intervention group presented lower incidents of cyberbullying compared to the control group, this change was not significant. Concerning cyber-victimisation, we found a significant difference in the change scores of cyber-victimisation after implementing dialogic argumentation (*U=274, n=40, p=0.04*). As we can

see in Table 13 the intervention group presented lower incidents of cyber-victimisation compared to the control group. Thus, the 2nd hypothesis was partially supported because dialogic argumentation seemed to trigger a change in the variable of cyber-victimisation but did not seem to trigger a change in the variable of cyberbullying.

Regarding the 3rd question, we found no significant difference in the change scores of generalised self-efficacy after implementing dialogic argumentation (*U=215.5, n=40, p=0.67*). The intervention group did not present a higher level of generalised self-efficacy in comparison to the control group according to Table 13. We did not observe a different result in any of the components of self-efficacy (academic, emotional, social). Thus, the 3rd hypothesis remained unsupported because dialogic argumentation did not seem to trigger a change to any component of self-efficacy.

Table 13

Mean Ranks of Change Scores from Time 1 to Time 2

Variable	Intervention Group	Control Group	*p*
	Mean Rank (Change Score)	Mean Rank (Change Score)	
Cybervictimisation[a]	16.80	24.20	0.04
Cyberbullying[b]	17.40	23.60	0.09
Generalised Self-efficacy[c]	19.73	21.28	0.67
Argumentative Performance[d]	27.75	13.25	0.001
Functional Arguments[d]	25.78	15.23	0.004
Weaken-other Arguments[d]	24.45	16.55	0.03

Note. N=40 (*n*=20 for each group).

[a]*0=Never being cyber-victimised, 4=Being cyber-victimised every or almost every day.*
[b]*0=Never cyberbully, 4=Cyberbully every or almost every day.*
[c]*0=Cannot do well at all, 4=Can do extremely well.*
[d]*Number of times participants presented each argumentation-related variable in their writing exercise.*

6.4 Discussion of Study 3 – Experimental Study of Dialogic Argumentation and Cyberbullying

This chapter aims to provide a discussion based on the results produced in Study 3 of the current research project. In the experimental study, which is the main study of this research project, we attempted to examine potential changes between the variables after the implementation of our intervention programme. Further sections about originality, limitations and future research for Study 3 of the research project were included. Statistical analyses were used to see if dialogic argumentation would trigger any change in argumentation skills, cyberbullying/cyber-victimisation, and generalised self-efficacy for university-level students. The 1st research question is whether the level of argumentation skills would improve after engaging in an intervention based on dialogic argumentation. The 2nd question is whether the frequency of cyberbullying/cyber-victimisation would decrease after engaging in an intervention based on dialogic argumentation. The 3rd question is whether the level of generalised self-efficacy would improve after engaging in this intervention. The findings showed that argumentation skills were developed after the intervention. Also, the frequency of cyber-victimisation reduced after the implementation of this intervention, but this has not occurred in the frequency of cyberbullying. Finally, the level of generalised self-efficacy did not change after the students engaged in the intervention.

6.4.1 Argumentation Skills and Dialogic Argumentation

Regarding the 1st research question, changes were observed in the argumentation skills of students who engaged in dialogic argumentation compared to those who did not engage. These changes involved advances in overall argumentative performance and an increased number of functional arguments and weakening-other arguments. Therefore, dialogic argumentation seemed to trigger an adequate improvement in argumentation skills, which supports our hypothesis. However, no change was observed in the number of evidence used by students. The findings of the current research are in line with previous studies, where participants either with a history of aggressive behaviours (De Fuccio et al., 2009) or not (Iordanou & Rapanta, 2021) presented gains in their argumentation skills after they engaged in dialogic argumentation.

6.4.2 Cyberbullying/cyber-victimisation and Dialogic Argumentation

Concerning the 2nd question, the lower frequency of cyber-victimisation in students who engaged in dialogic argumentation compared to those who did not engage partially supports our second hypothesis. Thus, dialogic argumentation seemed to trigger an adequate reduction in the frequency of cyber-victimisation. We could assume that this reduction might occur because argumentation skills might provide the participants a way to defend themselves, making them more resilient against attempts to get cyber-victimised. This finding is in agreement with previous studies, where incidents of victimisation (Roca-Campos et al., 2021) and cyber-victimisation (Villarejo-Carballido et al., 2019) were reduced after the participants engaged in a dialogue-based intervention. It is also important to highlight here the findings by Iordanou (2022) showing that engagement in dialogic argumentation could elicit better use of epistemic understanding and theory of mind, which could help victims become less vulnerable to bullies (Shakoor et al., 2012) and could help bullies resist the urge to harm others (Doenyas, 2017).

Contrarily, students who engaged in dialogic argumentation did not present a significant reduction in the frequency of cyberbullying compared to those who did not engage, leaving our 2nd hypothesis partially supported. Thus, dialogic argumentation did not seem to trigger a sufficient reduction in the frequency of cyberbullying. In previous studies like De Fuccio et al. (2009) and Villarejo-Carballido et al. (2019), less aggression or less cyberbullying was observed after participants engaged in dialogue-based interventions. However, this might be attributed to several differences between the current study and previous studies. First, different measures were used, in De Fuccio et al. (2009), the findings were based on observations of specifically trained staff and in Villarejo-Carballido et al. (2019), the findings were based on qualitative analysis of interviews. Second, the mode of delivery for the intervention since it was fully remote in the current study. In Villarejo-Carballido et al. (2019), the intervention was partially remote and in De Fuccio et al. (2009), the intervention was fully on the site. Third, the different samples since in De Fuccio et al. (2009), the participants were recruited from a juvenile detention facility and in Villarejo-Carballido et al. (2019), the participants were recruited from a primary school. Therefore, the current sample was more familiar with the process of producing arguments as university-level students, probably having already developed some argumentation skills. Fourth, the duration of the intervention since some reduction in cyberbullying was observed in the current study so maybe a longer intervention could have more positive results. In De Fuccio et al. (2009), the intervention lasted for weeks

and in Villarejo-Carballido et al. (2019), the intervention lasted for months. Although the 2-day duration of the current intervention was adequate to develop argumentation skills and elicit a reduced frequency of cyber-victimisation incidents, this duration might not be adequate to elicit a reduced frequency of cyberbullying incidents in students. Now, the question remains on what can make dialogic argumentation more effective in eliciting a reduction of cyberbullying frequency among university-level students. A possible answer could be the duration of the intervention. This might allow space to further investigate how this intervention could trigger a sufficient reduction in cyberbullying. It would be interesting to see if a longer version of dialogic argumentation could make any difference.

6.4.3 Generalised Self-efficacy and Dialogic Argumentation

In regard to the 3rd question, students who engaged in dialogic argumentation did not present a change in their level of generalised self-efficacy and its components compared to those who did not engage, leaving our 3rd hypothesis unsupported. Therefore, dialogic argumentation did not seem to affect the level of self-efficacy. Considering that dialogic argumentation elicited a change in the frequency of cyber-victimisation, we could assume that the same might occur in the level of self-efficacy since Olenik-Shemesh and Heiman (2017) and Kokkinos et al. (2015) found that the level of self-efficacy in adolescents was related to the frequency of their involvement in cyber-victimisation incidents. Also, indications were there from Study 1 and Study 2 that the participants' level of self-efficacy might be related to their argumentation skills. Thus, self-efficacy remained a variable in Study 3 after building on the previous two studies of the current research project. However, more research was needed to examine the potential effect of dialogic argumentation on individuals' level of self-efficacy. In the current study, we merely relied on the relationship that was found between individuals' level of self-efficacy and their involvement in victimisation incidents (Olenik-Shemesh and Heiman, 2017; Kokkinos et al., 2015), and the pre-mentioned potential relationship between self-efficacy and argumentation that came up in our studies. Another matter to consider is that self-related beliefs like self-efficacy might require more time to change compared to the time required for certain behaviours to change like getting victimised. Thus, interventions lasting longer might have a better chance of influencing beliefs.

6.4.4 Further Discussion on Findings

What else stands out from the mean scores in Study 3 is the higher frequency of cyberbullying and cyber-victimisation that was present in the control group instead of the intervention group despite the random allocation of the participants. It seems like the participants before engaging in the intervention programme were not cyberbullying or were not getting cyber-victimised to such an extent as those participants who did not engage in the intervention programme. Thus, we ended up with participants in the intervention group who experienced cyberbullying and cyber-victimisation less frequently than the participants in the control group. However, the results showed that the differences between the control group and the intervention group were not significant before the intervention.

This final study could provide some promising indications that the development of argumentation skills might provide individuals with benefits that are not merely educational but could also lead to behavioural change. More research can answer the question about the transferability of advanced argumentation skills in different aspects of human functioning. If more advanced argumentation skills can indeed help reduce the frequency of victimisation incidents, then the question is can more advanced argumentation skills help reduce the frequency of other socially undesirable incidents? Regarding specifically the area of cyber-victimisation, if dialogue-based interventions have indeed the potential to be effective in preventing cyber-victimisation, then we can explore ways for further improvement. Also, the idea of combining dialogue-based tasks with tasks that help develop other skills might be a way forward for the development of more effective anti-bullying programmes.

6.4.5 Implications

This research project had its main addition with the experimental study after the development of the two previous correlational studies that opened up the path for our intervention programme to be assessed. The results of this study showed that the intervention based on dialogic argumentation could be a promising educational programme for the prevention of cyber-victimisation. Now, we have a study that pointed out the significant impact of dialogic argumentation particularly on the argumentation skills of university-level students. Noteworthy was the delivery of this intervention since it occurred fully remotely showing that dialogic argumentation can still be effective by implementing it through technological means despite the connectivity issue mentioned before. This also could highlight how distance learning is a

reliable form of education for university-level students. The study made an original contribution to the understanding that the argumentation skills of cyber-victims play an important role since can assist them in avoiding re-victimisation.

6.4.6 Limitations

To begin with the potential limitations of the current study, the initial intention of including only undergraduate and early adult students in this study had to change due to an inadequate number of students who proceeded from Study 2 to Study 3. This has produced 3 interrelated potential limitations. First, postgraduate and slightly more mature students have also been included to reach the particular number of 40 students. Therefore, the mean age of students slightly got higher. Second, additional data were not collected regarding participants coming from other universities in Cyprus. The questionnaire had an option to choose the location of campus either in Cyprus or in the UK. Thus, the questionnaire remained the same even for students who came from a different university in Cyprus. Third, an unequal number of participants in the two intervention groups. Having 12 in the first intervention group and 8 in the second intervention group. Also, 3 master's degree students were included in the first and 2 in the second. Once the issue with the lack of participants was realised the first intervention group was almost ready to proceed. Thus, time did not allow the opportunity for more homogenous intervention groups.

Two possible modifications can be reported for the above interrelated limitations. First, more incentives could be offered, like vouchers for retail use to attract more undergraduate students. However, providing incentives to recruit more participants should always be used with caution because we do not want participants to view that as coercion. Second, we could pre-plan and invite undergraduate students coming from more universities in Cyprus at the beginning rather than relying only on UCLan's campuses in the UK and Cyprus. In that way, the lower mean age of students would be maintained and possibly an equal number of participants in each intervention group, and at the same time, it would be possible to keep a record of the particular universities of students.

