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Compassion in ABA: Examining the interpersonal abilities of ABA (Applied Behaviour Analysis) practitioners who work with autistic adolescents

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Abstract

This study uses the principles of applied behaviour analysis to examine the interpersonal abilities of professionals interacting with teenagers who have autism in a school context. To gauge interpersonal abilities related to the 16PF personality assessment, participants filled out anonymous self-report surveys. To assess the participants' interpersonal abilities, indirect observations were made on recordings of the observations using digital recording equipment. To gauge participant behaviour, partial interval recording and competency tests were used. Scores from the questionnaire and observation were converted into behavioural artistry scores, and comparisons were made (Callahan et al., 2019). According to the findings, participants had highly developed interpersonal and empathetic abilities connected to behavioural creativity. Analysis shows a strong correlation between participant demonstration of behaviours associated with 'warmth'. Results differ from those that Callahan et al. reported for ABA practitioners (2019). Conclusion: In school settings, ABA practitioners exhibit high degrees of behaviour artistry and empathetic abilities.

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Contents

<i>List of Tables and Figures</i>	9
<i>1.Introduction</i>	11
<i>1.1.Chapter Overview</i>	11
<i>1.1.1 Chapter 1- Introduction</i>	11
<i>1.1.2 Chapter 2- Literature Review</i>	11
<i>1.1.3 Chapter 3- Methodology</i>	11
<i>1.1.4 Chapter 4- Results</i>	11
<i>1.1.5 Chapter 5- Discussion</i>	11
<i>1.1.6 Chapter 6- Conclusion</i>	11
<i>1.2 Introduction</i>	11
<i>1.3 Research aims</i>	12
<i>1.4 Literature review</i>	12
<i>1.5 Research relevance</i>	12
<i>2.0 Literature Review</i>	13
<i>2.1 Autism Spectrum Disorders (ASD)</i>	13
<i>2.2 Applied Behaviour Analysis (ABA)</i>	15
<i>2.3 ABA and ASD</i>	15
<i>2.4 ABA and ASD- Controversy and criticisms</i>	18
<i>2.5 ABA's response to its controversies</i>	19
<i>2.6 Compassionate practitioners</i>	20
<i>2.8 Chapter conclusions</i>	22
<i>3.0 Methodology</i>	23
<i>3.1 Introduction</i>	23
<i>3.2 Design/ data collection</i>	23
<i>3.2.1 Variables</i>	23
<i>3.3 Materials used</i>	27
<i>3.3.1 Audio-visual recordings</i>	27
<i>3.3.2 Questionnaire</i>	27
<i>3.3.3 Data sheets</i>	28
<i>3.3.3.i Partial interval recording</i>	28
<i>3.3.1.ii Competency assessment</i>	29
<i>3.4 Data analysis</i>	30
<i>3.4.1 Questionnaire</i>	30
<i>3.4.1.i Coding</i>	30
<i>3.4.1.ii Analysis</i>	31
<i>3.4.2 Observations</i>	33
<i>3.4.2.i Likes People</i>	33
<i>3.4.2.ii Perception Sensitivity and Looks for the pony</i>	34

3.5 Procedure	35
3.5.1 Ethical Approval	35
3.5.2 Setting	35
3.5.3 Participants	36
3.5.4 Questionnaire	37
3.5.5 Observations	37
3.5.5.i Requirements for observations	37
3.5.5.ii Participant preference	38
3.5.6 Audio-visual recordings	38
3.5.7 Observation data collection	39
3.6 Ethical considerations	40
4.0 Results	41
4.1 Questionnaire	41
4.1.i Demographic results	41
4.1.ii Personality assessment results	42
4.2 Observation results	46
4.2.1 Likes People	46
4.2.2 Perception Sensitivity	49
4.2.3 Looks for the pony	49
4.2.4 Behavioural Artistry	50
5.0 Discussion	52
5.1 Introduction	52
5.2 Overview	52
5.3 Summary of findings	53
5.4 Questionnaire results	53
5.5 Observation results	55
5.5.1 Likes People	56
5.5.2 Perception Sensitivity	57
5.5.3 Looks for the pony	58
5.6 Behavioural Artistry	59
5.7 Limitations	60
5.7.1 Time constraints	60
5.7.2 Sample size	60
5.7.2 The 16PF test	61
5.7.3 Extraneous variables	61
5.8 Future recommendations	61
6.0 Conclusion	63
8.0 APPENDIX	74
8.1 Appendix 1: SCHOOL OF SOCIAL SCIENCES, EDUCATION AND SOCIAL CARE-ETHICS APPROVAL	74

8.2 Appendix 2: EMAIL TO PARTICIPANTS, INVITING THEM TO INITIAL DISCUSSION PRO-FORMA	75
8.3 Appendix 3: INVITATION LETTER TO POTENTIAL PARTICIPANTS	76
8.4 Appendix 4: PARTICIPANT INFORMATION SHEET	77
8.5 Appendix 5: PARTICIPANT CONSENT FORM	79
8.6 Appendix 6: DIGITAL QUESTIONNAIRE- Microsoft Forms	81
8.7 Appendix 7: PARTIAL INTERVAL DATA SHEET FOR CHARACTERISTICS: LIKES PEOPLE PLUS COMMUNICATION SKILLS	99
8.8 Appendix 8: PERFORMANCE COMPETENCY ASSESSMENT FOR CHARACTERISTICS: LOOKS FOR THE PONY, PERCEPTION SENSITIVITY PLUS COMMUNICATION SKILLS	100
8.9 APPENDIX 9: THE 16PF SCORING SCALE	101

List of Tables and Figures

	Page #	
Figure 1	Questions requiring a single-choice answer	27
Figure 2	Questions requiring a single-choice answer	28
Figure 3	The 5-point rating scale participants used to rate their agreement/disagreement with a statement	28
Figure 4	Formula used to calculate scores for each behavioural indicator	33
Figure 5	Formula used to calculate “Likes People” score as a percentage	33
Figure 6	Formula used to calculate overall percentage of skills demonstrated associated with the characteristics “Perception Sensitivity” and “Looks for the pony”	34
Table 1	Coding for the personality factor “Warmth”	30
Table 2	Coding to convert 5-point scale into numerical data	31
Table 3	16PF factors corresponding to Foxx’s (1998) Behavioural Artistry characteristics	32
Table 4	16PF Factors corresponding to Foxx's Behavioural Artistry characteristics measured in observations	32
Table 5	Participant demographics	41
Table 6	Confidence in practice across participants	42
Table 7	Descriptive statistics for the sample group across 16PF personality factors associated with Behavioural Artistry (Foxx, 1998) characteristics and overall Behavioural Artistry score	43
Table 8	Comparison of scores for “Warmth” and “Perfectionism” against Callahan et al.’s (2019) sample groups	45
Table 9	Overall Behavioural Artistry percentage comparisons between sample group and Callahan et al. (2019)	45
Table 10	Participant scores for “Likes People”	48

Table 11	Mean ratings for “Likes People” behavioural indicators across participants and High/Low-BA groups	48
Table 12	“Perception Sensitivity” observation scores across participants	49
Table 13	“Looks for the pony” observation scores across participants	50
Table 14	Behavioural Artistry score across participants	51
Table 15	Individual participant scores for “Likes People” and “Perception Sensitivity”	58

1.Introduction

1.1.Chapter Overview

1.1.1 Chapter 1- Introduction

A succinct summary of the paper's contents, including its goals and main research objectives.

1.1.2 Chapter 2- Literature Review

To put the goals of this research into context, a summary of recent research on ABA criticisms, the field's response, and compassionate practice is given.

1.1.3 Chapter 3- Methodology

This chapter discusses the methodology chosen for the research and provides a comprehensive account of the methods and steps used.

1.1.4 Chapter 4- Results

Tables were utilised in this chapter to present the research's results in-depth.

1.1.5 Chapter 5- Discussion

In this chapter, the results are more thoroughly examined and an interpretation is provided.

1.1.6 Chapter 6- Conclusion

The main findings of this research are summarised.

1.2 Introduction

Compassionate practice in ABA is being called into question, particularly by the autistic community. As a result, the primary goal of this research is to investigate the interpersonal skills of practitioners who work directly with autistic adolescents. It should be noted that the researcher will avoid using person-first language (PFL) for the purposes of this study and instead refer to autistic people using identity-first language (IFL), as current literature shows that IFL is the preferred terminology for many autistic people (Botha, Hanlon, & Williams, 2021; Bury et al., 2020; Dwyer, 2022; Dwyer et al., 2021; Gernsbacher, 2017; Kenny et al., 2016; Sinclair, 2013).

1.3 Research aims

The research intends to investigate: 1. Do experienced practitioners employed to assist young autistic people, specifically adolescents, in their education demonstrate interpersonal and compassionate skills? 2. How do these abilities appear through the lens of behavioural artistry? 3. Is there a correlation between practitioner self-report and skill performance?

1.4 Literature review

The purpose of the literature review is to provide a broad overview of Autism Spectrum Disorders (ASD) and the science of Applied Behaviour Analysis (ABA) before focusing on the criticism directed at the field, but also its response. In addition, a closer examination of the concept of behavioural artistry (Foxx, 1998) and contemporary research on it (Callahan et al., 2019) will be included.

1.5 Research relevance

A Google search for the phrase “ABA criticism” yields approximately 1,910,000 results. The first page of the Search Engine Results Page (SERP) primarily contains links to blogs and news articles written by autistic advocates and allies (DeVita-Raeburn, 2016; Child Mind Institute, 2022; Autistic Mama, no date; Parker, 2015; Autistic Science Person, no date). Related terms include “ABA therapy horror stories”, “Is ABA harmful 2022?”, “ABA is abuse”, “Long term effects of ABA”, “Alternatives to ABA”, and “Why I left ABA”. This suggests that the field has a problem that needs to be addressed directly, both in the literature and by practitioners working directly with autistic people in the field. It is simply not acceptable for the field to acknowledge the existence of these criticisms; we must listen to them and critically analyse our practice, both as a field and as individuals. It is insufficient to respond to these comments by claiming that ABA has moved on from unethical conduct. If the field is to be used in the education of autistic children in the future, these issues must be addressed. In light of this, research into ABA practitioners' interpersonal and compassionate skills is both relevant and necessary. This poses the question: who are we hiring to work with vulnerable people?

2.0 Literature Review

This chapter reviews the literature surrounding Applied Behaviour Analysis (ABA) and its association with the autistic community. The chapter will look at the history of behaviour analysis, how it is used in the education of autistic children, and how it is criticised. Furthermore, the chapter will discuss the field's response to these criticisms before introducing the concept of behavioural artistry. Before concluding, the chapter will discuss research gaps.

2.1 Autism Spectrum Disorders (ASD)

Autism Spectrum Disorders (ASD) are complex neurodevelopmental disabilities that are lifelong. Professionals use the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013) and the International Classifications of Diseases (World Health Organization, 2018) as guidelines when making a diagnosis. Autism is still in its infancy in science, with the first official diagnosis occurring less than 80 years ago and its inclusion in the DSM not occurring until 1980. (Wright, 2017). As a result, changes to the diagnostic material occur as our understanding of ASD grows. An illustration of this are the recent text revisions to the fifth edition of the DSM (DSM-5-TR, 2022). There are amendments to the diagnostic criteria for ASD in this revision. The DSM-5-TR (2022) indicate that autism presents as “persistent deficits in social communication and interaction across multiple contexts, as manifested by all of the following”: deficits in social-emotional reciprocity, nonverbal communicative behaviours used for social interaction, and in developing, maintaining, and understanding relationships. These symptoms occur in conjunction with restrictive, repetitive patterns of behaviour, interests, or activities, and symptoms must be present in early development and cause significant impairment in functioning. The International Classification of Diseases (ICD-11, 2018) is more commonly referred to in the UK and its diagnostic criteria states that ASD is characterised by 1. “persistent deficits in the ability to initiate and sustain reciprocal social interaction and social communication”, 2. Restricted and repetitive atypical or excessive behaviours and interests, 3. The onset occurs during early development. The DSM-5-TR and the ICD-11 diagnose ASD similarly, with a few semantic differences. Both acknowledge that ASD is a pervasive feature in all settings, that severity varies between individuals, and that it can be masked thus,

preventing early diagnosis. Autism statistics show that 1 in every 44 children in the United States is autistic (CDC, 2018), and according to NHS Autism Statistics (NHS Digital, 2022), there were approximately 122,000 open referrals for an autism assessment in June 2022, an increase of 34,000 from the previous year. More people are being diagnosed autistic. Why is this?