Another potential limitation could also be the slight delay of replies from a few participants possibly due to their internet connection during the intervention. A possible modification could be the option of being partially remote with the physical presence of participants in a common setting, where they can share the same internet connection and the researcher can oversee them.

Similarly, this occurred in the study by Iordanou and Constantinou (2015), where students were physically attending the same school during the delivery of the programme.

6.4.7 Future Research

The present results open up paths for future research to continue investigating the current evidence. It is worth considering the time between the two assessment periods before and after the intervention. More time can be allowed in future research to see whether the reduction in cyberbullying will become apparent to a further extent. Thus, the reassessment can occur after several months instead of a single month. A longer period would allow a significant effect to be noticed like Villarejo-Carballido et al. (2019) who conducted an assessment after the passage of a whole school year. This was also suggested by Chalamandaris et al. (2017) after they noticed a delayed effect of anti-bullying interventions.

The majority of the students in the current study had psychology as a course subject. Although we tried to attract students from different subjects beyond psychology, this was not so much possible. Thus, our sample population depended on a specific subject rather than being representative based on various subjects. However, this can also be viewed as an advantage for researchers who prefer to maintain a better homogeneity in their sample. It would be interesting for future research to focus on undergraduate students studying a variety of subjects. In that way, comparisons could also happen between students of different subjects to identify any potential differences in their scores. Students from particular subjects might also be more interested in participating in this programme, considering its convenience as fully remote. The implementation of dialogic argumentation in the form of distance learning for university-level students remains promising and at the same time innovative.

A lengthier intervention can also be implemented in future research. It can be developed so teachers can run it in normal lessons. Argumentation skills can equally be developed in a shorter and more intensive compared to a longer and less intensive programme as occurred in the study by Iordanou et al. (2019) after they compared the two types of programmes. However, a longer and less intensive programme may be more appropriate for a behavioural change like in the study by De Fuccio et al. (2009), where participants have been observed less aggressive after engaging in the programme for six consecutive weeks. Thus, the frequency of cyberbullying may be lower after a longer programme due to extended exposure to dialogic argumentation.

The particular questionnaire that was used in the present study measured the frequency of cyberbullying/cyber-victimisation. It would be interesting to use another questionnaire or not necessarily a self-report to assess attitudes towards cyberbullying/cyber-victimisation in future research. Therefore, tendencies in favour or against this phenomenon would be accessible for investigation. In that way, we can expand on the thinking patterns that cyberbullies and cyber-victims make in their mind before and after implementing an intervention based on dialogic argumentation.

One more idea to consider for future research is to implement dialogic argumentation together with social and emotional learning. This combination can possibly decrease further the frequency of cyberbullying since social and emotional learning provides opportunities to develop empathic skills in individuals. Ttofi and Farrington (2011) reviewed how effective interventions can be by implementing social and emotional learning. Zych et al. (2019) highlighted the importance of developing the empathic skills of bullies through such interventions.

Chapter 7: General Discussion and Conclusions

Overall, the results of this research project from the 3 studies partially support the hypotheses we set initially. Starting with Study 1, its aim was to find potential relationships between bullying/victimisation, argumentation, alexithymia, and self-efficacy that would also remain stable over time in a sample of students from primary schools. Regarding the 1st question, no relationship was found between participants' frequency of bullying/victimisation and their argumentative performance. Regarding the 2nd question, negative relationships were found between participants' frequency of victimisation and their level of self-efficacy for peer interactions in the 1st and 2nd rounds of measures as we expected. However, we did not notice a relationship between participants' frequency of bullying and their level of self-efficacy for peer interactions. Regarding the 3rd research question, positive relationships were found between participants' frequency of victimisation and their level of alexithymia in the 1st and 2nd rounds of measures as we expected. However, the same did not happen between participants' frequency of bullying and their level of alexithymia in the 2nd round.

In Study 2, since we changed the participants' age group, we also changed variables to make those more applicable to our new sample. Thus, the aim of Study 2, was to find potential relationships between cyberbullying/cyber-victimisation, argumentation skills, and generalised self-efficacy in a sample of university-level students. Regarding both the 1st and 2nd research questions, no relationships were found between participants' frequency of cyberbullying/ cyber-victimisation, their argumentative performance, and their level of generalised self-efficacy. Nevertheless, a positive relationship was found between participants' frequency of cyber-victimisation and their level of academic self-efficacy (a subtype of self-efficacy) and a negative relationship between participants' number of arguments strengthening the other position (an argumentation-related variable) and their level of academic self-efficacy.

In Study 3, we moved on to our main experimental study with the aim of examining if an intervention based on dialogic argumentation would elicit changes in argumentation, cyberbullying/cyber-victimisation, and generalised self-efficacy. Concerning the 1st research question, we noticed significant advances in participants' argumentation skills compared to the control group after the intervention. Concerning the 2nd question, we noticed a significant decline in participants' frequency of cyber-victimisation compared to the control group after the intervention, but this did not occur to participants' frequency of cyberbullying, despite some decline. Concerning the 3rd question, no changes were noticed in participants' level of

generalised self-efficacy including its subtypes. Therefore, the most salient outcome was the significant change that occurred in the frequency of cyber-victimisation after the implementation of dialogic argumentation in our main experimental study. Although cyberbullies did not seem to become as less aggressive as we expected after the intervention, cyber-victims seemed to become significantly less vulnerable to cyberbullies through the development of their argumentation skills.

This might be the first time that a research project attempted to examine the potential relationships between argumentation-related variables and bullying-related variables in Study 1 and Study 2. Thus, we managed to introduce argumentation skills in the area of bullying and cyberbullying even though we did not find significant relationships apart from those between argumentation and self-efficacy in both Study 1 and Study 2. The most salient outcome was in Study 3, our main experimental study, where change was elicited in the frequency of cyber-victimisation by dialogic argumentation. This was the first time that an intervention based on dialogic argumentation seemed a promising educational programme for the prevention of cyber-victimisation. Also, Study 3 expanded further the literature on dialogic argumentation since the delivery of this intervention occurred fully remotely for the first time with university-level students showing that it can still be effective even through a distance learning mode.

This intervention based on dialogic argumentation alongside the development of argumentation skills showed indications of triggering a decline in cyber-victimisation incidents. Now, we have more evidence supporting that dialogic argumentation and generally dialogue-based interventions might be effective in the prevention of victimisation. In the same way that the Socratic method became an intervention for purposes beyond purely pedagogical, dialogic argumentation seemed to also have to offer more beyond the development of argumentation skills. Dialogic argumentation showed positive indications that can potentially affect not just the learning of students but even their behaviour through the development of their argumentation skills.

To answer the question about the overall implications of current findings, we can say on a theoretical level that argumentation skills could be an additional protective factor against victimisation. Thus, argumentation skills could be considered before designing new interventions for prevention. If more studies support this theory, then we can say that argumentation skills could help young people defend themself against any potential victimisation. As we saw, dialogic argumentation can provide the means to develop

argumentation skills at an advanced level that could help students make better use of their theory of mind ability and avoid getting victimised by a bully. Therefore, on a theoretical level, dialogic argumentation can potentially support students' theory of mind ability to work towards defending themselves.

On a practical level, the development of argumentation skills through dialogue could be a lesson run in schools. We can see from the current results that learning through argumentation occurs more at university rather than at school. Therefore, learning through argumentation could be implemented systematically in schools and support young students to become more active learners rather than passive learners relying heavily on their teachers to learn. According to Iordanou and Rapanta (2021), we should also overcome teachers' resistance to allowing students to learn through dialogue. Apart from schools, dialogic argumentation can also be implemented in universities as part of anti-bullying campaigns. The present results showed that cyberbullying can be a prevalent form of bullying among university-level students, which makes those campaigns a necessity. According to Peled (2019), universities should ensure the inclusion of diversity in student campuses and the protection of potentially vulnerable members of the university community. One more matter to address about implications on a practical level is the fully remote delivery of dialogic argumentation, which occurred here without any significant issue. A fully remote programme gives the advantage of implementing it with students from anywhere without requiring them to transport to a specific setting. Thus, dialogic argumentation can benefit from technological advances and keep progressing from its early origins in philosophy to its contemporary shape with the use of technology.

An issue to consider changing in the current research project would be relevant to the collection of participants' demographic information. In Study 1, the use of STROBE (Wolke et al., 2017) would be a useful diagram to monitor better the recruitment of students in primary schools through their teachers and parents. In Study 2, demographic data were not considered since the study was used as a pilot study. In Study 3, information regarding CY universities could be collected, but as mentioned before (see section **6.4.6**) the intention was to recruit students from UCLan campuses only. Since data collection was mentioned, we should address the issue with response bias. All questionnaires were completed in the same order in the current studies, potentially causing response bias with practice, fatigue or order effects. A way to prevent that could be to reorder the questionnaires for each participant, so they would not experience the exact structure of the assessment again. Another issue we would consider changing would be motivating the students to participate and write more arguments. We found out that students

from Study 2 did not provide their email addresses so they could not proceed to Study 3. Also, participants from the three studies tended to write a limited number of arguments during the assessments. We assumed that university-level students would find it easier to write more arguments, but the number might remain low, probably due to their urge to complete the assessment earlier. This probably reflects a common difficulty of researchers in recruiting more participants. An obvious way to do that is by providing more incentives like vouchers for retail use, but with caution as we stated earlier (see section **6.4.6**).

Regarding future research that can follow this research project, as was mentioned before (see section **5.4.7**), different population samples can be recruited. Similar to De Fuccio et al. (2009), participants with a history of aggressive behaviours can be recruited to engage in dialogic argumentation and then, an assessment can follow to see the potential impact of this intervention on the frequency of bullying among these participants. In that way, the impact of this intervention might be detectable to participants with aggressive tendencies. Also, university-level students from different subjects can be recruited for this intervention and then, to see whether changes in the frequency of cyberbullying would be different between students of different subjects. In that way, a more representative sample would allow comparisons to occur based on the subjects of the students.

Future research can also focus on different assessment tools, instead of measuring the frequency of bullying incidents, to measure attitudes that participants might have towards bullying incidents. By this means, we can see whether this intervention can trigger changes in participants' attitudes towards bullying. Also, a different type of assessment could help us avoid the risk of social desirability mentioned earlier (see section **2.4**) and instead of using self-reports, to use peer-reports to record the number of bullying incidents. In that way, peers might give a better estimation of the frequency of bullying incidents rather than bullies who might deny bullying others (Garandeau et al., 2024). Talking about assessment, as was stated above (see section **6.4.7**), the duration of assessment can also be expanded. Reassessments can follow after the implementation of this intervention on a long-term base. By this means, we can avoid the possibility of a delayed effect that was detected by Chalamandaris et al. (2017).

Something to consider as part of the assessment in future studies can be the direct measurement of theory of mind. Although researchers highlighted the difficulty in capturing the full extent of theory of mind in an instrument, this remains an option (Pisani et al., 2021; Beaudoin et al., 2020). Many theory of mind tests involve stories to directly measure individuals' understanding

based on a correct/incorrect scoring scheme. These tests assess one or more aspects of theory of mind such as the understanding of beliefs, and/or emotions, and/or intentions. According to Beaudoin et al. (2020), the most accurate theory of mind tests should be comprehensive by including as many of the different aspects of theory of mind.

As part of future research, we could also explore the indications of a potential relationship between argumentation and self-efficacy that were found in Study 1 and Study 2. As far as we know, previous studies have not explored this potential relationship yet. Although changes were not observed in self-efficacy levels after the implementation of the intervention, still a relationship might exist between the two variables. Thus, if such a relationship exists it is worthwhile to examine interventions that can equally foster the development of argumentation skills and improve the levels of self-efficacy in students.

Furthermore, in future research, we can also examine whether a longer version of this intervention can have a better impact on the frequency of bullying incidents. An assumption can be whether further exposure to dialogues could increase the probability of detecting an impact of dialogic argumentation on participants' frequency of bullying incidents. A longer version of dialogic argumentation might also incorporate an additional task, like developing empathic skills. Since this task is recommended by researchers (Gaffney et al., 2019a), it would be interesting to examine whether adding this task as a further component to this intervention could make it more effective for the prevention of bullying/cyberbullying.

Taking it from there, it remains to see how the current findings can be used for future research in this new intertwined area of bullying and argumentation. If argumentation skills can act as a protective factor for victims to prevent re-victimisation, then researchers shall take a closer look at this matter. We have seen above (in section **2.2**) the devastating impact that bullying and its different forms have on people. Therefore, intervention programmes should be improved for the ultimate effect of diminishing the phenomenon of bullying as much as possible and factors like the development of argumentation skills could be part of these preventive programmes and could even be implemented as distance learning.

LIST OF REFERENCES

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology, 30*(1), 47–88.

Anderson, M. (2018, September 27). *A majority of teens have experienced some form of cyberbullying.* Washington, DC: Pew Research Center. https://www.pewresearch.org/internet/2018/09/27/a-majority-of-teens-have-experienced-some-form-of-cyberbullying/

Andreou, E., Didaskalou, E., & Vlachou, A. (2015). Bully/victim problems among Greek pupils with special educational needs: associations with loneliness and self-efficacy for peer interactions. *Journal of Research in Special Educational Needs, 15*(4), 235–246.

Antoniadou, N., Kokkinos, C. M., & Markos, A. (2016). Development, construct validation and measurement invariance of the Greek cyber-bullying/victimization experiences questionnaire (CBVEQ-G). *Computers in Human Behavior, 65*, 380–390.

Aricak, O. T., & Ozbay, A. (2016). Investigation of the relationship between cyberbullying, cybervictimization, alexithymia and anger expression styles among adolescents. *Computers in Human Behavior, 55*, 278–285.

Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto alexithymia scale-I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research, 38*(1), 23–32.

Baier, D., Hong, J. S., Kliem, S., & Bergmann, M. C. (2019). Consequences of bullying on adolescents' mental health in Germany: comparing face-to-face bullying and cyberbullying. *Journal of Child and Family Studies, 28*(9), 2347–2357.

Baldwin, J. R., Ayorech, Z., Rijsdijk, F. V., Schoeler, T., & Pingault, J. B. (2021). Cyber-victimisation and mental health in young people: A co-twin control study. *Psychological Medicine, 51*(15), 2620–2630.

Bandura, A., (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice-Hall.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition, 21*, 37–46.

Baytelman, A., Iordanou, K., & Constantinou, C. P. (2020). Epistemic beliefs and prior knowledge as predictors of the construction of different types of arguments on socioscientific issues. *Journal of Research in Science Teaching, 57*(8), 1199–1227.

Beaudoin, C., Leblanc, E., Gagner, C., & Beauchamp, M. H. (2020). Systematic review and inventory of theory of mind measures for young children. *Frontiers in psychology, 10*, 2905.

Berger, K. S. (2007). Update on bullying at school: Science forgotten? *Developmental Review, 27*(1), 90–126.

Blumenfeld, W. J. (2013). The Nature of Social Communication Technologies and Cyberbullying: Filtered Cues and Disinhibited Actions. In M. P. Clough, J. K. Olson, & D. S. Niederhauser (Eds.), *The Nature of Technology: Implications for Learning and Teaching.* Leiden, The Netherlands: Brill.

Brighi, A., Melotti, G., Guarini, A., Genta, M. L., Ortega, R., Mora-Merchan, J., Smith, P. K., & Thompson, F. (2012). Self-esteem and loneliness in relation to cyberbullying in three European countries. In Q. Li, D. Cross, & P. K. Smith (Eds.), *Cyberbullying in the global playground: Research from international perspectives* (pp. 32–56). Wiley Blackwell.

Campbell, M., & Zavrsnik, A. (2013). Should cyberbullying be criminalized? In Smith, P. K., & Steffgen, G. (Eds.), *Cyberbullying through the New Media: Findings from an international network.* United Kingdom: Psychology Press.

Chalamandaris, A. G., Wilmet-Dramaix, M., Robert, A., Ertesvag, S. K., Eslea, M., Senterre, C., & Piette, D. (2017). Project SET-Bullying: Exploring the relationship between the effectiveness of school-based anti-bullying interventions and time. *Children and Youth Services Review, 83*, 146–158.

Chakraborty, S., Bhattacherjee, A., & Onuchowska, A. (2021). Cyberbullying: A Review of the Literature. *SSRN Journal,* 1–23.

Cleemput, K. V., DeSmet, A., Vandebosch, H., Bastianensens, S., Poels, K., & De Bourdeaudhuji, I. (2014, February, 3–4). *A systematic review and meta-analysis of the efficacy of cyberbullying prevention programs.* [Paper presentation]. Etmaal van de Communicatiewetenschap, Wageningen, The Netherlands.

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly, 25*, 65–83.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74–101.

Cross, D., Runions, K. C., & Pearce, N. (2021). Friendly schools' bullying prevention research: Implications for school counsellors. *Journal of Psychologists and Counsellors in Schools, 31*(2), 146–158.

Cross, D., Runions, K. C., Shaw, T., Wong, J. W., Campbell, M., Pearce, N., Burns, S., Lester, L., Barnes, A., & Resnicow, K. (2019). Friendly Schools Universal Bullying Prevention Intervention: Effectiveness with Secondary School Students. *International Journal of Bullying Prevention 1*, 45–57.

Cross, D., Waters, S., Pearce, N., Shaw, T., Hall, M., Erceg, E., Burns, S., Roberts, C., & Hamilton, G., (2012). The Friendly Schools Friendly Families programme: Three-year bullying behaviour outcomes in primary school children. *International Journal of Educational Research, 53*, 394–406.

Crowell, A., & Kuhn, D. (2014). Developing dialogic argumentation skills: A three-year intervention study. *Journal of Cognition and Development, 15*(2), 363–381.

Davis, M. H. (1994). *Empathy, a social psychological approach.* Madison: Brown and Benchmark Publishers.

De Fuccio, M., Kuhn, D., Udell, W., & Callender, K. (2009). Developing argument skills in severely disadvantaged adolescent males in a residential correctional setting. *Applied Developmental Science, 13*(1), 30–41.

De Lara, E. W. (2012). Why adolescents don't disclose incidents of bullying and harassment. *Journal of School Violence, 11*(4), 288–305.

Dillon, J. J. (2016). *Teaching psychology and the Socratic method: Real knowledge in a virtual age.* Palgrave Macmillan.

Di Tella M., Adenzato M., Catmur C., Miti F., Castelli L., & Ardito R. B. (2020). The role of alexithymia in social cognition: Evidence from a non-clinical population. *Journal of Affective Disorders, 273*, 482–492.

Doenyas, C. (2017). Self versus other-oriented social motivation, not lack of empathic or moral ability, explains behavioral outcomes in children with high theory of mind abilities. *Motivation and Emotion, 41*, 683–697.

Duque, E., Carbonell, S., De Botton, L., & Roca-Campos, E. (2021). Creating learning environments free of violence in special education through the dialogic model of prevention and resolution of conflicts. *Frontiers in Psychology, 12*, 662831.

Eslea, M. (2010). Direct and indirect bullying: which is more distressing? In K. Osterman (Eds.), *Indirect and direct aggression* (pp. 69–84). Frankfurt: Peter Lang.

Eslea, M., & Rees, J. (2001). At what age are children most likely to be bullied at school? *Aggressive Behaviour, 27*, 419–429.

Eslea, M., & Smith, P. K. (1998). The long-term effectiveness of anti-bullying work in primary schools. *Educational Research, 40*(2), 203–218.

Espelage, D. L., Rao, M. A., & Craven, R. G. (2013). Theories of cyberbullying. In S. Bauman, D. Cross, & J. Walker (Eds.), *Principles of cyberbullying research: Definitions, measures, and methodology* (pp. 49–67). Routledge/Taylor & Francis Group.

Ettekal, I., Kochenderfer-Ladd, B., & Ladd, G. W. (2015). A synthesis of person- and relational-level factors that influence bullying and bystanding behaviors: Toward an integrative framework. *Aggression and Violent Behavior, 23*, 75–86.

Faramarzi, M., & Khafri, S. (2017). Role of alexithymia, anxiety, and depression in predicting self-efficacy in academic students. *The Scientific World Journal, 2017*(1), 5798372.

Faro, K. C., Costa, B. L., & Bosa, C. A. (2023). Scoping Review on Theory of Mind and Bullying: A Critical Update. *Psicologia: Teoria e Pratica, 25*(1), 1–23.

Feijoo, S., O'Higgins Norman, J., Foody, M., Pichel, R., Brana, T., Varela, J., & Rial, A. (2021). Sex differences in adolescent bullying behaviours. *Psychosocial intervention, 30*(2), 95–100.

Felton, M., & Crowell, A. (2022). Argumentation as a collaborative enterprise: A study of dialogic purpose and dialectical relevance in novice and experienced arguers. *Informal Logic, 42*(1), 171–202.

Fernyhough, C. (2008). Getting Vygotskian about theory of mind: Mediation, dialogue, and the development of social understanding. *Developmental review, 28*(2), 225–262.

Flecha, R. (2000). *Sharing words: Theory and practice of dialogic learning.* Lanham: Rowman & Littlefield.

Gaffney, H., Ttofi, M. M., & Farrington, D. P. (2019a). Evaluating the effectiveness of school-bullying prevention programs: an updated meta-analytical review. *Aggression and Violent Behavior, 45*, 111–133.

Gaffney, H., Farrington, D. P., Espelage, D. L., & Ttofi, M. M. (2019b). Are cyberbullying intervention and prevention programs effective? A systematic and meta-analytical review. *Aggression and Violent Behavior, 45*, 134–153.

Galanaki, E.P. & Kalantzi-Azizi, A. (1999). Loneliness and social dissatisfaction: Its relation with children's self-efficacy for peer interaction. *Child Study Journal, 29*(1), 1–28.

Ganesan, K., Shakoor, S., Wertz, J., Agnew-Blais, J., Bowes, L., Jaffee, S. R., Matthews, T., & Arseneault, L. (2021). Bullying behaviours and other conduct problems: Longitudinal investigation of their independent associations with risk factors and later outcomes. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 56*(11), 2041–2052.

Garandeau, C. F., Turunen, T., Trach, J., & Salmivalli, C. (2024). Admitting to bullying others or denying it: Differences in children's psychosocial adjustment and implications for intervention. *International Journal of Behavioral Development,* 1–11.