Russell et al., (2021) conducted a study in the UK to investigate the trends in autism diagnoses over 20 years and the results imply that an increased trend in autism diagnoses is due to an increase in adults and those that identify as female receiving a diagnosis. It suggests that changes in identification and recording of autism diagnoses is a contributing factor to the increase across these two groups. Furthermore, an increase in the general public's understanding of autism alongside significant cuts to children's assessment services may be contributing factors. Consequently, it is likely that ASD diagnoses will continue to rise.

With an increasing number of people being diagnosed with a lifelong neurodevelopmental disorder, there is a greater need for early diagnosis and the provision of appropriate support and accommodations, and these needs will be accompanied by rising costs. According to Buescher et al. (2014), 40-60% of autistic people have additional co-morbid intellectual disabilities, and the associated care costs for this population in the UK range between £3.1-3.4 billion for children and £29-31 billion for adults. According to Knapp et al. (2009), these significant fees contribute to specialist education, respite care, and health and social care. Barrett et al. (2015) estimated that the average cost of supporting autistic adolescents in the UK is £11,029 every six months. The high costs of adult care highlight the critical need for appropriate early childhood provisions.

2.2 Applied Behaviour Analysis (ABA)

Applied Behaviour Analysis (ABA) is a science that grew from Skinner's theory of respondent and operant behaviour (1938). ABA is concerned with the improvement of socially significant behaviours (Cooper et al., 2020) and the science has seven key dimensions: applied, behavioural, analytic, technological, conceptually systematic, effective, and generality (Baer et al., 1968). The principles of ABA have been used in research across various populations, including social marketing, treatment of drug addictions, language development in dementia patients, gun safety, and organisational management (Geller, 1989; Silverman et al., 2002; Aggio et al., 2018; Miltenberger, 2004; Reid and Parsons, 2000). The aim of ABA is to improve socially significant behaviours, and as such, it is often applied in the education of autistic individuals. However, ABA should not be considered as a treatment for autism. According to Dillenburger and Keenan (2009), ABA is a science whose techniques can be applied to help various populations, including the autistic population. Dillenburger and Keenan attempt to dispel the myth, to show that ABA is not a pseudo-science (Foxy, 2016), and to address the ABA and autism lexicon. Dillenburger and Keenan agree that ABA is an evidence-based practise that has directly improved outcomes for autistic people.

2.3 ABA and ASD

Cooper et al. (2020) define ABA as the application of behavioural principles to improve socially significant behaviours through experimentation to identify the variables responsible for behaviour change.

Eiekesth et al., (2007) attribute the continued growth of the use of ABA interventions to improve the outcomes for autistic individuals and their families to the pioneering work of Lovaas. Lovaas' 1987 study on early and intensive behavioural interventions (EIBI) used a large sample size of 38 individuals, an approach not typically used in behaviour analytic research, which favours a single subject design in which the subject serves as their own control (Cooper et al., 2020). The results demonstrated improved outcomes for the group receiving EIBI, and as the study was conducted over several years it demonstrated that EIBI was both effective and had generality, and as such it had substantial influence in the development of interventions for autistic individuals.

According to the research, ABA can be used to teach autistic people skills that increase independence and decrease behavioural barriers, however there is a deficit in the research related to the outcomes for older pupils (Pitts, Gent, and Hoerger, 2019).

ABA strategies can be used to teach new skills in discrimination training. Stimulus prompts (such as positional, redundant, and movement prompts) and response prompts (such as verbal instructions, modelling, and physical prompts) are two approaches to increasing skill acquisition. Prompting can be used to teach solitary play skills, conversation skills, play skills, social skills, and the acquisition of receptive skills in DTT (Libby et al., 2008; Swerdan and Rosales, 2017; Quigley et al., 2018; Lopez and Wiskow, 2020; Markham et al., 2020). As a result, prompting is an evidence-based teaching strategy for people with developmental disabilities (Hayes, 2013).

The appropriate prompt is chosen based on the skill being taught and the needs of the individual. Most-to-least prompting starts with physical prompts and gradually reduces their intrusiveness, whereas least-to-most prompting starts with visual prompts and gradually increases their intrusiveness. According to Libby et al. (2008), most-to-least prompting is an effective strategy to use if response errors are likely to impact skill learning and elicit challenging behaviours. Libby et al., (2008) emphasise the importance of tailoring prompt techniques to the individual learner.

While prompting is an effective teaching method, it can lead to prompt dependency. Wolery and Gast (1984) demonstrated the effectiveness of transfer trials in skill teaching for shifting control from the prompt to the stimulus (SD), in conjunction with systematic prompt fading. Grow and LeBlanc (2013), likewise, recommend identifying the most effective prompts when teaching a new skill and limiting prompt dependency through systematic prompt fading procedures. To reduce prompt dependency, Grow and LeBlanc argue that these approaches must be used in conjunction with differential reinforcement and regular systematic preference assessments.

Task analyses and chaining, in addition to prompt procedures, are ABA procedures that can be used to increase behaviours. Task analyses (backward chaining, forward chaining, and total task) are methods for breaking down a skill into smaller components in order to teach a skill that would otherwise be too difficult to learn. Task analysis is an evidence-based practise for teaching echoic skills, age-appropriate leisure skills in adults, self-help skills,

play skills, and motor skills (Tarbox et al., 2009; Jerome et al., 2007; Stokes et al., 2004; Wibowo and Tedjasaputra, 2018).

In comparison to EIBI research, Matson et al. (2012) discovered that the effectiveness of evidence-based strategies for teaching socially significant adaptive living skills (such as work, leisure, self-help, hygiene, and feeding skills) is understudied. This research gap ignores the needs of autistic people who do not have access to early intervention. Young people in the UK do not have easy access to EIBI, and it has been reported that it is not cost-effective (McCandless and Hoerger, 2022), emphasising the need for more research into using ABA strategies to teach living and academic skills that can be easily accessed and replicated, regardless of age or socioeconomic status.

ABA strategies can be used to decrease significant challenging behaviours that put the individual and/or others at risk, making ABA an effective and socially valid technology. All behaviour is communication, including behaviours that are perceived as challenging. As such, practitioners have an ethical responsibility to ensure that functional communication training (FCT) and the teaching of functionally equivalent socially appropriate behaviours occur alongside behaviour reduction strategies (such as differential reinforcement, extinction, Premack Principle, noncontingent reinforcement, and High Probability Request Sequencing).

An example of a significant behavioural barrier that would be targeted for reduction is self-injury. Self-injurious behaviour (SIB) can cause significant harm to the individual and can be a risk to life. It is reported that SIB occurs in up to 50% of autistic children and adults (Summers et al., 2017). As such, practitioners have a duty of care to support individuals who engage in SIB to find alternative behaviours that are less harmful. It has been identified that SIB can have multiple functions (Iwata et al., 1994), so strategies to support its reduction must be tailored to the individual and match the function of the behaviour. Dracobly et al. (2012) demonstrated that SIB precursors could be identified, and that a treatment based on the results of a precursor functional analysis could reduce the occurrence of SIB in the natural environment. In the reduction of SIB among the autistic population, ABA has demonstrated its social validity as an applied science.

2.4 ABA and ASD- Controversy and criticisms

Despite the evidence in the literature that ABA is an evidence-based teaching strategy that can improve outcomes for autistic people, it is not without criticism. Practitioners have a responsibility to listen to and critically engage with these concerns.

As previously stated, the impact of Lovaas' 1987 study into EIBI can be directly attributed to advances and development in the field of behaviour analysis. It is, however, under intense scrutiny from ABA critics. EIBI in its approach is suggested to make the individual appear “less autistic” (Mottron, 2017, pp 816), which calls into question its social validity. If the evidence-based practice results in a reduction in the presentation of autistic characteristics, it can be concluded that the primary goal is to make autistics invisible amongst a predominantly allistic population through the guise of improved outcomes (Ne’eman, 2021). As such, this indicates that the lexicon of “improved outcomes” is predominantly concerned with the visibility of autism.

Both the DSM-5-TR and ICD-11 include engagement in repetitive behaviours in their diagnostic criteria of ASD, and the reduction of self-stimulatory behaviours, or ‘stimming’, has been the focus of much research (Foxy and Azrin, 1973; Watters and Watters, 1980; Epstein et al., 1985; Durand and Carr, 1987; Zissermann; 1992; Celiberti et al., 1997). However, a growing voice in the autistic community is speaking out against this. Autistics have described self-stimulatory behaviour as a self-regulation strategy to cope with sensory overload from the environment or to communicate intense emotions and thoughts, but these behaviours are frequently not socially accepted. Kapp et al. (2019) conducted a recent study in which they interviewed 32 autistic adults to better understand their stimming experiences. ABA procedures used to reduce stimming are explicitly referred to as “abuse” by one participant (pp.1787), and these claims cannot be dismissed. The results of this study suggest that stimming is a useful behaviour to autistic people in enabling self-regulation in allistic environments. Autistics seek societal acceptance for non-harmful stimming, and Kapp et al. suggest that practitioners can make simple accommodations for autistic people to reduce the need for stimming that does not punish the autistic person (such as environmental changes). Furthermore, practitioners should acknowledge that both autistic and allistic people stim as a coping strategy, but that allistic stims (e.g., biting nails, playing with hair, foot-tapping) are perceived as more socially acceptable.

Autistic voices are becoming more common in research, and recent studies have shown an increase in anti-ABA content (Bottema-Beutel et al., 2020; McGill and Robertson, 2020; Milton, 2014; Sandbank et al., 2020; Sandoval-Norton & Shkedy, 2019; Shkedy et al., 2019; Wilkenfeld, 2020). Sandoval-Norton and Shkedy (2019) argue that ABA interventions are abusive because they deliberately ignore current autism research. It implies that ABA produces people who are taught to comply, are unable to care for and advocate for themselves, and are forced to appear less autistic. This risk of emotional and psychological harm contradicts the ethical code of conduct to "do no harm" (BACB Code, 2020, pp.4). Kupferstein (2020) reports that parents are removing their children from ABA services because of observations of trauma symptoms. Kupferstein (2018) claims that ABA is a factor in increased PTSD symptoms in autistic people. According to the findings, 46% of study participants experienced PTSD symptoms as a result of their involvement with ABA therapy as children. This is a shocking statistic that prompted further investigation. Leaf et al. (2018) have since disputed Kupferstein's claims, calling the research's validity into question. Leaf et al. challenge the reported findings, claiming that Kupferstein demonstrated a hypothesis testing bias, a bias in respondent selection, and used ambiguous language to sway respondents' responses.

While the validity of Kupferstein's study is debatable, it does not negate the existence of such research, and ABA practitioners must continue to recognise that the prevalence of anti-ABA research will increase. The next steps that practitioners take will determine the science's longevity.