Georgiou, S. N., Stavrinides, P., & Nikiforou, M. (2015). Bullying and victimization in Cyprus: The role of social pedagogy. *International Journal of Social Pedagogy, 4*(1), 43–54.

Guo, S. (2016). A Meta-Analysis of the Predictors of Cyberbullying Perpetration and Victimization. *Psychology in the Schools, 53*, 432–453.

Guzzo, G., Pace, U., Lo Cascio, V., Craparo, G., & Schimmenti, A. (2014). Bullying victimization, post-traumatic symptoms, and the mediating role of alexithymia. *Child Indicators Research, 7*, 141–153.

Gradinger, P., Strohmeier, D., & Spiel, C. (2009). Traditional bullying and cyberbullying: Identification of risk groups for adjustment problems. *Journal of Psychology, 217*(4), 205–213.

Habermas, J. (1984). *The theory of communicative action: Reason and the rationalization of society* (Vol.1). Boston: Beacon Press.

Imanparvar, S., & Khademi, A. (2016). Investigating the Relationship between Theory of Mind Ability and Academic Achievement and Self-Efficiency of Students with Conduct Disorder in Ardabil. *Modern Applied Science, 10*(11), 167–167.

Iordanou, K. (2022). Supporting strategic and meta-strategic development of argument skill: The role of reflection. *Metacognition Learning, 17*, 399–425.

Iordanou, K. (2016). From theory of mind to epistemic cognition. A lifespan perspective. *Frontline Learning Research, 4*(5), 106–119.

Iordanou, K. (2010). Developing argument skills across scientific and social domains. *Journal of Cognition and Development, 11*(3), 293–327.

Iordanou, K., & Constantinou, C. P. (2015). Supporting use of evidence in argumentation through practice in argumentation and reflection in the context of SOCRATES learning environment. *Science Education, 99*(2), 282–311.

Iordanou, K., & Constantinou, C. P. (2014). Developing pre-service teachers' evidence-based argumentation skills on socio-scientific issues. *Learning and Instruction, 34*, 42–57.

Iordanou, K., & Kuhn, D. (2020). Contemplating the opposition: Does a personal touch matter? *Discourse Processes, 57*(4), 343–359.

Iordanou, K., Kuhn, D., Matos, F., Shi, Y., & Hemberger, L. (2019). Learning by arguing. *Learning and Instruction, 63*, 101207.

Iordanou, K., & Rapanta, C. (2021). "Argue with me": A method for developing argument skills. *Frontiers in Psychology, 12*, 631203.

Jenkins, L. N., Demaray, M. K., Eldridge, M., & Kaminski, S. (2022). *Bullying and the Law*. Routledge.

Johander, E., Turunen, T., Garandeau, C. F., & Salmivalli, C. (2021). Different approaches to address bullying in KiVa schools: Adherence to guidelines, strategies implemented, and outcomes obtained. *Prevention Science, 22*(3), 299–310.

Karbach, J. (1987). Using Toulmin's model of argumentation. *Journal of Teaching Writing, 6*(1), 81–92.

Karna, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: Grades 4–6. *Child development, 82*(1), 311–330.

Kennedy, R. S., (2021). Bullying trends in the United States: A meta-regression. *Trauma, Violence, & Abuse, 22*(4), 914–927.

Kokkinos, C. M., & Kipritsi, E. (2012). The relationship between bullying, victimization, trait emotional intelligence, self-efficacy and empathy among preadolescents. *Social Psychology of Education, 15*, 41–58.

Kokkinos, C. M., Panagopoulou, P., Tsolakidou, I., & Tzeliou, E. (2015). Coping with bullying and victimisation among preadolescents: The moderating effects of self-efficacy. *Emotional and Behavioural Difficulties, 20*(2), 205–222.

Konrath, S., Novin, S., & Li, T. (2012). Is the relationship between alexithymia and aggression context-dependent? Impact of group membership and belief similarity. *Personality and Individual Differences, 53*(3), 329–334.

Kuhn, D. (2017). *Building our best future: Thinking critically about ourselves and our world.* New York: Wessex Press.

Kuhn, D. (2001). How do people know? *Psychological Science, 12*(1), 1–8.

Kuhn, D., Goh, W., Iordanou, K., & Shaenfield, D. (2008). Arguing on the computer: a microgenetic study of developing argument skills in a computer-supported environment. *Child Development,79*, 1311–1329.

Kuhn, D., Hemberger, L., & Khait, V. (2016). *Argue with me: Argument as a path to developing students' thinking and writing* (2nd ed.). New York, NY: Routledge.

Kuhn, D., & Udell, W. (2003). The development of argument skills. *Child Development, 74*, 1245–1260.

Larranaga, E., Yubero, S., Navarro, R., & Ovejero, A. (2018). From traditional bullying to cyberbullying: Cybervictimization among higher education students. In Cassidy, W., Faucher, C., & Jackson, M. (Eds.), *Cyberbullying at University in International Contexts* (pp. 99–111). London: Routledge.

Lee S., Kim C., & Kim, D. H. (2015). A meta-analysis of the effect of school-based anti-bullying programs. *Journal of Child Health Care, 19*(2), 136–153.

Li, C., Wang, P., Martin-Moratinos, M., Bella-Fernandez, M., & Blasco-Fontecilla, H. (2022). Traditional bullying and cyberbullying in the digital age and its associated mental health problems in children and adolescents: a meta-analysis. *European child & adolescent psychiatry,* 1-15.

Lin, M., Wolke, D., Schneider, S., & Margraf, J. (2020). Bullying history and mental health in university students: The mediator roles of social support, personal resilience, and self-efficacy. *Frontiers in Psychiatry, 10*, 960.

Lobe, B., Velicu, A., Staksrud, E., Chaudron, S. & Di Gioia, R. (2020). *How children (10-18) experienced online risks during the Covid-19 lockdown.* Luxembourg: Publications Office of the European Union.

Lundh, L. G., Johnsson, A., Sundqvist, K., & Olsson, H. (2002). Alexithymia, memory of emotion, emotional awareness, and perfectionism. *Emotion, 2*(4), 361–379.

Mason, L. (2001). Introducing talk and writing for conceptual change: A classroom study. *Learning and Instruction, 11*(4–5), 305–329.

Menesini, E. & Salmivalli, C. (2017). Bullying in schools: The state of knowledge and effective interventions. *Psychology, Health & Medicine, 22*(1), 240–253.

Moore, S. E., Norman, R. E., Suetani, S., Thomas, H. J., Sly, P. D., & Scott, J. G. (2017). Consequences of bullying victimization in childhood and adolescence: A systematic review and meta-analysis. *World Journal of Psychiatry, 7*(1), 60–76.

Myers, C. A. & Cowie, H. (2019). Cyberbullying across the lifespan of education: issues and interventions from school to university. *International Journal of Environmental Research and Public Health, 16*(7), 1217.

Muris, P. (2001). A brief questionnaire for measuring self-efficacy in youths. *Journal of Psychopathology and Behavioral Assessment, 23*, 145–149.

Murray-Harvey, R., Skrzypiec, G., & Slee, P. T. (2012). Effective and ineffective coping with bullying strategies as assessed by informed professionals and their use by victimised students. *Australian Journal of Guidance and Counselling, 22*(1), 122–138.

Nussbaum, E. M. (2021). Critical integrative argumentation: Toward complexity in students' thinking. *Educational Psychologist, 56*(1), 1–17.

Olenik-Shemesh, D., & Heiman, T. (2017). Cyberbullying victimization in adolescents as related to body esteem, social support, and social self-efficacy. *The Journal of Genetic Psychology, 178*(1), 28–43.

Olweus, D. (2004). The Olweus Bullying Prevention Programme: design and implementation issues and a new national initiative in Norway. In P. K. Smith, D. Pepler, & K. Rigby (Eds.), *Bullying in schools: How successful can interventions be?* (pp. 13-36). Cambridge: Cambridge University Press.

Olweus, D. (1997). Bully/victim problems in schools: Facts and intervention. *European Journal of Psychology of Education, 12*, 495–510.

Olweus, D. (1994). Bullying at school: Basic facts and effects of a school-based intervention program. *Journal of Child Psychology and Psychiatry, 35*, 1171–1190.

Olweus, D. (l993). Bullying at school: *What we know and what we can do.* Oxford, UK, and Cambridge, MA, USA: Blackwell Publishers.

Olweus, D., & Limber, S. P. (2018). Some problems with cyberbullying research. *Current Opinion in Psychology, 19*, 139–143.

Paradeisioti, A., Papacosta, E. S., Giannakopoulos, G., & Kolaitis, G. (2018). Bullying, peer victimization, and emotional problems in Cypriot adolescents referred to mental health services - A comparison of normative and clinical data. *Journal of School Violence, 18*(1), 134–145.

Parris, L., Varjas, K., Meyers, J., & Cutts, H. (2012). High school students' perceptions of coping with cyberbullying. *Youth & Society, 44*(2), 284–306.

Patchin, J. W., & Hinduja, S. (2011). Traditional and nontraditional bullying among youth: A test of general strain theory. *Youth & Society, 43*(2), 727–751.

Pateraki, L., & Houndoumadi, A. (2001). Bullying among Primary School Children in Athens, Greece. *Journal of Educational Psychology, 21*, 167–175.

Peled, Y. (2019). Cyberbullying and its influence on academic, social, and emotional development of undergraduate students. *Heliyon, 5*(3), e01393.

Perkins, H. W., & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *International journal of the Addictions, 21*(9–10), 961–976.

Perren, S., Corcoran, L., Cowie, H., Dehue, F., Garcia, D., McGuckin, C., Sevcikova, A., Tsatsou, P., & Vollink, T. (2012, September 5). *Coping with cyberbullying: A systematic literature review.* Paris: International Conference on Cyberbullying.

Pisani, S., Murphy, J., Conway, J., Millgate, E., Catmur, C., & Bird, G. (2021). The relationship between alexithymia and theory of mind: A systematic review. *Neuroscience & Biobehavioral Reviews, 131*, 497–524.

Pyzalski, J. (2012). From cyberbullying to electronic aggression: Typology of the phenomenon. *Emotional & Behavioural Difficulties, 17*(3–4), 305–317.

Ragatz, L. L., Anderson, R. J., Fremouw, W., & Schwartz, R. (2011). Criminal thinking patterns, aggression styles, and the psychopathic traits of late high school bullies and bully-victims. *Aggressive Behavior, 37*, 145–160.

Rahmawati, D. & Suwarjo, S. (2021). The Socratic method and opportunities for its application by middle school counselors to increase awareness about bullying. *KnE Social Sciences, 6*(2), 314–326.

Rieffe, C., Oosterveld, P. & Terwogt, M.M. (2006). An Alexithymia Questionnaire for Children: Factorial and Concurrent Validation Results. *Personality and Individual Differences, 40*, 123–133.

Rivers, I., & Noret, N. (2010). Participant roles in bullying behavior and their association with thoughts of ending one's life. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 31*(3), 143–148.

Roca-Campos, E., Duque, E., Rios, O., & Ramis-Salas, M. (2021). The zero violence brave club: A successful intervention to prevent and address bullying in schools*. Frontiers in Psychiatry, 12*, 601424.

Rosenberg, M., & Simmons, R. G. (1971). *Black and white self-esteem: The urban school child.* Washington, DC: The Arnold M. and Caroline Rose Monograph Series, American Sociological Association.

Rueda, P., Fernandez-Berrocal, P., & Baron-Cohen, S. (2015). Dissociation between cognitive and affective empathy in youth with Asperger Syndrome. *European Journal of Developmental Psychology, 12*(1), 85–98.

Salmivalli, C., (2014). Participant roles in bullying: How can peer bystanders be utilized in interventions? *Theory into practice, 53*(4), 286–292.

Salmivalli, C., & Poyhonen, V. (2012). Cyberbullying in Finland. In Q. Li, D. Cross, & P. K. Smith (Eds.), *Cyberbullying in the global playground: Research from international perspectives* (pp. 57–72). Wiley Blackwell.

Schenk, A. M., & Fremouw, W. J. (2012). Prevalence, psychological impact, and coping of cyberbully victims among college students. *Journal of School Violence, 11*(1), 21–37.

Schenk, A. M., Fremouw, W. J., & Keelan, C. M. (2013). Characteristics of college cyberbullies. *Computers in Human Behavior, 29*(6), 2320–2327.

Shakoor, S., Jaffee, S. R., Bowes, L., Ouellet-Morin, I., Andreou, P., Happe, F., Moffitt, T. E., & Arseneault, L. (2012). A prospective longitudinal study of children's theory of mind and adolescent involvement in bullying. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 53*(3), 254–261.

Sidanius, J., & Pratto, F. (1999). *Social Dominance: An Intergroup Theory of Social Hierarchy and Oppression.* Cambridge: Cambridge University Press.

Smith, P. K. (2017). Bullying and theory of mind: A review. *Current Psychiatry Reviews, 13*(2), 90–95.

Smith, P. K. (2012). Cyberbullying and cyber aggression. In Jimerson, S. R., Nickerson, A. B., Mayer, M. J., & Furlong M. J. (Eds.), *Handbook of school violence and school safety: International research and practice* (pp. 93–103). London: Routledge.

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*, 376–385.

Smith, P. K., & Sharp, S. (1994). *School Bullying: Insights and Perspectives.* London: Routledge.

Smith, P. K., Sharp, S., Eslea, M., & Thompson, D. (2004). England: The Sheffield Project. In P. K. Smith, D. Pepler, & K. Rigby (Eds.), *Bullying in schools: How successful can interventions be?* (pp. 99–124). Cambridge: Cambridge University Press.

Smith, P. K., & Steffgen, G. (2013). *Cyberbullying through the new media. Findings from an international network.* New York: Psychology Press.

Solomontos-Kountouri, O., Gradinger, P., Yanagida, T., & Strohmeier, D. (2016). The implementation and evaluation of the ViSC program in Cyprus: Challenges of cross-national dissemination and evaluation results. *European Journal of Developmental Psychology, 13*(6), 737–755.

Solomontos-Kountouri, O., & Strohmeier, D. (2018). The ViSC Program: How Do Bullies, Victims, Bully-Victims, and Uninvolved Adolescents Perceive the Program Activities?. *International Journal of Developmental Science, 12*(3–4), 159–168.

Solomontos-Kountouri, O., Tsagkaridis, K., Gradinger, P., & Strohmeier, D. (2017). Academic, socio-emotional and demographic characteristics of adolescents involved in traditional bullying, cyberbullying, or both: Looking at variables and persons. *International Journal of Developmental Science, 11*(1–2), 19–30.

Suler, J. (2004). The online disinhibition effect. *Cyberpsychology & Behavior, 7*(3), 321–326.

Sutton, J., Smith, P. K., & Swettenham, J. (1999). Social cognition and bullying: Social inadequacy or skilled manipulation? *British Journal of Developmental Psychology, 17*, 435–450.

Tanni, S. E., Patino, C. M., & Ferreira, J. C. (2020). Correlation vs. regression in association studies. *Jornal Brasileiro de Pneumologia, 46*, e20200030.

Taylor, G., Bagby, R. M., & Parker, J. D. (1992). The Revised Toronto Alexithymia Scale: Some reliability, validity, and normative data. *Psychotherapy and Psychosomatics, 57*(1–2), 34–41.

Taylor, M. (1996). A theory of mind perspective on social cognitive development. *Perceptual and cognitive development,* 283–329.

Thiebach, M., Mayweg-Paus, E., & Jucks, R. (2016). Better to agree or disagree? The role of critical questioning and elaboration in argumentative discourse. *German Journal of Educational Psychology, 30*(2–3), 133–149.

Toulmin, S. E. (1958). *The uses of argument.* New York, NY: Cambridge University Press.

Tsaousis, I. (2016). The relationship of self-esteem to bullying perpetration and peer victimization among schoolchildren and adolescents: A meta-analytic review. *Aggression and violent behavior, 31*, 186–199.

Tsaousis I., Taylor G., Quilty L., Georgiades S., Stavrogiannopouos M., & Bagby R. M. (2010). Validation of a Greek adaptation of the 20-items Toronto Alexithymia Scale. *Comprehensive Psychiatry, 51*, 443–448.

Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic review. *Journal of Experimental Criminology, 7,* 27–56.

Van Noorden, T. H., Haselager, G. J., Cillessen, A. H., & Bukowski, W. M. (2014). Empathy and involvement in bullying in children and adolescents: A systematic review. *Journal of youth and adolescence, 44*, 637–657.

Velotti, P., Garofalo, C., Petrocchi, C., Cavallo, F., Popolo, R., & Dimaggio, G. (2016). Alexithymia, emotion dysregulation, impulsivity and aggression: A multiple mediation model. *Psychiatry Research, 237*, 296–303.

Villarejo-Carballido, B., Pulido, C. M., De Botton, L., & Serradell, O. (2019). Dialogic model of prevention and resolution of conflicts: Evidence of the success of cyber-bullying prevention in a primary school in Catalonia. *International Journal of Environmental Research and Public Health, 16*, 918.

Vygotsky, L. S. (1978). *Mind and society: The development of higher mental processes.* Cambridge, MA: Harvard University Press.

Walton, D. N. (1989). Dialogue theory for critical thinking. *Argumentation, 3*, 169–184.

Watts, L. K., Wagner, J., Velasquez B., & Behrens, P. I. (2017). Cyberbullying in higher education: a literature review. *Computers in Human Behavior, 69*, 268–274.

Wheeler, V. A. & Ladd, G. W. (1982). Assessment of Children's Self-Efficacy for Social Interactions with Peers. *Developmental Psychology, 18*, 795–805.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*(1), 103–128.

Wolke, D., Lee, K., & Guy, A. (2017). Cyberbullying: A storm in a teacup? *European Child & Adolescent Psychiatry, 26*(8), 899–908.

Zavala, J., & Kuhn. D. (2017). Solitary Discourse Is a Productive Activity. *Psychological Science, 28*(5), 578–586.

Zohar, A., & Nemet, F. (2002). Fostering students' knowledge and argumentation skills through dilemmas in human genetics. *Journal of Research in Science Teaching, 39*, 35–62.

Zych, I., Farrington, D. P., & Ttofi, M. M. (2019). Protective factors against bullying and cyberbullying: A systematic review of meta-analyses. *Aggression and Violent Behavior, 45*, 4–19.

Appendix A: Approval by the Ministry of Education

Ministry of Education and Culture

Directory of Primary Education

Tel. No: +357 22 800 665

E-mail: dde@moec.gov.cy

21st September 2018

Topic: Approval for implementation of research with students from primary schools in Limassol

Dear Mr Zenios,

In regard to your message that was sent to the Centre of Educational Research and Assessment at 10th September 2018, and in continuity of our letter that was sent at 16th April 2018, I would like to inform you that your request has been approved. You can now proceed with the implementation of your research in primary schools in Limassol within the school year between 2018 and 2019.

Please note that the list of conditions that are presented into our previous letter continue to be in use. Finally, I would like to remind you that you are obliged to deliver the final results of your research to us in order to study your findings.

Yours sincerely,

Christos Chatziathanasiou

(for General Director)

Appendix B: Approval by the Bioethical Committee

Cyprus National Bioethical Committee

Tel. No: +357 22 809 038 / +357 22 809 039

23rd July 2018

Programme Title: Investigation of relationships among school bullying and argumentation skills, social self-efficacy and alexithymia

Bioethical Committee's Decision: Research Approved

1. Responsible for this research are all the members of the research team. The research team should implement with great care the research.
2. From 01/08/2012 the Cyprus National Bioethical Committee apply some checks in approved researches. You can find more details about this issue in the website of the committee.
3. The current document is shared also with the sponsor of this research.
4. The researchers are obliged to send reports to the committee every six-month period about the progression of this research.
5. After the end of this research, the researchers are obliged to send a report informing the committee.
6. The researchers should comply with all the codes of ethics and should let the committee know about any cases of emergency or modification of this research.

Members who got involved in this decision: All members agree with this decision.

Date of decision: 23rd July 2018

Name of the President of the Bioethical Committee: Dr Simon Malas

Name of the Vice-president of the Bioethical Committee: Dr Stella Nicolaou

Appendix C: Approval by the Ethics Committee of UCLan (I)

07 January 2019

Mike J Eslea / Christos Zenios
School of Psychology
University of Central Lancashire

Dear Mike / Christos

Re: PSYSOC Ethics Committee Application
Unique reference Number: PSYSOC 457

The STEMH ethics committee has granted approval of your proposal application 'Investigating the relationships between school bullying and argumentation skills, social self-efficacy and alexithymia'. Approval is granted up to the end of project date*. It is your responsibility to ensure that

- the project is carried out in line with the information provided in the forms you have submitted
- you regularly re-consider the ethical issues that may be raised in generating and analysing your data
- any proposed amendments/changes to the project are raised with, and approved, by Committee
- you notify EthicsInfo@uclan.ac.uk if the end date changes or the project does not start
- serious adverse events that occur from the project are reported to Committee
- a closure report is submitted to complete the ethics governance procedures (Existing paperwork can be used for this purposes e.g. funder's end of grant report; abstract for student award or NRES final report. If none of these are available use e-Ethics Closure Report Proforma).

Please also note that it is the responsibility of the applicant to ensure that the ethics committee that has already approved this application is either run under the auspices of the National Research Ethics Service or is a fully constituted ethics committee, including at least one member independent of the organisation or professional group.

Yours sincerely

Christine Barter
Vice-Chair
PSYSOC Ethics Committee

* for research degree students this will be the final lapse date

NB - Ethical approval is contingent on any health and safety checklists having been completed and necessary approvals gained as a result.

Appendix D: Principals Letter [Translated from Greek]

To: Principal and Teachers

Subject: Consent for research to take place

With this letter, we ask for your consent to have your school's pupils in this research, titled "Investigating the effectiveness of dialogic argumentation for the prevention of bullying among pupils". The research is conducted by Christos Zenios, student of PhD in Psychology at UCLan Cyprus, under the supervision of Dr Kalypso Iordanou, Assistant Professor of Psychology at UCLan University, Cyprus.

Research: The purpose of this research is to evaluate some factors that may influence bullying at school. In particular, children's bullying behaviours, their argumentation skills, their ability to manage feelings, and their social self-efficacy will be examined. At a later stage, an intervention programme will be designed based on these results for the prevention of bullying.

The research question here is: Is there a relationship between bullying or victimisation and argumentation skills, emotion regulation, and social self-efficacy?