2.5 ABA's response to its controversies

Rajaraman et al. (2022) discuss the field's responsibility in recognising the possibility of trauma among its service users. While Leaf et al. (2018) criticised Kupferstein's (2018) research methodology, Rajaraman and colleagues (2022) argue that the field must provide a "compassionate" (pp. 54) counterargument that considers the criticisms and provides suggestions for how the field can do better. It is proposed that the field can increase the dignity and humanity it shows its service users by involving the client in decision making from the start by encouraging choice and incorporating measures of the client's approach or refusal to sessions. According to Rajaraman and colleagues (2022), these measures have the potential to avoid traumatising or retraumatising clients in our care while also increasing the

social acceptability of ABA services. Similarly, Fletcher-Watson et al., (2019) calls for collaboration between autistic and non-autistic people in research built around respect, authenticity, assumptions, infrastructure, and empathy. The study suggests that this will result in improved outcomes for autistic people.

The practice of ABA must be trauma-informed and compassionate. The inclusion of autistic voices to guide the development of the field will ensure the validity of ABA as an evidence-based practice. Subsequently, trauma-informed and compassionate ABA must be demonstrated in both its research and applications. As such, it is of vital significance that the staff are as compassionate as the interventions they deliver. Therefore, it is of interest to the field to investigate characteristics and qualities of staff employed to work with autistic children and adults.

2.6 Compassionate practitioners

What makes a practitioner compassionate? What observable behaviours and what intrinsic qualities do they have? And how do we go about measuring them?

Despite their importance in clinical care, there are gaps in the research on the development of empathy and compassionate skills in ABA practitioners (Taylor et al., 2019). As such, there is not presently a training package to teach these skills or guide recruiters (Pastrana et al., 2016), but preliminary suggestions for compassionate checklists are beginning to appear in the literature (Rohrer, et al., 2021). As the demand for ABA services and its criticisms grows, the interpersonal skills of its practitioners are socially valid.

However, the literature does suggest that the interpersonal skills of practitioners can affect outcomes (Foxy, 1998). Foxy suggested that practitioners who follow a strict behavioural manual when delivering ABA services are more likely to lack interpersonal skills and are less likely to succeed in changing behaviours. Foxy described these practitioners as “Behavioral Artists” (Foxy, 1998, pp.14).

Foxy defined the qualities and interpersonal skills of behavioural artistry as:

- **Likes People:** is able to build rapport and demonstrate concern; wants to facilitate positive change;
- **Has “perceptive sensitivity”:** can pay close attention to small, subtle, and gradual indicators of behaviour;

- **Doesn't like to fail:** sees difficulty as a challenge to overcome and an opportunity to support an individual to succeed;
- **Has a sense of humour:** recognises and accepts that much in the world of educational and human services is bizarre, illogical, and humorous;
- **Looks "for the pony":** is optimistic and sees behaviour change in a "glass half-full" context; believes programming will be successful and is less likely to burn out;
- **Is think-skinned:** does not take negative actions towards themselves personal, and can maintain positivity;
- **Is "self-actualised":** will do whatever is necessary and appropriate to facilitate and produce positive behaviour change, is creative, and is not under audience control (Callahan et al., 2019; Foxx, 1985, 1998).

Callahan et al. (2019) used these definitions in a recent study to investigate the interpersonal skills of ABA practitioners and compare them to the interpersonal skills of other professionals (including human and non-human service providers). Callahan et al. identified practitioners who demonstrated behavioural artistry characteristics using a self-report questionnaire and indirect observations of practitioners engaging with service users. The methodological approach used is "conceptually systematic" and "technological" (Cooper et al., 2020, pp.32), making replication simple.

The findings of Callahan et al. (2019) are relevant to the field and this study. It implies that trained ABA practitioners have the poorest interpersonal skills and thus the least empathy in their practise. These preliminary findings highlight the critical need for further research into compassionate practise in ABA, as well as the development of empirical training models to teach these interpersonal skills to practitioners.

The findings are significant to this study because they served as the impetus for the research. The researcher wanted to critically engage with the field's criticisms and investigate practitioners' interpersonal skills in order to confirm or refute the findings made by Callahan et al. that ABA practitioners are significantly lacking in interpersonal skills.

2.8 Chapter conclusions

The goal of this study is to replicate the behavioural artistry study (Callahan et al., 2019) in a “different format of ABA therapy” (pp. 3568) than that used by Callahan and colleagues in order to “determine if any differences exist” (pp. 3568) in the findings, as per the paper’s recommendations. It seeks to assess the presence or absence of behavioural artistry characteristics among staff working with autistic adolescents in a school setting. For the purposes of this study, the observations will be limited to staff behaviour, and the data reported will reflect this. There will be no inclusion of data relating to the behaviour of the students observed with the participants.

By replicating the methods used by Callahan et al. (2019), the researcher is intending to determine whether the characteristics of a behavioural artist are prevalent among staff in their setting. The Callahan study demonstrated the potential to advance the field and directly address humanistic blind spots in the use of ABA therapy. Replicating the methods used by Callahan et al., (2019) will evaluate the efficacy of the techniques used to assess behavioural artistry qualities. It is worth noting, however, that the validity of the findings made by Callahan et al., (2019) is limited due to a lack of current replications.

3.0 Methodology

3.1 Introduction

The chapter that follows provides an overview of the research methodology. It describes the research design, participants, materials used and, and methods of data collection. It describes the procedure of gathering data as well as the methods used during data analysis. The chapter concludes with a discussion of the research's ethical considerations.

3.2 Design/ data collection

The purpose of this research was to report on the quality of practitioner interpersonal skills in the researcher's workplace. The researcher intended to use the results of this dissertation to design and implement an interpersonal skills assessment for staff professional development. Descriptive research was determined to be the best design for investigating this phenomenon. Descriptive research collects data on a population without manipulating the environment to provide information. Participants' therapeutic and interpersonal skills were assessed using quantitative methods in this observational study. These findings were used to assess the behavioural artistry characteristics of individual participants as well as the sample group as a whole. It consisted of two parts: a questionnaire and an observation.

This research set out to describe the characteristics of practitioners using quantifiable data measurement and statistical analysis.

3.2.1 Variables

i. Explanatory variable

The occurrence/ non-occurrence of behaviours associated with therapeutic and interpersonal skills.

ii. Response variable

The percentage of behavioural artistry characteristics present in the sample group.

iii. Confounding variables

Observer bias: The researcher's prior knowledge and interest in the interpersonal skills of practitioners supporting young autistic people could affect the conclusions formed from the results.

What measures were put in place to mitigate effects?

- The researcher utilised the same measurement tools used by Callahan et al. (2019).
- Questionnaires were filled out online, using a secure platform (MS Forms). To make the responses anonymous, the researcher unchecked the 'Record Name' box in the settings pane. As a result, MS Forms did not save respondents' names or email addresses. The researcher conducted a blind analysis of the anonymous responses and was unable to match a response to a participant. This prevented individual questionnaire scores from influencing the researcher's scoring during the observations.
- The observations chosen for analysis were selected at random. This was accomplished by assigning a numerical value of '1' or '2' to each participant's two recorded sessions. To determine which video would be used during data collection, the researcher tossed a coin. Session 1 was chosen if the coin landed on 'heads'. Session 2 was chosen if the coin landed on 'tails'. This was done for all participants, and the researcher did not watch the video that was not chosen by a coin toss.
- All components of this research were digitally recorded and stored on a secure OneDrive account, in line with Queen's University Belfast's privacy policy. The questionnaire responses and recorded observations were made readily available for an IOA to be conducted if required.
- Statistical analysis was conducted on data collected to identify mean averages and standard deviation scores.

iv. Extraneous variables

Demand characteristics: Due to the researcher's positioning in the setting, it was conceivable that participants were at risk of feeling pressured or wanted to behave

in a way they thought the researcher desired. This would have impacted the results' internal validity.

What measures were put in place to mitigate effects?

- Participation in the research was entirely voluntary and potential participants were informed of their freedom to choose whether or not to participate. Participants were informed explicitly of their freedom to withdraw consent, without consequence (see Appendix 4).
- Questionnaires were completed online. For this portion of the research, there was no in-person contact between participants and the researcher.
- Anonymised questionnaire responses reduced any pressure to respond to statements in a “socially-desirable” way.
- Participants were not given access to the data sheets used by the researcher, nor were they informed of the target behaviours subject to measurement.
- Participants were not aware which observation would be selected for data analysis.

Individual characteristics of participants: Participants' behaviour is influenced by their diverse backgrounds and experiences. Observation at work, stress, anxiety, time of day, confidence, and experience are all examples of potential factors that could influence target behaviours. It was critical that these factors be planned for and that mitigation measures be put in place.

What measures were put in place to mitigate effects?

- Potential participants were notified that participation in the study was voluntary; they were informed that they could choose to participate, or not, and they were told that they could discontinue their participation at any time without negative consequences (see Appendix 4).
- Participants were explicitly informed of the risks involved with participating in the Participant Information Sheet (see Appendix 4). Participants were advised on the appropriate support to seek if they experienced anxiety or stress as a result of being observed.
- The sample group was formed of experienced practitioners only.

- The researcher was readily available to answer any questions or concerns throughout this research.
- Observations is common practice in this setting, as such, participants were accustomed to frequent observations as part of their professional development.
- Participants chose when their observation occurred across the course of a specified week.
- Participants were observed with a pupil they supported frequently. This prevented participant behaviour being altered in response to working on an unfamiliar programme.
- Observations were conducted in the natural class environments. Participants were in charge of the session's content and resources.
- The consent form (see Appendix 5) consisted of 17 statements, each of which explicitly stated an aspect of the research requiring informed consent. Participants were required to indicate consent with a checkmark (✓) in the box provided when completing the consent forms. Any statements that had a cross symbol (✗) or a blank box were flagged as lacking consent. Furthermore, at the bottom of the form, participants were required to make a final declaration stating whether or not they wanted to participate in the research by checking (✓) the applicable statement.

3.3 Materials used

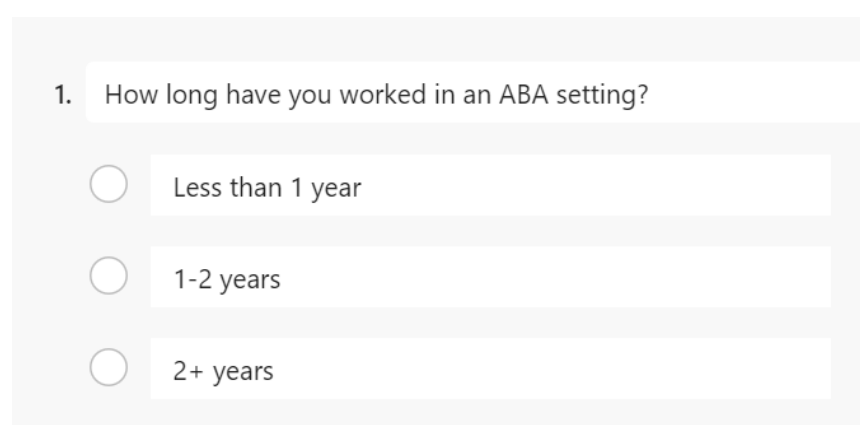
3.3.1 Audio-visual recordings

The observations of participants were recorded on a secure digital recording device borrowed from the school. All sessions were recorded on a Samsung Galaxy Tab A SM-T290, a device that was familiar to all participants and was commonly used in classrooms.

3.3.2 Questionnaire

Questionnaires are an efficient way to collect data because they are inexpensive, simple to replicate, and can be useful when gathering information on sensitive topics (Patten, 2014, pp.2). This section of the study was designed to collect information on participant characteristics, therefore a questionnaire was chosen as the best method of data collection. Questions were adapted from The Sixteen Personality Factor Questionnaire (16PF) used in Callahan et al(2019).’s study, with additional demographic questions added (see Appendix 6).