Research process: The pupils will complete first the scale measuring bullying and victimisation, second the scale measuring emotion regulation, third the scale measuring social self-efficacy and last they will write arguments based on the question "Why are some people more aggressive than others: were they born that way, or does it depend on how they were brought up?" in order to assess their argumentation skills. When the assessments will be completed by all pupils, the researcher will collect the papers in order to analyse the data from the assessments. After three months, the assessments will be replayed in order to check if the results are consistent through time.

The results: Regardless of the consent of the parents, the child itself must agree to his or her voluntary participation in this research. At any time and if the child wants to withdraw from the research he or she has the right to do so. We assure you that data collection will only be done for the purposes of this research. The data will be stored in a safe place accessible only by the researcher. Also, the anonymity of the participants will be ensured by taking all necessary steps to do so and no evidence of their performance will be disclosed without the written consent of their parents from before.

The duration of the assessments will be 2 periods of lesson and more specifically, 90 minutes. In order to prevent interference with the pupils' teaching programme, there will be an arrangement with you and the teachers involved, so that there are specific days and times of our meetings. Below, is the form to be filled in by the teachers of the participating classes. The consent form is expected to be returned to the researcher and the information sheet can be stored in your and teachers' archives.

For any clarification regarding the research, please contact researcher Christos Zenios at 99556998. For any complaints you might have regarding this research, you can contact Dr Irene Polycarpou, the Head of the School of Science at UCLan Cyprus at 24694013.

Teacher Consent Form

I give my consent for the participation of pupils from the ..... class of the ..... primary school to the above research.

Teacher's signature: .....

Name: .....

Date: ……..

Appendix E: Parents Letter [Translated from Greek]

Dear parent,

With this letter, we ask for your consent before your child participate in this research, titled "Investigating the effectiveness of dialogic argumentation for the prevention of bullying among pupils". The research is conducted by Christos Zenios, student of PhD in Psychology at UCLan Cyprus, under the supervision of Dr Kalypso Iordanou, Assistant Professor of Psychology at UCLan University, Cyprus.

Research: By participating in this research, your child will take part in the evaluation of factors that may affect bullying and victimisation in their school. In particular, children's bullying behaviours, their argumentation skills, their ability to manage feelings, and their social self-efficacy will be examined. The involvement of your child is important, since based on these results, an intervention programme will be designed for the prevention of bullying at schools.

Easy and simple questionnaires will be given to children that have been used in the past. The physical and mental health of children will not be placed at risk. We are committed to the fact that the material that will be given to the pupils is not inappropriate for their age. In order to avoid interruptions to the children's teaching programme, there will be an arrangement with the teaching staff so that the assessments will be carried out on specific days and times at the schools. The duration of the assessments will be 2 teaching periods and more specifically, 90 minutes that will take place on February and will be repeated on June. The child's participation in this research will not disturb their school work. For any complaints that you might have for this research, please contact Dr Irene Polycarpou, the Head of School of Science at UCLan Cyprus at 24694013.

The results: Despite your consent, your own child must also agree to his or her voluntary participation in this research. At any time and if your child wants to withdraw from the research, he or she has the right to do so. We assure you that the data collection will only be done for the purposes of this research. The data will be stored in a safe place accessible only by the researcher. Also, the anonymity of the participants will be secured by taking all necessary steps to do so and no evidence of their performance will be disclosed without the prior written consent by you.

Your participation: If you would like your child to participate in this research, please fill in and sign the consent form below as soon as possible, returning it to the teacher. You can keep the above information sheet for your file.

For any clarification regarding the research, please contact the researcher Christos Zenios at 99556998.

Thank you for your collaboration,

Best Regards,

Christos Zenios

Consent Form

I wish my child .....

who is attending ..... class to participate in the above research.

Parent or guardian signature: .....

Name: .....

Date: ……..

Appendix F: Children Script [Translated from Greek]

The following script will be given to pupils by the teacher, before allowing them to participate in the present research.

You are being asked to voluntarily participate in a research study, titled "Investigating the relationships between school bullying and argumentation skills, social self-efficacy and alexithymia". The research is conducted by Christos Zenios, for his doctoral degree in Psychology from the University of Central Lancashire.

By participating in this research, you will take part in the evaluation of factors that may be relevant to bullying and victimisation incidents that you or your peers experienced. Those factors are the ability to construct arguments, the ability to manage feelings, and the ability to interact with peers. Your involvement is important since an intervention programme is intended to be designed based on these results.

Easy and simple questionnaires will be given to you that have been used in the past. Your physical and mental health will not be placed at risk. We have ensured that this material is appropriate for your age. The duration of the assessments will be 2 teaching periods or 90 minutes.

We would like to make you aware of your right to withdraw from this research without any consequence over a period of two weeks after your participation. You may choose to hand in the questionnaires completed or blank to your teacher. For those not participating, your teacher will provide you with some exercises relevant to your lesson. A participation number unique for each pupil will be provided to you. You can withdraw from the research by telling this number to your teacher and without providing any reason for that. We assure you that your anonymity will be secured by taking all the necessary steps and no evidence of your responses will be disclosed. Your data will be collected only for the purposes of this research which will be published in scientific journals. All data will be stored in a safe place accessible only by the researcher.

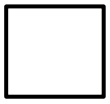
Finally, you are free to ask the teacher any questions about the research at any time. In case you want to speak with specialists about your experiences with bullying and victimisation, you can anonymously call with free of charge the following telephone numbers:

1440 – Helpline for the Prevention of Violence

116111 – Helpline for the Support of Children

Consent Form

I wish to participate in the above research study by ticking the following box.



Pupil's Name: .....

Class: .....

Date: …….

Appendix G: Toronto Alexithymia Scale

On the next pages, you will find 20 short sentences. Every sentence is a statement about how people can feel or think about their feelings. You can mark each sentence if this is often true, sometimes true or not true for you. Choose the answer that best fits you. You can only mark one answer.

If you find that difficult, choose the answer that fits you most of the time. Different people have different feelings and ideas about their feelings. Therefore, there are no right or wrong answers, because it is just about what you think.

		Not true	Some-times true	Often true
1	I am often confused about the way I am feeling inside	☐	☐	☐
2	I find it difficult to say how I feel inside	☐	☐	☐
3	I feel things in my body that even doctors don't understand	☐	☐	☐
4	I can easily say how I feel inside	☐	☐	☐
5	When I have a problem, I want to know where it comes from and not just talk about it	☐	☐	☐
6	When I am upset, I don't know if I am sad, scared or angry	☐	☐	☐
7	I am often puzzled by things that I feel in my body	☐	☐	☐
8	I'd rather wait and see what happens, instead of thinking about why things happen	☐	☐	☐
9	Sometimes I can't find the words to say how I feel inside	☐	☐	☐
10	It is important to understand how you feel inside	☐	☐	☐
11	I find it hard to say how I feel about other people	☐	☐	☐
12	Other people tell me that I should talk more about how I feel inside	☐	☐	☐
13	I don't know what's going on inside me	☐	☐	☐
14	I often don't know why I am angry	☐	☐	☐
15	I prefer talking to people about everyday things, rather than about how they feel	☐	☐	☐
16	I prefer watching funny television programmes, rather than films that tell a story about other people's problems	☐	☐	☐
17	It is difficult for me to say how I really feel inside, even to my best friend	☐	☐	☐
18	I can feel close to someone, even when we are sitting still and not saying anything	☐	☐	☐
19	Thinking about how I feel, helps me when I want to do something about my problems	☐	☐	☐
20	When I have to concentrate on a film to understand the story, I enjoy the film much less	☐	☐	☐

Appendix H: Children's Self-efficacy for Peer Interactions

Circle the response that best describes how well you can do the following things. HARD! Means it is *really* hard for you and EASY! means it is *really* easy for you, hard and easy means it is a little bit hard or easy for you.

1. Some kids want to play a game. Asking them if you can you play is __?__ for you.	HARD!	Hard	Easy	EASY!
2. Some kids are arguing about how to play a game. Telling them to stop is __?___ for you.	HARD!	Hard	Easy	EASY!
3. Some kids are teasing your friends. Telling them to stop is __?___ for you.	HARD!	Hard	Easy	EASY!
4. You want to start a game. Asking other kids to play the game is __?__ for you.	HARD!	Hard	Easy	EASY!
5. A kid tries to take your turn during a game. Telling the kid its your turn is __?__ for you.	HARD!	Hard	Easy	EASY!
6. Some kids are going to lunch. Asking if you can go with them is __?__ for you.	HARD!	Hard	Easy	EASY!
7. A kid cuts in front of you in line. Telling the kid not to cut is __?__ for you.	HARD!	Hard	Easy	EASY!
8. A kid wants to do something that will get you into trouble. Asking the kid to do something else is __?__ for you.	HARD!	Hard	Easy	EASY!
9. Some kids are making fun of someone in your classroom. Telling them to stop is __?__ for you.	HARD!	Hard	Easy	EASY!
10. Some kids need more people to be on their teams. Asking to be on the team is __?__ for you.	HARD!	Hard	Easy	EASY!
11. You have to carry some things home from school. Asking another kid to help you is __?__ for you.	HARD!	Hard	Easy	EASY!
12. A kid always wants to be first when you play a game. Telling the kid that you are going first is __?__ for you.	HARD!	Hard	Easy	EASY!
13. Your class is going on a trip and everyone needs a partner. Asking someone to be your partner is __?__ for you.	HARD!	Hard	Easy	EASY!
14. A kid does not like your friend. Telling the kid to be nice to your friend is __?__ for you.	HARD!	Hard	Easy	EASY!
15. Some kids are deciding what game to play. Telling them what game you like is __?__ for you.	HARD!	Hard	Easy	EASY!
16. You are having fun playing a game but other kids want to stop. Asking them to finish playing the game is __?__ for you.	HARD!	Hard	Easy	EASY!
17. You are working on a project. Asking another kid to help is __?__ for you.	HARD!	Hard	Easy	EASY!
18. Some kids are using your play area. Asking them to move is __?__ for you.	HARD!	Hard	Easy	EASY!
19. Some kids are deciding what to do after school. Telling them what you want to do is __?__ for you.	HARD!	Hard	Easy	EASY!
20. A group of kids wants to play a game that you don't like. Asking them to play a game that you like is __?__ for you.	HARD!	Hard	Easy	EASY!
21. Some kids are planning a party. Asking them to invite your friend is __?__ for you	HARD!	Hard	Easy	EASY!
22. A kid is yelling at you. Telling the kid to stop is __?__ for you.	HARD!	Hard	Easy	EASY!

Appendix I: Student Questionnaire on Bullying and Victimisation [Translated from Greek]

Here are some questions about bullying. First we explain what bullying is.

We say a student is being bullied when another student, or several other students:

- Say mean and hurtful things, or make fun of him or her, or call him or her mean and hurtful names.
- Completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose.
- Hit, or kick, or push him or her.
- Tell lies or spread false rumours about him or her and try to make other students dislike him or her.
- And do other hurtful things like that.

When we talk about bullying, these things happen more than just once, and it is difficult for the student being bullied to defend himself or herself. But we do not call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when two students of about equal strength or power argue or fight.

Circle the letter that best describes how you feel.