The questionnaire consisted of 166 closed-ended questions and took about 16 minutes to complete on average. Figures 1-2 show how single-choice answers were used to collect data on the duration of experience working in the field of ABA and the length of time in the advanced practitioner role. Figure 3 depicts the remaining questions, which required participants to rate their agreement or disagreement with a statement using a 5-point Likert scale. To allow adequate time for data analysis, the survey was open to participants for three weeks after consent was received.



1. How long have you worked in an ABA setting?

Less than 1 year

1-2 years

2+ years

Figure 1: Question requiring a single choice answer

2. How long have you held the position of 'advanced practitioner'?

Less than 1 year

1-2 years

2+ years

Prefer not to say

Figure 2: Question requiring a single choice answer

1.	2.	3.	4.	5.
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

Figure 3: The 5-point rating scale participants used to rate their agreement/disagreement with a statement

3.3.3 Data sheets

3.3.3.i Partial interval recording

Partially interval recording, as used by Callahan et al. (2019), was used to assess the characteristic ‘Likes People’ and participant communication skills (see Appendix 7).

The term ‘Likes People’ was defined as “observable demonstrations of enjoyment and concern, directed toward the client” (Callahan et al., 2019, pp.3562). This characteristic was associated with four behavioural indicators: pleasant facial expression, tone of voice, sustained eye gaze, and body proximity and orientation towards the client. To maintain validity with Callahan et al.(2019), the same indicators were used in this research. To ensure internal consistency with scoring, the researcher topographically defined each behaviour indicator and included examples and nonexamples (see Appendix 7).

Callahan et al.(2019) collected partial interval scoring over a 10-minute observation period; however, because this study aimed to collect data on multiple behavioural artistry

characteristics, partial interval scoring was only used on the first 5-minutes of the observations.

Each interval lasted ten seconds, resulting in 30 intervals to collect data on, represented by 30 boxes on the data sheet. Occurrences of a target behaviour were marked with a '+' for the corresponding interval, whereas intervals with no target behaviours were marked with a '-'.

3.3.1.ii Competency assessment

The researcher created a competency assessment to assess the traits “Perception Sensitivity” and “Looks for the Pony” (see Appendix 8). The researcher topographically defined behavioural indicators for each characteristic and provided examples and nonexamples of observable behaviour using the definitions provided by Callahan et al. (2019).

Data was collected on behaviours that occurred after the 5-minute mark. Unlike the data collection method used for “Likes People”, data was collected on the entire observation rather than in intervals. On the data sheet, occurrences and non-occurrences were denoted by '+' and '-'.

3.4 Data analysis

3.4.1 Questionnaire

3.4.1.i Coding

Statistical and descriptive analysis was utilised to summarise the data collected from the questionnaires. The results were used to calculate individual and group personality scores based on similarities and differences in participant responses.

The raw data from MS Forms was downloaded to Microsoft Excel for analysis. The 16PF scoring scale (see Appendix 9) was used to code each statement as either ‘Positive’ or ‘Negative’ based on the key for each personality factor. If a statement was keyed as ‘+’ on the 16PF scoring scale, that statement was coded as ‘Positive’ in Excel, while any statement keyed as ‘-’ were coded as ‘Negative’. Table 1 depicts how each statement in the questionnaire associated with the personality factor “Warmth” was coded using the 16PF scoring scale as reference.

Statements used to measure the personality factor “Warmth”	The 16PF scoring scale (+/-)	Data analysis code
I know how to comfort others	+	Positive
I enjoy bringing people together	+	Positive
I feel others’ emotions	+	Positive
I take an interest in other people’s lives	+	Positive
I cheer people up	+	Positive
I make people feel at ease	+	Positive
I take time out for others	+	Positive
I don’t like to get involved in other people’s problems	-	Negative
I am not really interested in others	-	Negative
I try not to think about the needy	-	Negative

Table 1: Coding for the personality factor “Warmth”

The 5-point Likert scale responses were coded and assigned a numerical value to translate the textual responses into numerical data for analysis. These numerical values were used to assign a score for each response, dependent on the option selected and the assigned data

analysis code. The ‘Positive’ and ‘Negative’ codes were used to set these values, as shown in Table 2.

	Statements coded ‘Positive’	Statements coded ‘Negative’
Strongly Agree	5	1
Agree	4	2
Neither agree nor disagree	3	3
Disagree	2	4
Strongly Disagree	1	5

Table 2: Coding to convert 5-point scale into numerical data

3.4.1.ii Analysis

Responses were converted into numerical data for statistical analysis. Each personality factor was analysed individually. Individual mean scores for each personality factor were calculated and converted into an overall percentage. The mean scale scores for each participant per personality factor were then calculated and converted into a percentage. The mean scores were combined to calculate the average group score for each personality factor. The sample's standard deviation was calculated using Excel's STDEV.S function, and the data spread was analysed to draw conclusions about the similarities and differences between participants.

The findings of Callahan et al(2019)'s statistical modelling produced a hypothesis for the characteristics of a behavioural artist. It was determined that a behavioural artist would exhibit "warmth, emotional stability, liveliness, social boldness, self-assurance, openness to change, self-reliance, and perfectionism" (Callahan et al., 2019, pp.3561). The same factors and corresponding behavioural artistry characteristics were used in this study to calculate an overall behavioural artistry score for the sample group, as shown in Table 3. These were compared to the findings of Callahan et al. (2019) to see if they reached similar conclusions.

16PF Pole correlated with Behavioural Artistry characteristics	Behavioural Artistry (Foxx, 1998) characteristics
Warmth	Likes People
Emotional Stability	Thick-skinned
Liveliness	Likes People; Looks for the pony
Social Boldness	Self-actualised; Thick-skinned
Self-Assurance	Self-actualised
Openness to change	Perception sensitivity; Sense of humour
Self-Reliance	Self-actualised
Perfectionism	Does not like to fail

Table 3: 16PF factors corresponding to Foxx's (1998) Behavioural Artistry characteristics

Finally, questionnaire results were compared to observation results. The researcher used the 16PF poles associated with behavioural artistry as listed by Callahan et al. (2019, pp.3561, Table 2) to identify which personality factors associated with the behavioural artistry characteristics would be subject to measurement (Table 4). To investigate the deviation between self-report personality assessments and skill performance, the mean scores of the observation data were compared to the mean score of the questionnaire data.

16PF Pole correlated with Behavioural Artistry characteristics	Behavioural Artistry (Foxx, 1998) characteristics measured during observation
Warmth, Liveliness	Likes People
Open to change	Perception Sensitivity
Liveliness	Looks for the pony

Table 4: 16PF Factors corresponding to Foxx's Behavioural Artistry characteristics measured in observations

3.4.2 Observations

3.4.2.i Likes People

The percentage score for each behavioural indicator was calculated using the formula shown in Figure 5. Any trials that received a 'Not Applicable' score were excluded from the calculation. Using the formula in Figure 6, the total trials with a '+' across the five behavioural indicators were combined to calculate an overall score for "Likes People" for each participant.

The mean average score was calculated across participants and converted into an overall percentage. To note the data spread, the standard deviation of scores was calculated.

$$\frac{\text{Number of trials (intervals) scored +}}{\text{Total number of trials (intervals)}}$$

$$\times 100 = \text{Percentage of trials where target behaviour was demonstrated}$$

Figure 4: Formula used to calculate scores for each behavioural indicator

$$\frac{\text{Number of trials (intervals) scored + across all behaviours}}{\text{Total number of trials}}$$

$$\times 100 = \text{'Likes People' \%}$$

Figure 5: Formula used to calculate "Likes People" score as a percentage

3.4.2.ii Perception Sensitivity and Looks for the pony

Each participant's total percentage score was calculated using the formula presented in Figure 7. To understand the range of the data, the mean average score and standard deviation were calculated. In order to measure individual and group mean scores and determine similarities and differences, the results under each characteristic were combined.

$$\frac{\textit{Total skills scored} +}{\textit{Total number of skills measured}} \times 100 = \textit{Percentage of target skills demonstrated}$$

Figure 6: Formula used to calculate overall percentage of skills demonstrated associated with the characteristics “Perception Sensitivity” and “Looks for the pony”

3.5 Procedure

3.5.1 Ethical Approval

Ethical approval was obtained from the School Research Ethics Committee (SREC) at Queen's University Belfast before proceeding with this research (see Appendix 1).

Additionally, the researcher emailed the Head of School and the internal research committee to request ethical permission within the context. A statement outlining the research justification, the information sheet (Appendix 4), and the memorandum of ethical approval (Appendix 1) were given to each of them.

For the observations to take place, the Head of School provided a letter of consent, and the internal research committee granted ethical consent via email. Staff and pupil progress is monitored through frequent observations, and parents and guardians are required to provide written informed consent for such observations to occur without prior notice during enrolment. The letter, outlining this policy, was submitted to the SREC to explain why informed consent from the guardians of pupils working with participants was not required. The SREC approved of this. As a result, the researcher was only required to obtain informed consent from the adult staff members.

3.5.2 Setting

The research was conducted in an inner-city secondary school in England, whose ethos is based on behaviour analysis. Across Key Stages 3, 4, and 5, enrolled students receive bespoke curriculums delivered through a multidisciplinary framework of applied behaviour analysis (ABA), verbal behaviour (VB), speech and language therapy, and occupational therapy. Individualised curriculums are taught to each student one-on-one by trained staff.

It is not necessary for employees to have a background in ABA because specialised training is provided from the start of employment. Training continues after the probationary period to ensure skill competency and practise. The staff is a diverse group of practitioners with a wide range of backgrounds, experiences, and skills.

The school has a variety of teaching spaces, including classrooms, a pupil kitchen and utility suite, a gym, a playground, and a sensory room. As this was a descriptive study, the researcher did not manipulate the environment, so observations were not limited to a single

location. The location of the observation was chosen by the participants, and 89% of the observations were conducted in the participants' individual classrooms.

3.5.3 Participants

Participants in the study were practitioners who worked with young autistic people in the research setting. At the time of the study, the intended sample group worked as advanced practitioners. This group was chosen because of their potential to provide valuable insight into practitioners' interpersonal skills. This criteria was met by 20 members of staff; however, due to the constraints of the academic year, it was determined that this was too large a sample to collect comprehensive data from. To identify suitable candidates, a set of inclusion criteria was developed. Seven people in the initial group did not meet this requirement. Staff departures at the end of the academic year (n=3) and a change in job role in the new year (n=4) were among the reasons for exclusion. 13 eligible participants (11 females and 2 males) came from a variety of backgrounds and had varying levels of experience working with autistic students in a school setting.

Participants were approached after full ethical consent had been obtained by the SREC (see Appendix 1). The eligible candidates were sent an email inviting them to an informal discussion with the researcher, and it was made clear that attendance was entirely voluntary (see Appendix 2). The researcher explained the study's rationale during this discussion, and each attendee received an individualised information pack. A formal invitation letter to participate in the research, a Participant Information Sheet, and a Consent Form were included in this pack (see Appendices 3,4,5).

The researcher is in a higher position than the participants, as such it was critical to dispel any misconceptions that participation was mandatory. This was accomplished by explicitly stating in the information sheet that participation was entirely voluntary and that there would be no negative consequences for declining the offer. It was also communicated that participants could withdraw their consent up until the point of data analysis. The Consent Form required participants to expressly consent to each aspect of the study and provided an option to decline participation. To reduce the risk of researcher influence on their decision, participants were given a week to read through the information pack.

The consent forms were returned by 9 of the 13 candidates approached by the deadline (female=8; male=1). All participants gave their full consent to all aspects of the study. The

participant and the researcher both signed and dated each consent form. A digital copy was kept on a secure OneDrive account, with hard copies kept in a locked office.