<u>About Being Bullied</u>

1. How often have you been bullied at school in the past couple of months?

A Only once or twice
B Two or three times a month
C About once a week
D Several times a week
E It has not happened to me

Have you been bullied at school in the past couple of months in one or more of the following ways?

Circle one letter only for each way.

	A Only once or twice	**B** Two or three times a month	**C** About once a week	**D** Several times a week	**E** It has not happened to me
2. I was hit, kicked, pushed.	**A**	**B**	**C**	**D**	**E**
3. I had money or other things taken away from me or damaged.	**A**	**B**	**C**	**D**	**E**
4. I was threatened or forced to do things I didn't want to do.	**A**	**B**	**C**	**D**	**E**
5. I was bullied with mean names or comments about my race or colour or religion.	**A**	**B**	**C**	**D**	**E**
6. I was called mean names, made fun of or teased in a hurtful way.	**A**	**B**	**C**	**D**	**E**
7. Another student left me out of things on purpose, left me out from his or her group of friends or completely ignored me.	**A**	**B**	**C**	**D**	**E**
8. Another student told lies or spread false rumours about me and tried to make others dislike me.	**A**	**B**	**C**	**D**	**E**
9. I was bullied with the use of electronic devices.	**A**	**B**	**C**	**D**	**E**
10. I was bullied in another way (please write which one).	**A**	**B**	**C**	**D**	**E**

……

Circle the letter that best describes how you feel.

About Bullying Others

11. How often have you taken part in bullying another student at school in the past couple of months?	**A** Only once or twice **B** Two or three times a month **C** About once a week **D** Several times a week **E** I have not bullied another student

Have you bullied another student at school in the past couple of months in one or more of the following ways? Circle one letter only for each way.

	A Only once or twice	**B** Two or three times a month	**C** About once a week	**D** Several times a week	**E** I have not bullied another student
12. I hit, kicked, pushed him or her.	**A**	**B**	**C**	**D**	**E**
13. I took money or other things from him or her or damaged his or her possessions.	**A**	**B**	**C**	**D**	**E**
14. I bullied him or her with mean names or comments about his or her race or colour or religion.	**A**	**B**	**C**	**D**	**E**
15. I called another student mean names, made fun of or teased him or her in a hurtful way.	**A**	**B**	**C**	**D**	**E**
16. I threatened or forced him or her to do things he or she didn't want to do.	**A**	**B**	**C**	**D**	**E**
17. I kept him or her out of things on purpose, excluded him or her from my group of friends or completely ignored him or her.	**A**	**B**	**C**	**D**	**E**
18. I told lies or spread false rumours about him or her and tried to make others dislike him or her	**A**	**B**	**C**	**D**	**E**
19. I bullied him or her with the use of electronic devices.	**A**	**B**	**C**	**D**	**E**
20. I bullied him or her in another way (please write which one).	**A**	**B**	**C**	**D**	**E**

……

Appendix J: Essay Task for the Assessment of Argumentation Skills (I)

Why are some people more aggressive than others: were they born that way, or does it depend on how they were brought up?

(Answer the question by writing the best argument that you can).

Below it's a list containing some information that might be useful to you in writing your arguments.

- **Do we know something about the appearance of humans who are aggressive?**

The muscular type of body shape tends to show humans with more aggressive behaviours as can be seen in the study of Cortes and Gatti that is included in their book, which was first edited in New York. However, there are humans with a muscular type of body shape who are not engaged in aggressive behaviours at all, something that is indicated in the study of Montemayor from the university of Utah.

- **Can aggression be inherited through the genes?**

Humans inherit the trait of aggression from their genes. Genes contain genetic information about the development and function of the human organism. Some genes have been shown to have a relationship with aggressive behaviours. This can be seen from studies that involved identical twins who share the same genetic material, one of those studies is that by Reif, Rosler, Freitag, and others from the collaboration between universities of Germany and Wales.

- **Can children be influenced by their social environment and end up behaving aggressively?**

The research by Bandura from the university of Stanford showed that children can be affected by their social environment, leading them to aggressive behaviours. When children observe one person acting aggressively towards another, then children can learn to do this behaviour. However, many studies like the one by the researchers Beaver, DeLisi, Vaughn, and Wright that completed with the support of the health centre for the population of Carolina, are suggesting that there must be a group of inherited genes as a base for the expression of aggressive behaviours by the children.

- **Can aggression be linked with a medical problem?**

Children's aggression has been linked with a medical problem as can be seen from the study of Welham, Scott, Williams, Najman, Bor, O'Callaghan, and McGrath from the university of Queensland and medical centres in Queensland.

- **Can the parents influence their children, leading them to aggressive behaviours?**

Studies like the one by Shetgiri, Lin and Flores, which was presented at the conference of the pediatric academic societies, are showing that many aggressive children have parents who do not express their affection to them.

- **Do children with aggression face difficulties during social interaction?**

Many children who behave aggressively have been shown to have immature social skills according to the research of Crick and Dodge from the university of Vanderbilt in Nashville.

- **Can punishment from parents to children lead them to aggression?**

Studies like the one by Gershoff from the university of Texas in Austin have shown that parents who use physical punishment on their children can make them aggressive.

- **Do children have difficulties in managing their anger and as a result they behave aggressively?**

Many children who behave aggressively demonstrate poor anger management according to the study of Esposito from the Virginia Commonwealth university.

- **Is it possible that children with aggression did not have enough chances from their environment in order to develop their social skills?**

The research by Beaver, DeLisi, Vaughn, and Wright showed that children did not have enough opportunities from their environment in order to develop these skills. However, the expression of aggression by the genes can be inhibited with proper education from a child's environment, as can be seen in the study of the researchers Reif, Rosler, Freitag, and others.

Appendix K: Approval by the Ethics Committee of UCLan (II)

21 September 2020

Kalypso Iordanou / Christos Zenios
School of Psychology
University of Central Lancashire

Dear Kalypso / Christos

Re: PSYSOC Ethics Committee Application
Unique Reference Number: PSYSOC 457 Phase 2

The PSYSOC ethics committee has granted approval of your proposal application 'Investigating the relationships between cyber-bullying, self-efficacy and argument skill'. Approval is granted up to the end of project date.

It is your responsibility to ensure that

- the project is carried out in line with the information provided in the forms you have submitted
- you regularly re-consider the ethical issues that may be raised in generating and analysing your data
- any proposed amendments/changes to the project are raised with, and approved, by Committee
- you notify EthicsInfo@uclan.ac.uk if the end date changes or the project does not start
- serious adverse events that occur from the project are reported to Committee
- a closure report is submitted to complete the ethics governance procedures (Existing paperwork can be used for this purpose e.g. funder's end of grant report; abstract for student award or NRES final report. If none of these are available use e-Ethics Closure Report Pro forma).

Yours sincerely

Gavin Sim
Deputy Vice-Chair
Science Ethics Review Panel

* for research degree students this will be the final lapse date

NB - Ethical approval is contingent on any health and safety checklists having been completed and necessary approvals gained as a result.

Appendix L: Participants Information

Title of the research project: "Investigating the relationships between online behaviours, self-related beliefs and views on social issues"

What is the purpose of the study?

The first purpose is to examine whether there are relationships between online behaviours, self-related beliefs and views on social issues. The second is to examine individuals' views on a social topic through discussions with peers.

Why have I been invited to take part?

You have been invited because you are a psychology student at UCLan.

Do I have to take part?

No, your participation is voluntary and you can withdraw anytime during the assessments without the need to provide any reason for your withdrawal. We are kindly asking the participants to give a notice of 36 hours before withdrawing from the discussions given that activities require engagement with peers.

What will happen if I take part?

You will be asked to complete two scales and write your views about a social topic for phase 1. All will be electronically accessible and it will not take more than 30 minutes to finish, although you can finish earlier. After you will be asked to participate in two online sessions, where you will engage in written chats with peers about a social topic for phase 2. The sessions will last for about 3 hours and overall will be about 6 hours. After the two sessions, the same assessment that took place in phase 1 will be repeated. To become clearer, phase 1 includes the completion of two questionnaires, the one will be about online behaviours and the other will be about self-related beliefs, and there will be given a social topic to write your views on. For phase 2, two 3-hour online written chat sessions will occur on a particular topic where you will work in groups and break into pair work. After a month, you will repeat phase 1 (complete two questionnaires and an essay). No cameras and microphones will be allowed to be on and a record of your written chats will be collected.

How will my data be used?

Your data will be used anonymously for the researcher's doctoral thesis, for presentations at conferences and to publish journal articles. The University processes personal data as part of its research and teaching activities in accordance with the lawful basis of 'public task', and in accordance with the University's purpose of ''advancing education, learning and research for the public benefit''. Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University's research. The University privacy notice for research participants can be found on the attached link:

https://www.uclan.ac.uk/data_protection/privacy-notice-research-participants.php.

What will happen to my data?

Your data will be anonymised and safely stored in the UCLan's network, where access will have only the researcher by using a specific password. The data will be deleted after the completion of the researcher's PhD degree, which might take up to 4 years.

Are there any risks in taking part?

No, there is not any known risk in this research. However, in case of any distress either due to a questionnaire or due to a dialogue with a peer, you can find contact information of UCLan's wellbeing department below to get the support that you need.

Are there any benefits of taking part?

The benefits will be the opportunity to improve your critical thinking with a potentially positive impact on your academic performance and also the opportunity to expand your knowledge on popular and contemporary topics in social sciences through constructive social interactions.

Will I receive any incentives?

You will receive a certificate of completion after finishing phase 2. You will also gain 15 points in SONA if you are a psychology student in UCLan. More specifically, you will gain 4 points for phase 1 and 11 more points if you also participate in phase 2.

What will happen to the results of the study?

The results of this research will be part of the researcher's doctoral thesis, conference papers and journal articles and there is no risk for your identity to be revealed from the results.

What will happen if I want to stop taking part?

You can withdraw whenever you want while participating in phase 1 or phase 2. You do not need to provide any reason for your withdrawal and no further data will be stored. You do not need to do something particular, just send a message to the researcher during phase 2 and you can end the task that you were processing.

What if I have a concern or if there is a problem?

''If you have a concern, or if there is a problem, please feel free to let us know by using the contact information of the Principal Researcher underneath this page. If you remain unhappy or have a complaint that you feel was not addressed yet, then please contact the Research Governance Unit at officerforethics@uclan.ac.uk. The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113.''

Principal Researcher: Dr Kalypso Iordanou, Email: kiordanou@uclan.ac.uk

Supervisor Researcher: Dr Mike Eslea, Email: mjeslea@uclan.ac.uk

Student Researcher: Christos Zenios, Email: czenios@uclan.ac.uk

UCLan's Wellbeing Service, Phone: 0177 289 3020, Email: wellbeing@uclan.ac.uk

UCLan's Cyprus Student Support Phone: 24 694 050, Email: cyprusstudentsupport@uclancyprus.ac.cy

Consent Form

"Investigating the relationships between online behaviours, self-related beliefs and views on social issues"

Name of researchers: Dr Kalypso Iordanou, Dr Mike Eslea and Christos Zenios

Please select at the end of this document if you agree or not to all of the statements below.

1. I confirm that I have read and understood the information on the previous screen for the above research. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that taking part in the research involves completing online questionnaires and participating in online chats (only in phase 2), where a record of my texts will be stored until four years and then will be deleted.