3.5.4 Questionnaire

Each participant was individually emailed from the researcher's university email address with a link to the questionnaire to be completed via MS Forms, a secure online survey platform, and a deadline for completion.

Responses were downloaded onto Excel for analysis after the deadline had passed and all observations were complete.

3.5.5 Observations

Over the course of a week, observations were made. The observation week was divided into 30 minute time blocks, and participants were asked to choose a first and second preference of day and time for these observations to take place. The researcher was able to accommodate all of the participants' initial preferences.

3.5.5.i Requirements for observations

- Prepare two different sessions in advance
- Each session must be 15 minutes long
- Observations must be recorded on a digital recording device
- The participant's face must be visible, and their voice must be clearly picked up on the recording device
- There is no interaction between the participant and the person filming while the filming is taking place.
- ***The focus of the observations was observable behaviour, body language, and communication skills of the participants. As a result, having access to the pupil-specific data recorded by participants during these observations was not required.***

3.5.5.ii Participant preference

Participants were given freedom to choose aspects of the observations if the above criteria were met. Participants were given the following options:

- Teaching methods: Participants chose whether the session structure would use DTT or NET teaching approaches.
- Session content was determined by the participants. Participants were reminded to make sure the content was age appropriate, aligned with student interests, and took advantage of available learning opportunities.
- Location of the observation: Participants chose the location of the observation and could choose a different location for each observation.
- Resources: Participants were free to use any resources and materials available to them, in accordance with the pupil's interests and programme.

3.5.6 Audio-visual recordings

The collection of 18 digital recordings, each lasting 15 minutes, was required for the second part of this research. In order to collect 4.5 hours of footage in a timely manner, the researcher enlisted the assistance of two colleagues to gather the digital recordings. The goal of the study was not disclosed to these colleagues in order to maintain objectivity and prevent them from accidentally sharing information with participants that could affect their behaviour during the observation. The requirements for the observation and participant preferences were shared to ensure that the appropriate material was collected. Furthermore, the participant's name, as well as the date and time of the sessions they needed to record, were given to both.

Before proceeding, the researcher confirmed with both the participant and the pupil to ensure that it was a good time to conduct the observation.

The digital recording device was set up so that the participant's face and body could be seen clearly on the screen. A sound test was performed to ensure that their voices were audible and understandable when played back.

Those who were filming made sure to avoid drawing attention to themselves while they were recording. Participants might relocate to new sites while the digital recording equipment followed them. If any unforeseen circumstances developed (such as a student requiring emotional and/or physical support and their dignity needing to be maintained), the recording would be interrupted. At the fifteen-minute point, the recording would terminate. A second check-in was done to make sure the participant was prepared to start the following session. In that case, participants were given some time to get ready. A new recording started as soon as they signalled that they were ready to continue. At the fifteen-minute mark, the recording was over. The participant was thanked for their time and commitment to the study after the recordings were concluded.

Sessions were immediately uploaded to a secure PC and transferred to the researcher's OneDrive account post-session.

3.5.7 Observation data collection

Hard copies of the data sheets were used to record observation data. The researcher watched the videos in their office, and to protect the privacy of the participants, the videos were only viewed when no other staff were present.

The researcher was required to record data on each of the five behaviour indicators separately for the partial interval data sheet. To collect data, the first 5 minutes of each video were replayed five times. A stopwatch was used to mark the beginning and end of each trial. To begin a trial, the web player's playback button and the stopwatch's start button were both pressed simultaneously, and both were paused after 10 seconds. The information would then be recorded on a data sheet. These steps were repeated until all 30 trials for each behavioural indicator were completed.

The remaining 10 minutes of footage were watched to collect competency assessment data for each participant.

Following the collection of both sets of data from the nine participant videos, the raw data was entered into Excel for analysis.

3.6 Ethical considerations

The purpose of this research required strict adherence to ethical requirements in research, in line with The School of Social Sciences, Education and Social Work Ethics Committee at Queen's University Belfast, the internal research committee within the research setting, and the BACB Ethics Code, sections 6.01-6.11 (BACB Code, 2020, pp.17-18).

To support participant well-being, specific measures had to be implemented. It was critical that participants freely provided informed consent without coercion or fear of repercussions, and that they were aware of their right to withdraw without consequence or reason.

Furthermore, participants needed to be explicitly informed of the potential risks that could arise as a result of their participation, as well as the resources available to them to help with any stress or anxiety they may experience.

It is critical that the researcher is aware of the obligations owed to participants. As a result, after each observation, participants were thanked for their time and contributions, and the researcher was on hand to answer any questions they had (Cohen et al., 2018, pp.137).

All data collection, storing, and processing needed to be in line with Queen's University Belfast's privacy policy (Queen's University Belfast, 2022) and the General Data Protection Regulation (GDPR) and Data Protection Act (2018).

4.0 Results

4.1 Questionnaire

4.1.i Demographic results

The purpose of this study was to examine the interpersonal skills of practitioners working one-on-one with autistic teenagers in a secondary school and compare them to Foxx's (1998) behavioural artistry characteristics. Table 5 shows the demographic statistics gathered from the questionnaire data for length of time in the current job role and length of time in the field.

The total number of eligible participants in this study was 9 (n=9), with 8 being female and 1 being male. When this study was conducted, 100% of the participants (n=9) held the position of advanced practitioner, with varying levels of experience. The anonymous online questionnaire was completed by 88% (n=8) of the 9 consenting participants by the deadline.

Demographic of consenting participants		Total number
Total participants		9
Gender		
	Female	8
	Male	1
Total number of responses received from anonymous online questionnaire		8
Length of experience working in an ABA setting		
	Less than 1 year	3
	1-2 years	5
	2+ years	0
Length of experience in the advanced practitioner role		
	Less than 1 year	8
	1-2 years	0
	2+ years	0

Table 5: Participant demographics

Participants were asked to consider and rate their level of confidence as ABA practitioners.

Participants were asked the following:

“Rate your confidence as an ABA practitioner. This involves your understanding of ABA and its principles and how to apply these in your everyday practice with ‘1’ meaning “not confident at all” and ‘10’ being “extremely confident”.

Table 6 displays the responses of participants. 100% of respondents (n=8) rated their confidence in practice as a score of 6 or higher. Of these, 50% (n=4) rated their confidence as a 7 out of 10, 37.5% (n=3) rated their confidence as an 8 out of 10, and 12.5% (n=1) rated their confidence as a 6 out of 10. The range of values chosen (R=2) shows that participants viewed their confidence in practice similarly.

Practitioner confidence on a scale of 1-10 value	Frequency of responses
1	0
2	0
3	0
4	0
5	0
6	1
7	4
8	3
9	0
10	0
Total	8

Table 6: Confidence in practice across participants

4.1.ii Personality assessment results

Table 7 displays descriptive statistics for participant personality scores in the following categories: warmth, emotional stability, liveliness, social boldness, self-assurance, openness to change, self-reliance, and perfectionism.

	Mean percentage %	Mean scores $\Sigma = \frac{x_i}{n}$	Variance $s^2 = \frac{\sum_{i=1}^n f(m_i - \bar{x})^2}{N-1}$	Standard deviation $\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \mu)^2}$
Warmth	64.75%	3.24	1.75	1.32
Emotional Stability	67.00%	3.41	1.37	1.17
Liveliness	64.00%	3.19	1.44	1.20
Social Boldness	61.75%	3.09	1.44	1.20
Self-assurance	58.75%	2.94	1.32	1.15
Openness to Change	72.75%	3.64	0.99	1.00
Self-reliance	52.50%	2.62	1.70	1.30
Perfectionism	60.75%	3.08	1.55	1.25
<i>Behavioural Artistry</i>	63.34%	3.18	0.22	0.47

Table 7: Descriptive statistics for the sample group across 16PF personality factors associated with Behavioural Artistry (Foxy, 1998) characteristics and overall Behavioural Artistry score

Table 7 displays the statistics of participant scores across the personality factors identified by Callahan et al. as being most associated with behavioural artistry (2019). The 5-point Likert scale is used to calculate the mean scores and mean percentage. Higher scores indicate that the associated personality factor is more prevalent in the sample group. The data show that all personality factors have moderate scores (2.62-3.64 on a 5-point scale). According to the questionnaire results, the personality factor “Self-reliance” has the lowest mean score ($M=2.62$) and mean percentage (52.50%), indicating that the sample group does not exhibit characteristics associated with self-reliance as frequently as other personality factors. Callahan et al. (2019) found that self-reliance was the least frequent occurring personality factor in the High-BA group (38.5%). The mean score ($M=2.94$) and mean percentage (58.75%) for “Self-assurance” are both low. “Openness to change” has the highest mean score ($M=3.64$) and mean percentage (72.75%), as well as the lowest variance ($s^2 = 0.99$) and standard deviation ($s.d. = 1.00$), this characteristic was also most frequently observed in the High-BA group (Callahan et al., 2019).

Except for one participant who scored 36% in self-reliance, all participants scored at least 50% in all areas. As a result, 87.5% of the eight questionnaire participants (n=7) demonstrated the eight characteristics associated with behavioural artistry.

Based on the questionnaire responses, the combined behavioural artistry score is 63.34%. Individual behavioural artistry scores exceeded 55% for all questionnaire participants (n=8). 75% of participants (n=6) received a score between 60.86 and 65.86%. Over 70% was achieved by 12.5% of participants (n=1).

Participants would perform well in the observations, according to the questionnaire results, because “Likes people” is associated with “Warmth” (64.75%) and “Liveliness” (64%), “Perception Sensitivity” is associated with “Openness to change” (72.75%), and “Looks for the pony” is associated with “Liveliness” (64%) and those behavioural artistry characteristics were subject to measurement in the observations.

The mean scores for “Warmth” and “Perfectionism” are shown in Table 8. It compares the results of this study's participants to the sample groups in Callahan et al.'s study (2019). Participants in this study performed the worst in both areas when compared to the other five groups. However, Callahan et al.(2019)'s ABA participant scores for both areas are the closest in range. The mean scores indicate that professionals outside of the field of behaviour analysis exhibit a higher level of behavioural artistry in these areas than trained ABA practitioners. Due to the lack of an individual breakdown of mean scores for each personality factor in Callahan et al. (2019), it was not possible to compare scores for the remaining six factors.

Table 9 compares the overall behavioural artistry score for questionnaire participants to the sample groups used by Callahan et al. (2019). Participants in this study had a lower mean score for “Warmth” and “Perfectionism”, but they had the highest combined behavioural artistry score (63.34%). The combined special education sample group had the smallest range (54.4%). However, it is unclear whether the higher score is due to participant experience in their job role, the setting having employed staff from a diverse range of professional and academic backgrounds, or another factor entirely. While this is true, it is important to note the differences in sample sizes. Since this study used a much smaller sample size than Callahan and colleagues (2019), it is unclear whether the combined behavioural artistry score would change significantly with a larger sample size. Future research should conduct a larger scale

personality assessment with ABA practitioners to compare with the findings of Callahan et al. (2019).

		Callahan et al. sample groups (2019)				
	<i>ABA Practitioners in this research (N=8)</i>	<i>ABA (N=49)</i>	<i>Special education (N=31)</i>	<i>Rehabilitation counselling (N=35)</i>	<i>Other human services (N=61)</i>	<i>Non-human services (N=36)</i>
Warmth	3.24	4.14	5.39	6.16	5.93	4.19
Perfectionism	3.08	4.57	6.39	5.45	5.14	5.59

*Moderate statistical differences for all group data on “Warmth” and “Perfectionism”: $p = 0.02$. Bonferroni post hoc analysis indicates participants in this research scored statistically different to non-human services ($p=0.241$) and special education services ($p= 0.108$). Bon-ferroni post hoc analysis indicates less statistical difference between participants in this research and the ABA group ($p= 0.08$), rehabilitation counselling group ($p= 0.073$), and other human services ($p= 0.094$)

Table 8: Comparison of scores for “Warmth” and “Perfectionism” against Callahan et al.’s sample groups (2019)

		Callahan et al. sample groups (2019)															
		ABA			Special education			Rehabilitation counselling			Other human services			Non-human services			
		Combined	External	Autism Centre	Combined	External	Autism Centre	Combined	External	Autism Centre	Combined	External	Autism Centre	Combined	External	Autism Centre	
Behavioural artistry score %.	<i>ABA practitioners in this research (N=8)</i>	63.34	42.60	40.20	43.60	54.40	53.50	53.1	45.4	44.4	53.1	49.4	45.4	50.4	39.9	34.7	54.2

Table 9: Overall Behavioural Artistry percentage comparisons between sample group and Callahan et al. (2019)

4.2 Observation results

The participants (n=9) who contributed to the observation portion of this study oversaw choosing the structure and teaching method of their individual observations. Participants could choose between DTT and NET sessions. 88.8% of participants (n=8) chose a NET approach to their session, which was proportionately higher than the DTT approach (n=1). It is unclear whether this reflects participant confidence in those procedures, but it should be noted that the setting gradually phased out DTT sessions in favour of a more natural and easily replicable skills teaching approach as students progressed through the school. As a result, the dominance of NET sessions over DTT may be due to participants selecting the most functional and appropriate teaching method for the student.

The observation results include participant scores for the behavioural artistry characteristics “Likes People”, “Perception Sensitivity”, “Looks for the Pony”, and a combined behavioural artistry score. Furthermore, comparisons to the questionnaire results and Callahan et al. (2019)'s observation scores for “Likes People” are provided.

4.2.1 Likes People

The trait “Likes People” was measured using four behavioural indicators: pleasant facial expression, positive tone of voice, sustained gaze, and body proximity and orientation (Callahan et al., 2019). In addition, data on participant communication skills was gathered.

Table 10 displays the partial interval data recorded for each behavioural indicator across all participants (n=9). In all intervals under observation (n=30), 22.2% of participants (N=2) exhibited behaviours associated with each behavioural indicator (see Appendix 7). Overall, participants scored the lowest in communication skills ($M= 90.24$), but none of the overall mean scores fell below 90%. Positive tone of voice had the highest overall score ($M= 99.14$), with 88.8% of participants (n=8) achieving 100% across all intervals.

Communication and sustained gaze had the widest range of scores ($C= 30$, $SG= 24.14$), while positive tone of voice had the narrowest ($PToV= 7.7$). While participants' communication styles varied, they all used similar tones of voice.

The range of mean scores across participants was low ($x= 11.73$), indicating that, while individual performances varied, the sample group as a whole exhibits “Likes People”

behaviours to a similar extent. The standard deviation between the lowest and highest overall scores is statistically significant ($s.d. = 8.29$).

The questionnaire's combination of scores for the personality factors “Warmth” and “Liveliness” yields a score for the behavioural artistry characteristic “Likes People” (Callahan et al., 2019). Based on the questionnaire results, the overall “Likes People” score for participants was 64.38%. This is statistically significant in comparison to the overall “Likes People” observation scores ($M = 95.67\%$). The variance in the questionnaire and observation mean ($s.d. = 22.13$) shows a gap between participant demonstration of interpersonal skills and personal perception of interpersonal skills.

Table 11 compares the participant mean scores across behavioural indicators with the High and Low-BA groups in Callahan et al. (2019)’s study. Participants in this study scored higher overall ($M = 97.03$) than the High ($M = 80.46$) and Low-BA ($M = 79.94$) groups. The scores for pleasant facial expression differ statistically significantly across the three groups ($s^2 = 1898.27$; $s.d. = 43.56$). In comparison to the High and Low-BA groups, participants in this study demonstrated a higher frequency of behaviours associated with pleasant facial expressions. Participants also used a more positive tone of voice more frequently. Under sustained gaze ($s^2 = 8.70$; $s.d. = 2.95$) and body proximity and orientation ($s^2 = 2.56$; $s.d. = 1.60$), participants scored lower than the High and Low-BA groups, but the statistical differences across the three groups were not as significant as those under pleasant facial expression. DTT sessions accounted for 64.1% of all High-BA group sessions and 87.5% of all Low-BA group sessions. In comparison, DTT sessions account for 11.1% of the sessions observed in this study.

Likes People	Participants 1-9									
	1*	2	3	4	5	6	7	8	9	Overall mean per indicator %
PFE	100.00	100.00	92.30	100.00	92.59	100.00	95.45	100.00	100.00	97.82
PToV	100.00	100.00	100.00	100.00	100.00	100.00	92.30	100.00	100.00	99.14
SG	100.00	93.33	85.71	100.00	75.86	96.15	96.15	100.00	100.00	94.13
BPO	80.00	100.00	93.33	100.00	100.00	100.00	100.00	100.00	100.00	97.04
C	100.00	96.66	70.00	100.00	92.59	96.66	62.96	100.00	93.33	90.24
Total Mean score %	96.00	98.00	88.27	100.00	92.21	98.56	89.37	100.00	98.67	95.67

PFE- Pleasant facial expression, PToV- Positive tone of voice, SG- Sustained gaze, BPO- Body proximity and orientation, C- Communication

*Participant 1 conducted a DTT session

Table 10: Participant scores for “Likes People”

		Callahan et al. sample groups (2019)		
		Participants	High-BA	Low-BA
Total # of sessions	DTT	1	25	34
	NET	8	14	5
PFE		97.82	31.27	15.83
PToV		99.14	91.87	89.49
SG		94.13	100.00	97.58
BPO		97.04	99.72	99.90
Total mean		97.03*	80.46	79.94

DTT- Discrete Trial Training, NET- Natural Environment Teaching, PTE- Pleasant facial expression, PToV- Positive tone of voice, SG- Sustained gaze, BPO- Body proximity and orientation, C- Communication

* Communication scores were not included in the overall mean score calculations to ensure that comparisons with the High-BA and Low-BA groups were valid. As a result, the overall mean score in Table 10 is different.

Table 11: Mean ratings for “Likes People” behavioural indicators across participants and High/Low-BA groups

4.2.2 Perception Sensitivity

Table 12 depicts the presentation of the characteristic “Perception Sensitivity” across participants based on competency assessment results. The scores were variable across participants, with a range of 54.55 between the highest and lowest score. There were high levels of standard deviation ($s.d.= 21.75$) and sample variance ($s^2= 473.49$). 22.2% of participants scored 100% ($n=2$), whilst 33.3% ($n=3$) received a total score of 50% or lower.

The personality factor “Openness to change” is associated with the behavioural artistry characteristic “Perception Sensitivity” (Callahan et al., 2019). The overall mean score for “Openness to change” among questionnaire respondents was 72.75%, and it was the factor in which respondents scored the highest. For this characteristic, the statistical difference between the questionnaire and observation results is minimal ($s.d.= 1.88$).

	Participants 1-9									Overall mean score
	1*	2	3	4	5	6	7	8	9	
Competency assessment score (%)	50.00	75.00	50.00	83.33	45.45	100.00	91.66	83.33	100.00	75.41

*Participant 1 conducted a DTT session

Table 12: “Perception Sensitivity” observation scores across participants

4.2.3 Looks for the pony

Based on competency assessment results, Table 13 depicts participant presentation of interpersonal skills associated with the characteristic “Looks for the pony”. Similarly to “Perception Sensitivity”, there was significant variation in participant scores, with a 50.00 difference between the highest and lowest score. There were high levels of standard deviation ($s.d.= 18.48$) and sample variance ($s^2= 341.56$). Two participants (22.2%) received a total score of 100% and two participants (22.2%) received a score below 60%.

The personality trait “Liveliness” is linked to the behavioural artistry trait “Looks for the pony” (Callahan et al., 2019). According to questionnaire responses, the overall mean score for “Liveliness” was 64.00%. The overall mean score for participant observations was 75.08% in comparison. In comparison to “Perception Sensitivity”, this resulted in a larger statistical difference between questionnaire and observation results ($s.d.= 7.83$).

	Participants 1-9									Overall mean score
	1*	2	3	4	5	6	7	8	9	
Competency assessment score (%)	85.71	57.14	50.00	64.28	71.42	85.71	61.53	100.00	100.00	75.08

*Participant 1 conducted a DTT session

Table 13: “Looks for the pony” observation scores across participants

4.2.4 Behavioural Artistry

Table 14 shows how the observation scores were combined to produce an overall behavioural artistry score for each participant. The difference between the highest and lowest overall score is 36.8. There were statistically significant differences in behavioural artistry scores among participants with a high standard deviation ($s.d.= 12.24$) and sample variance ($s^2= 149.96$). Three participants demonstrated a behavioural artistry score of 90.00% or higher, with each achieving a score of 100.00 in at least one assessment. Two participants demonstrated a behavioural artistry score $<70.00\%$.

The findings show that participants performed best in the “Likes People” observation, and there were statistically significant differences in the overall mean scores for “Likes People” versus “Perception Sensitivity” and “Looks for the Pony”. The difference in the presentation of specific behavioural artistry characteristics across the participants is demonstrated by the standard deviation between the overall scores ($s.d.= 11.79$) and the sample variance ($s^2= 139.08$).

Based on the observations, the mean behavioural artistry score for participants was 82.05%. In comparison, based on questionnaire responses, the mean behavioural artistry score was 66.37%. Participants demonstrated a higher level of behavioural artistry characteristics in their skill performance when compared to self-perception, resulting in statistical differences in standard deviation ($s.d.= 11.08$) and sample variance ($s^2= 122.93$).

	Participants 1-9									
	1*	2	3	4	5	6	7	8	9	Overall mean score
Likes People Perception Sensitivity	96.00	98.00	88.27	100.00	92.21	98.56	89.37	100.00	98.67	95.67
Looks for the pony	50.00	75.00	50.00	83.33	45.45	100.00	91.66	83.33	100.00	75.41
Bx artistry %	85.71	57.14	50.00	64.28	71.42	85.71	61.53	100.00	100.00	75.08
Bx artistry %	77.23	76.71	62.75	82.53	69.69	94.75	80.85	94.44	99.55	82.05

Bx- behavioural

**Participant 1 conducted a DTT session*

Table 14: Behavioural Artistry score across participants

5.0 Discussion

5.1 Introduction

In this chapter, the results of the research are discussed. An in-depth analysis focused on the similarities and differences of interpersonal skills amongst ABA practitioners is given, alongside comparisons to existing literature. The chapter concludes with a discussion on the limitations of this research and recommendations for future research.

5.2 Overview

The purpose of this study was to investigate the interpersonal skills of ABA practitioners who work with autistic adolescents. The study aimed to support existing literature and improve its validity by replicating the assessment and measurement tools used.

This research was undertaken in a setting in which the researcher is employed. The researcher had a dual role in this research, being both a researcher and a practitioner in the setting where the research was conducted. This gave the researcher a unique opportunity to work as a reflective practitioner, described by Schön (1983, pp.68) as one who “carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation”. The researcher’s role and experiences as a practitioner influenced the focus of this study. The impetus for this study came from a desire to address the well-founded criticisms levelled at the field of ABA and its practitioners in recent years. The researcher was motivated to investigate these criticisms and find a solution to ensure that ABA practitioners under their supervision have the interpersonal and therapeutic skills necessary to ensure that no short or long-term trauma is inflicted on the autistic people under their supervision. Despite their trust in the professionals with whom they work, the researcher was motivated to address these concerns because of the attitude that “it could happen here” (Great Britain, Department of Education, KCSiE, 2022). While the researcher’s personal experiences in the field influenced the study's focus, it was critical that the researcher be aware of potential personal biases and implement measures to reduce them (Pannucci & Wilkins, 2010).