3. I understand that my participation is voluntary and that I am free to stop taking part and can withdraw from the research at any time without giving any reason and without my rights being affected. In addition, I understand that I am free to decline to answer any particular question or questions.

4. I understand that if I withdraw from this research, data collected prior to my withdrawal will be retained but no further data will be collected.

5. I understand that after the end of my participation, I will no longer be able to request the withdrawal of the information I provide.

6. I understand that the information I provide will be held securely and in line with data protection requirements at the University of Central Lancashire.

7. I understand that forms and questionnaires will be retained, encrypted and safely stored in the researcher's computer and access can have only the researcher by the use of a password. After four years, all my information will be deleted.

8. I agree to take part in the above research.

Please choose one of the following:

◯ Yes, I agree.

◯ No, I do not agree.

Please write your student registration number if you like to be contacted for phase 2, if not write no:

Please write your preferred email address if you like to be contacted for phase 2, if not write no:

Debriefing

"Investigating the relationships between online behaviours, self-related beliefs and views on social issues"

We would like to thank you for your participation in this research. As was stated before, the first purpose of this research is to examine whether there are relationships between online behaviours, self-related beliefs, and views on social issues. The second is to examine individuals' views on a social topic through discussions with peers.

What will follow next for those who will continue in phase 2 is an email inviting them to participate in the two 3-hour sessions of written chats that will take place on a weekend. During the sessions, short breaks will be provided to the participants. After the two sessions, you will be asked after a month to complete a similar assessment that you have completed here to finish with both phases and receive a certificate of completion and 11 SONA points if you are a psychology student in UCLan. An additional benefit from your participation will be the opportunity to improve your critical thinking with a potentially positive impact on your academic performance.

We are reminding you that you can still withdraw from phase 2 at least 36 hours before the start of the discussions with peers. In the case of withdrawal during the discussions, we are kindly asking you to inform the researcher. We also reminding you that your data will be anonymised and safely stored in the UCLan's network, where access will have only the researcher by using a specific password. The data will be deleted after the completion of the researcher's PhD degree, which might take up to 4 years.

The results of this research will be part of the researcher's doctoral thesis, conference papers, and journal articles. Below, you can find contact information that has been provided earlier as well. Please feel free to make use of these contacts for any questions or concerns. You can also ask how the results can become available to you since you have the right to know about this research as a participant. In the case of distress due to the research, please use the contact information below to receive support. Once again, many thanks for your contribution to this research.

Principal Researcher: Dr Kalypso Iordanou, Email: kiordanou@uclan.ac.uk

Supervisor Researcher: Dr Mike Eslea, Email: mjeslea@uclan.ac.uk

Student Researcher: Christos Zenios, Email: czenios@uclan.ac.uk

UCLan's Wellbeing Service, Phone: 0177 289 3020,

Email: wellbeing@uclan.ac.uk

UCLan's Cyprus Student Support, Phone: 24 694 050,

Email: cyprusstudentsupport@uclancyprus.ac.cy

Appendix M: Essay Task for the Assessment of Argumentation Skills (II)

Is the use of illegal drugs best reduced by educating people about its dangers or by making drugs less available?

(Write the argument that you would present to somebody who has the opposite view from yours to show that your position is better. Write at least two arguments.)

Below it's a list containing some information that might be useful to you in writing your arguments.

How much is spent on purchase of illegal drugs?
Drugs are used around the world, but the US continues to be the largest market for purchase of illegal drugs. Americans spend about $100 billion a year on illegal drugs. Much of this expenditure makes its way back to other countries to support drug production.

What are the dangers of using illegal drugs?
The dangers of using illegal drugs include addiction, physical and mental health problems, job loss, and relationship problems.

Is it easy to obtain illegal drugs?
It can be easy to obtain illegal drugs. Teens commonly obtain illegal drugs at school, at home, online, and by using false IDs.

How common is drug use around the world?
Drug use is common around the world. It is estimated that in 2012, between 162 million and 324 million people, corresponding to between 3.5 per cent and 7.0 per cent of the world population aged 15-64, had used an illicit drug.

How often do people die as a result of drug use?
In the US about 570,000 people die each year as a result of drug use. 22,000 of these deaths are related to illegal drugs.

Who sells illegal drugs?
A study showed that many illegal drug dealers had tough childhoods and have been drug users themselves since an early age. More than half did not complete high school, and two thirds have served a prison sentence. They thus have limited job opportunities.

Is there a relation between school activity and drug use?
Studies show that students who are engaged and involved in schools and communities are less likely to use drugs.

Is drug availability related to teens' drug use?
Research shows that teens use substances in social settings during their early teen years, most often with drugs that are readily available. Some become regular uses or progress to other illegal drugs.

Can drug education programs be effective in preventing drug use?
Programs vary in effectiveness. Studies show that the most effective programs are interactive, focus on drug resistance and social skills, and take place over multiple years. Young people who participate in such programs have lower rates of drug use than those who do not participate.

Does increased drug availability increase use?
When illegal drugs are available to people, they are more likely to use them. Recently, for example, heroin has become more accessible and the number of new users has gone up.

Have drug education programs been proven effective in reducing drug use?
Not all drug education programs currently in use have been supported by research. A review of several studies showed that teens enrolled in prevention programs were just as likely to use drugs as those not enrolled in the program.

How can drugs become less available?
To make drugs less available, drug enforcement must increase internationally, with more inspections in airports and in cities. Also necessary is agreement among countries that reducing the drug supply is an important priority.

Appendix N: Cyber-Bullying and Victimization Experiences Questionnaire (CBVEQ)

Please answer how frequently you have experienced what is saying in the following statements during the last month. You can choose one of the following by checking your chosen option.

1) Has anybody sent you a message (via cell phone or the Internet) in order to mock you, or talk badly to you?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

2) Have you sent a message to someone (via cell phone or the Internet) in order to mock her/him or talk badly to her/him?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

3) Has anybody sent you a message (via cell phone or the Internet), pretending to be somebody else, in order to treat you badly?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

4) Have you sent a message to someone (via cell phone or the Internet), pretending you're somebody else in order to treat her/him badly?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

5) Has anybody sent others a message (via cell phone or the Internet) in order to mock you, speak badly about you, or say things about you that are not true?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

6) Have you sent others a message (via cell phone or the Internet) in order to mock a third person, speak badly about her/him, or say things about her/him that are not true?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

7) Has anybody sent photos or videos of you to others, without your permission, in order to mock you?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

8) Have you sent photos or videos of someone to others, without her/his permission, in order to mock her/him?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

9) Has anybody shown your messages to others (via cell phone or the Internet), without your permission, in order to mock you, speak badly about you, or say things about you that are not true?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

10) Have you sent or shown messages of someone to others (via cell phone or the Interne), without her/his permission, in order to mock her/him, speak badly about her/him, or say things about her/him that are not true?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

11) Has anybody purposely sent you a file containing a virus?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

12) Have you purposely sent someone a file containing a virus?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

13) Has anybody taken your cell phone, and used it without your permission in order to pretend she/he is you and sent messages or make calls to your friends and acquaintances?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

14) Have you taken the cell phone of another person, and used it without her/his permission in order to pretend you are her/him and sent messages or made calls to her/his friends and acquaintances?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

15) Has anybody written or uploaded something on your social network profile (e.g., Facebook, Twitter) in order to mock you, or talk badly to you?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

16) Have you written or uploaded something on someone's social network profile (e.g., Facebook, Twitter) in order to mock her/him, or talk badly to her/him?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

17) Has anyone said bad things about you on the Internet in order to make your friends un-friend, "block" or dislike you?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

18) Have you said bad things about someone on the Internet in order to make her/his friends un-friend, "block" or dislike her/him?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

19) Has anybody sent you a message (via cell phone or the Internet) in order to threaten you?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

20) Have you sent someone a message (via cell phone or the Internet) in order to threaten her/him?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

21) Has anybody written something about you on the Internet, that you didn't want others to see?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

22) Have you written something about someone on the Internet, that she/he didn't want others to see?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

23) Has anybody logged into a personal account of yours (e.g., e-mail, social network site) without your permission?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

24) Have you logged into someone's personal account (e.g., e-mail, social network site) without her/his permission?

1. Never	2. One to two times	3. Sometimes	4. Many times	5. Every or almost every day

Appendix O: Self-Efficacy Questionnaire (SEQ)

Please indicate your choice for one of the options below on how well you can perform the following actions.

1) How well can you get tutors to help you when you get stuck on study work?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

2) How well can you express your opinions when other coursemates disagree with you?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

3) How well do you succeed in cheering yourself up when an unpleasant event has happened?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

4) How well can you study when there are other interesting things to do?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

5) How well do you succeed in becoming calm again when you are very scared?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

6) How well can you become friends with other young people?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

7) How well can you study a chapter for a test?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

8) How well can you have a chat with an unfamiliar person?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

9) How well can you prevent to become nervous?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

10) How well do you succeed in finishing all your study work every day?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

11) How well can you work in harmony with your coursemates?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

12) How well can you control your feelings?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

13) How well can you pay attention during every lecture?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

14) How well can you tell other coursemates that they are doing something that you don't like?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

15) How well can you give yourself a pep-talk when you feel low?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

16) How well do you succeed in understanding all modules in your course?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

17) How well can you tell a funny event to a group of young people?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

18) How well can you tell a friend that you don't feel well?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

19) How well do you succeed in satisfying your parents with your study work?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

20) How well do you succeed in staying friends with other young people?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

21) How well do you succeed in suppressing unpleasant thoughts?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

22) How well do you succeed in passing a test?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

23) How well do you succeed in preventing quarrels with other young people?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

24) How well do you succeed in not worrying about things that might happen?

1. Not at all	2. Slightly	3. Somewhat	4. Enough	5. Extremely

Appendix P: Dialogue Task for the Intervention

Should a family arriving from a foreign country be permitted to educate their child at home and not send the child to school?

1. **Who sets the curriculum for a home-schooled child?**

The family is free to set the curriculum usually within certain guidelines.

2. **Who sets the curriculum for a public school child?**

School districts along with cities and the government have education departments that decide what all children need to learn.

3. **How do home-schooled students perform on achievement tests?**

Research shows that home-schooled students perform well on achievement tests. One study found that home-schooled students performed between 18% and 28% better on an achievement test than public school students.

4. **Do most schools have specialists to help children if they have specific problems like a learning disability?**

Almost every public school has a special education teacher on staff full-time. There are usually laws that protect and ensure special education services are provided to any child that has a need.

5. **Are home-schooling parents qualified to teach their children?**

Home-schooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects.

6. **How easily do children learn a second language?**

Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

7. What can a home-schooled student do for sports and activities?

There are many sport teams, programs, and activities at local hubs and recreation centres that any children can attend.

8. Is working with a group in school good for children?

Group projects can help students develop many skills that are increasingly important in the work world.

9. Can home-schooled students do well in college?

A study showed that home-school students (66.7%) graduated from college at a higher rate than public school students (57.5%).

10. What are the requirements to be a public school teacher?

A public school teacher must go through teacher training programs and classes and must pass certification exams to become a certified teacher.

11. Is home-schooling legal?

Home-schooling is legal in both the UK and the US. However, it is illegal in Cyprus.

12. How many students are in a typical classroom?

The typical middle school classroom has usually a minimum of 20 students.