The participants' interpersonal skills were assessed using quantitative data in this study. The raw data and descriptive statistics enabled detailed conclusions about the sample group to be drawn. The researcher attempted to reduce personal biases by closely replicating the methods

used by Callahan et al. (2019) and the use of quantitative data collection methods (Smith & Noble, 2014).

5.3 Summary of findings

This study discovered that all participants (n=9) exhibited some level of interpersonal skills associated with behavioural artistry. The observation portion of the study yielded a higher behavioural artistry score than the questionnaire portion, in which participants were required to self-report on their own characteristics and qualities. According to the data, participants in this study demonstrate a higher level of behavioural artistry in their work but a lower level of behavioural artistry in the personality assessment when compared to other ABA practitioners (Callahan et al., 2019).

5.4 Questionnaire results

Participants completed a personality assessment to determine the characteristics of behavioural artistry. The 16PF (The 16 Personality Factors) assessment provides detailed information about the characteristics of those who take the test. The research sought to determine if there were any differences between the participants' perceptions of themselves and their professional skill set, and if the personality assessment was an accurate predictor of behavioural artistry characteristics in a practitioner.

The researcher discovered that access to the personality assessment and its scoring scale was prohibitively expensive. As a result, the lack of accessibility to the assessment tools used undermines the validity of Callahan et al.'s (2019) findings. However, an online version of the assessment with a scoring scale was made available (ipip, 2022). This was used by the researcher to create the content of the online questionnaire and the scoring scale (see Appendices 6 and 9). This enabled the researcher to incorporate the personality assessment into this study. However, the 16PF contained 185 multiple-choice questions, whilst the online version contained 163 multiple-choice questions. It should be noted that the 23 questions omitted from the available online resource will have changed the results, and thus the conclusions that could be drawn about participant characteristics.

According to the gender identity of participants in this research (Female=8, Male=1), it could be suggested that the majority of those who advance in the field are female, as participation

in this research required an advanced amount of experience. This lends credence to the current literature's findings that the majority of BCBAs' are female (Baires & Koch, 2020; Nosik & Grow, 2015). As a result, it is possible that those who identify as female are more likely to exhibit traits associated with behavioural artistry. However, neither this demographic nor the current literature sheds light on the interpersonal skills of practitioners who identify as non-binary or trans. As a result, there can be no correlations drawn between a practitioner's gender identity and their interpersonal skills.

This study's participants were advanced practitioners, as defined by their job title. All participants in this study have less than two years of experience in the field and have held the advanced practitioner role for less than a year, according to demographic data. The data suggests that practitioners in this setting advance quickly in their careers, but it is unclear whether this is due to practitioner skills and qualities or to high staff turnover. While the literature suggests that human services have high staff turnover rates, there is currently little research on staff turnover rates in the field of behaviour analysis (Plantiveau, C., Dounavi, K., & Virués-Ortega, J., 2018; Wine, Osbourne, & Newcomb, 2020).

The analysis of the questionnaire data revealed that 87.5% of the questionnaire participants (n=7) possessed some of the eight personality factors associated with behavioural artistry. According to the data, the least prevalent personality factors among participants were "self-reliance" and "self-assurance" These findings indicate that the sample group demonstrates non-behavioral artistry traits such as apprehension, self-doubt, and worry, as well as a preference for group-oriented and affiliative practises (Callahan et al., 2019, pp.3560). This was supported by higher scores in factors related to interactions with others (e.g., warmth, liveliness, social boldness, openness to change). While the literature suggests that self-reliance and self-assurance are skills held by behaviour artists (Callahan et al., 2019; Foxx, 1998), it can be argued that collaborative characteristics may improve practitioner performance and thus make them better behavioural artists overall because their group-oriented approach may allow them to learn from one another. This was supported by data for the personality factor "openness to change". In this category, participants scored the highest (72.75%). This indicates that participants' approaches were adaptable, implying, but not confirming, that the sample group was more willing to try new approaches to find a winning strategy. As a result, it implies that when confronted with unexpected and difficult challenges in their job role, participants are more likely to persevere.

Self-reports and rating scales can provide information about the therapeutic abilities of those who work in human services (Taylor, LeBlanc, & Nosik, 2018). When compared to the results of Callahan et al., participants in this study scored lower overall in the personality assessment (2019). However, the participant scores in this study were the closest to those of ABA practitioners. Based solely on questionnaire results, this confirms Callahan et al. (2019) findings that ABA practitioners have the lowest level of interpersonal skills associated with behavioural artistry. This highlights a need for interpersonal skills training for practitioners in ABA services. According to preliminary research, using clicker training to improve practitioner interpersonal skills could be a nonintrusive and socially acceptable approach (Canon & Gould, 2022).

The findings support current literature theories that the interpersonal skills of ABA practitioners should be addressed and assessed, allowing the field of behaviour analysis to progress toward trauma-informed practise.

5.5 Observation results

For the observation portion of this study, the researcher used an audio-visual recording device. Audio-visual recordings are permanent products that allow the viewer to replay them multiple times. To that end, audio-visual recordings can be a useful tool for ABA practitioners to capture behaviour for further analysis. Audio-visual recordings can be viewed multiple times to identify all instances of the target behaviour (Bailey and Burch, 2017). The researcher was able to observe each session as many times as needed. As a result, more accurate results and conclusions were drawn from the collected data.

Video recording may be perceived as intrusive, and the presence of a recording device may have influenced participant behaviour (Haidet et al., 2009), reducing the reliability of data collected. This is referred to as the “Hawthorne Effect” (Haidet et., 200,9, pp.2). According to Haidet et al., (2009), participant reactivity can be reduced by exposing participants to longer periods of observation in order to acclimate them to the presence of the observer and, by proxy, the recording device. Following this suggestion, the researcher decided to conduct two 15-minute observations of participants to limit reactivity.

5.5.1 Likes People

Data analysis revealed that participants performed well overall in terms of interpersonal skills related to the behavioural artistry characteristic “Likes People”. The overall mean score (95.67%) indicates that participants engaged in the target behaviours during the majority of the observed intervals. According to the data, all participants demonstrated the therapeutic skill of liking others almost to mastery. This implies that participants are able to connect with others, are concerned, and are motivated to effect positive change (Callahan et al., 2019). This hypothesis is supported by the questionnaire data. According to the questionnaire results, participants performed well in factors related to social interaction with others and flexibility (warmth= 64.75%; liveliness= 64.00%; openness to change=72.75%). These interpersonal skills are essential for behaviour analysts if the field is to be considered compassionate and empathetic. (Rohrer, Marshall, Suzio, & Weiss, 2021).

While the questionnaire data suggests that participants like others, closer analysis reveals a disparity between the observational and questionnaire data. There is a significant statistical difference between the two mean scores ($s.d.= 22.13$), suggesting that self-report personality assessments are not a reliable or valid method of measuring a practitioner's interpersonal skills and should not be used in isolation to identify behavioural artists.

Individual behavioural indicators can be used to draw conclusions about how participants interacted with the students during the recorded session. Each behavioural indicator was topographically defined by the researcher, along with examples and non-examples of observable behaviours (see Appendix 7). Pleasant facial expression (PFE) examples include relaxed facial muscles, smiling with and without teeth, and smiles that reach the eyes. According to the data, participants made pleasant facial expressions in 97.82% of the trials. It should be noted that if a participant did not engage in a specific target behaviour during a trial because it was not contextually appropriate (for example, if a participant did not smile at the pupil during a ten-second interval because they were looking down at a clipboard to record data), the trial was marked as non-applicable (NA). The data show that for the majority of the five-minute observation period, participants maintained a pleasant facial expression when communicating with the pupil. Furthermore, the data show that participants used a positive tone of voice when communicating with the pupils in all but one trial (99.14%), indicating that participants are friendly in their interactions with pupils and prefer this communication approach when teaching. If pleasant facial expressions and a positive tone of voice are

indicators of compassion and empathy, it is reasonable to conclude that participants exhibited high levels of both.

When compared to the High and Low-BA groups (Callahan et al., 2019), participants in this study engaged in more trials with pleasant facial expressions and a positive tone of voice. The difference in standard deviation scores for pleasant tone of voice between participants and those two groups is statistically significant ($s.d.=43.56$), with participants in this study displaying a pleasant facial expression three times more frequently than the high behavioural artistry group. This analysis suggests that participants in this study exhibited more compassionate and empathetic behaviours than the high behavioural artistry group.

The High and Low-BA groups (Callahan et al., 2019) outperformed participants in this study with engagement in sustained gaze and body proximity and orientation. When the data is compared it is clear that during the observations both the High and Low-BA groups preferred DTT over NET teaching approaches (DTT made up 59 of the 78 sessions). DTT, on the other hand, occurred in only one of the nine observations in this study. The procedures of a DTT session require the practitioner to sit opposite the pupil at a table in order to test and train skills in rapid succession. As a result, the practitioner is required to look directly at the pupil frequently to ensure they are emitting the correct response, which continues until the session is completed. It is unclear whether a higher frequency of such sessions contributed to a higher score in the High and Low-BA groups for sustained gaze and body proximity and orientation. Future research should look into whether these indicators of behavioural artistry can be measured reliably in DTT sessions.

5.5.2 Perception Sensitivity

A competency assessment was used to evaluate participant demonstrations of behaviours associated with “perception sensitivity” and “Looks for the pony” (see Appendix 8). The remaining 10-minutes of the 15-minute digital recording were used to collect data. The competency assessment was designed to replicate the observation tools that are currently used in the setting to assess practitioner skills.

Perception sensitivity is defined as a practitioner's awareness of subtle indicators in the behaviour of others (Callahan et al., 2019). The findings for this observation vary depending on the participant. With a large difference between the highest and lowest score ($R=54.55$), the data suggests that perception sensitivity is not a consistent behavioural characteristic

among participants. As shown in Table 15, the participants who scored 100% for this observation (n=2) scored similarly for “Likes People”. According to the data, these participants could be behavioural artists.

		“Likes People” %	“Perception Sensitivity” %
Participant	6	98.56	100.00
	9	98.67	100.00

Table 155: Individual participant scores for “Likes People” and “Perception Sensitivity”

Those who scored in the lower quartile (n=3) demonstrated 6 of the perception sensitivity skills, despite scoring 90% or higher for “Likes People”. This variation could imply that mastering perception sensitivity requires more proficiency. As a result, perception sensitivity may be one of the abilities that distinguishes behavioural artists from competent practitioners.

The personality trait associated with “Perception Sensitivity” is “openness to change”, and the questionnaire’s mean score for this was 72.75%. The perception sensitivity observation had a mean score of 75.41%. The fact that there was only a small statistical difference between these scores (*s.d.*=1.88) indicates that the questionnaire results were an accurate predictor of participant perception skills.

5.5.3 Looks for the pony

A behavioural artist who seeks "the pony" is optimistic about behaviour change and believes programming will be successful, and thus is less likely to burn out (Callahan et al., 2019). The competency assessment consisted of 14 skills that demonstrated these qualities, and the data suggests that most of the participants (75.08%) "looked for the pony". However, participants' optimism varied as much as their perceptual abilities ($R=50.00$), implying that these skills are more difficult to develop. An examination of the overall mean scores for both (“Perception Sensitivity”=75.41%; “Looks for the Pony”=75.08%) revealed statistically significant similarities (*s.d.*=0.23). This suggests a link between the two characteristics and could imply that practitioners who are more perceptive are less likely to burn out because they are better equipped to detect subtle changes in behaviour and, as a result, are more skilled at successfully shaping behaviour. Future research on the relationship between perception skills and practitioner burnout may be beneficial to the field.

The three assessments provided data on the participants' individual characteristics as well as an overall impression of their skill set. Participants are more successful in developing rapport with others than in noticing subtle changes in the environment and remaining optimistic when faced with challenges, according to the data. However, the various data collection methods used may have influenced these findings. On a dense schedule, partial-interval recording was used to collect data on five behavioural indicators. The minutiae of each behavioural indicator were topographically defined, with examples and non-examples provided, allowing the researcher to clearly identify when a target behaviour occurred. While partial interval recording underreports the rate of a high frequency behaviour (Cooper et al., 2020), time intervals establish clear parameters for the observer to look for occurrences of the target behaviour, potentially increasing data accuracy. Partial interval recording may be useful for assessing practitioners' interpersonal skills until they reach competency, at which point alternative methods can be used.

5.6 Behavioural Artistry

The data contribute a clearer understanding of experienced ABA practitioners' interpersonal skills and the observable and measurable behaviours associated with them, and the insight into the sample group's shared characteristics provides scope for current training packages and measurement tools to be adjusted to create behavioural artists within the setting.

These findings add to previous evidence of the characteristics of a behavioural artist. When the overall mean scores for the three measured characteristics are added together, the sample group as a whole exhibit high levels of behavioural artistry ($M= 82.05\%$). These findings suggest that behavioural artistry has a role to play in the effective and compassionate delivery of behaviour analytic treatment. In contrast to the claims made by Callahan et al., (2019), the sample group's experienced ABA practitioners had higher levels of behavioural artistry and warmth than both the High and Low-BA groups. According to the findings of this study, there are ABA practitioners in the field who have the interpersonal and compassionate skills needed to change public perceptions of behaviour analysis. These findings support the existing theory of what a behavioural artist looks like; additionally, the findings indicate that those trained in ABA can be behavioural artists. While the setting in which this research was conducted is only a microcosm of the larger field, the findings have created opportunities for future development within the setting, in areas such as recruitment and training. The challenge is to create behavioural artists while maintaining scientific integrity.

5.7 Limitations

The study's findings are consistent with the field's current interests and concerns. While the findings provided insight into practitioners' interpersonal skills, the study had some limitations.

5.7.1 Time constraints

The time constraints imposed on this study limited its scope. The researcher's work commitments resulted in a later application for ethical consent. As a result, the researcher had from June until the end of July, when the academic year ended, to collect data. Data analysis could only begin after the observation videos were uploaded from the audio-visual recording device to a secure PC. This slowed progress because transferring each 15-minute video onto the computer hard drive could take up to two hours. If data analysis had been possible earlier in the process, and the researcher had been able to implement and test the efficacy of behavioural skills training (BST) to train and improve interpersonal skills, the research could have been improved.

5.7.2 Sample size

The reliability of the data is impacted by the small sample size ($n=9$). While it allowed for a large amount of data to be collected on each participant, resulting in an in-depth analysis of the sample group, it could be perceived as reducing the reliability of the data collected. The data reflects a microcosm of the field, and even a microcosm of the environment in which the research was carried out. A small sample size does not allow for analysis of the larger population.

Despite this, the small sample size allowed for a detailed analysis of the interpersonal skills of advanced skills practitioners working alongside the researcher, confirming the findings' internal validity. While it does not predict or confirm the characteristics of the entire field, it does yield useful data that the researcher can use to improve training packages at their workplace. This, in turn, may improve the skill set of staff and, as a result, the outcomes of students, whom the researcher supports.

5.7.2 The 16PF test

In accordance with the current literature, the 16PF test was used to inform the content of the questionnaire as part of the research design. Financial constraints made the 16PF test inaccessible to the researcher, who had to rely on online resources to access the content. As a result, a precise replication of the questionnaire used by Callahan et al. (2019) was impossible.

5.7.3 Extraneous variables

The researcher's position within the context of the research could have influenced the questionnaire responses. Despite precautions taken to ensure that participants could not be identified based on their questionnaire responses, the researcher's pre-existing professional positioning and relationship with the participants may have influenced their responses. Participants may not have felt comfortable answering the questions honestly because they were afraid of being identified by the researcher and, as a result, the researcher learning about their personal beliefs and characteristics.

Participants may also have completed the questionnaire together and shared their responses. Participant responses could have also been chosen at random. These variables were uncontrollable. While measures were put in place to mitigate these effects, their effectiveness cannot be proven.

5.8 Future recommendations

Recommendations for future research can be made to improve this study. To begin with, increasing the number of participants would produce more detailed results and strengthen the conclusions reached. This study's setting is multidisciplinary in nature, and conducting it across different professionals (e.g., BCBA's, qualified teachers, SaLTs, OTs) would provide insight into the interpersonal skills of professionals supporting autistic adolescents. The findings' similarities and differences could aid in the development of an inter-disciplinary training package that allows professionals to collaborate and share their interpersonal skills with one another. This has the potential to improve service users' long-term outcomes.

In addition, including autistic voices in future research would improve the research's social validity. Autistic people have the right to express their thoughts on the qualities of those who support them because they rely on the services that these professionals provide. While

Callahan et al. (2019) included the perspectives of parents and caregivers of autistic children in their research, the autistic voice was not heard. Future research that includes the autistic voice will help the field of behaviour analysis grow and improve its social validity.

6.0 Conclusion

With compassionate practise identified as one of the core principles of the ethics code (BACB Code, 2022) and a current call for journal articles related to compassion in ABA (Behavior Analysis in Practice, 2022), practitioners' interpersonal skills are relevant, important, and an indicator that the field is addressing its critics. The field has demonstrated that it is more attentive than ever before. The goal of this study was to add to the body of knowledge about ABA practitioners' interpersonal skills and qualities. It sought to contribute to research in particular by reporting on the interpersonal skills of ABA practitioners working in the field with autistic adolescents through the lens of behavioural artistry.

Based on quantitative and statistical analysis of the questionnaire results and indirect observation scores, it can be concluded that experienced ABA practitioners demonstrate a similar level of behavioural artistry through shared characteristics. Additionally, the research indicates that experienced practitioners can establish a rapport with others, however they are less competent in their perceptive skills. Furthermore, the research indicates a possible relationship between an individual's perception skills and optimistic approach.

The study found that partial interval recording is an effective tool for recording the occurrences of specific behavioural indicators. Furthermore, it supported previous research that identified digital recordings as an effective resource for evaluating staff skills. The study found a gap between practitioner self-reports and their practical skills. According to these findings, the 16PF personality test may not be an accurate predictor of interpersonal skills and compassionate approaches.

While the small sample size limits the generalisability of the findings, the method sheds new light on the interpersonal skills of ABA practitioners working with autistic adolescents in the school setting. More research is needed to compare these findings to those of other ABA practitioners working in similar settings, but these findings suggest that experienced ABA practitioners exhibit compassion and empathy. Compassion and empathy is necessary in ABA if the field aims to refute allegations of abuse.

In conclusion, these findings may be useful to ABA professionals in addressing criticisms of practitioners' compassionate skills. These findings may also be useful in addressing the field's current recruitment and retention problems.

7.0 References

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8.0 APPENDIX

8.1 Appendix 1: SCHOOL OF SOCIAL SCIENCES, EDUCATION AND SOCIAL CARE-ETHICS APPROVAL



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Memorandum

REF 129_2122

To Chelsee Maloney
From Dina Belluigi, SREC Chair
Date 20/06/2022
Distribution Supervisors – Nichola Booth
Subject: Ethics Review – Compassionate ABA (working title)

The School of Social Sciences, Education and Social Work Ethics Committee has reviewed your proposed study and has granted approval for you to proceed.

- It is important to ensure that you follow the procedures outlined in your submission. Any departure from these may require additional ethical approval.

Note for the principal investigator: it is the responsibility of the investigator to add any research projects involving human participants, their material or data, to the University's Human Subjects Database for insurance purposes. **The reference number above should be cited in the title line.** (The Human Subjects Database is accessible through QOL under 'My Research').

Where this approval relates to a student's study, whether a dissertation or study, a note should be made to the reference number within their study and this memo should be included within the appendices.

Please ensure that the Committee is notified when the study is complete. Pseudonymised data is to be kept for a minimum period of 5 years within a safe QUB repository from the date of completion onwards, such as Q-Drive.

The Committee wishes you every success with your research.

A handwritten signature in black ink that reads 'Dina Belluigi'.

Dina Belluigi, Chair, SSESW SREC

8.2 Appendix 2: EMAIL TO PARTICIPANTS, INVITING THEM TO INITIAL DISCUSSION PRO-FORMA

Dear [INSERT PARTICIPANT NAME],

I am emailing you to inform you that I am conducting research as part of my MSc dissertation at Queen's University Belfast. The intentions behind this research is to explore the interpersonal skills of practitioners working in Applied Behaviour Analysis. You have been identified as a potential participant due to your level of experience and the insight you could provide to this research.

I am inviting you to an informal discussion about this research, where more information will be provided and you will have the opportunity to ask questions, free of judgement. You are under no obligation to attend this discussion, or participate in this research. However, if you feel you might be interested in discussing this further, I will be in the meeting room from 4pm today to disclose more information.

Kind regards,

Chelsee Maloney

8.3 Appendix 3: INVITATION LETTER TO POTENTIAL PARTICIPANTS

Dear [INSERT PARTICIPANT NAME]

You have been invited to participate in a research project, *Compassionate ABA*. You have been identified as a skilled practitioner working in a specialist ABA setting. I am keen to involve you due to your experience and expertise and believe you will have significant contributions to make to this study.

I want to best understand how to develop a training package that will teach, maintain, and foster compassionate practice whilst upholding behaviour analytic principles. I would like to invite you to participate in a questionnaire, observation, and post-analysis group training session.

It is completely up to you whether you choose to participate or not. An information sheet is attached with more details of this study. If you are interested in being part of the *Compassionate ABA* project, or want more information before making a decision, please contact **Chelsee Maloney**. Chelsee would be delighted to hear from you and answer any queries you may have.

Best wishes,

Chelsee Maloney

cmaloney02@qub.ac.uk

8.4 Appendix 4: PARTICIPANT INFORMATION SHEET

**Please note, any identifiable information included in the Participant Information Sheet that could be used to identify the participants and/or the researcher's place of employment have been omitted from this version of the Participant Information Sheet. Omitted text will be presented as such:
[OMITTED]**

Compassionate ABA

Information for participants

Why are you contacting me?

You have been identified by the researcher as a skilled practitioner in Applied Behaviour Analysis. The researcher is keen to involve skilled practitioners for this project to help develop the study and develop your skill sets further.

What is the purpose of this study?

The researcher intends to investigate the skill set of skilled practitioners. This study will develop an observation tool designed to directly measure qualities such as compassion, to determine whether such skills can improve learning and pupil outcomes. The motivation for this study was inspired by the researcher's passion to listen to the criticisms the ABA community has faced and to address those head on. The researcher is motivated to develop the practices in the organisation and continue to support it as it moves towards a more compassionate approach. The study is intended to showcase the skills of practitioners and sets to demonstrate that compassionate practice does not deter from positive outcomes for pupils.

Who will I be working with?

The researcher, Chelsee Maloney, who currently works as a Supervisor at [OMITTED], a [OMITTED] school. Chelsee will be leading the project and will conduct direct observations of participants, as well as provide individual/ group training. You will join a group training with 9 of your peers where you will work alongside each other and with Chelsee to develop your skills. Intended participants in this project are currently working in the [OMITTED] role at [OMITTED].

What will my involvement in this process mean?

Participants will be invited to complete an online anonymous questionnaire related to the study prior to observations and training taking place. This is to gather honest feedback regarding participant's perception of their individual skill sets. From there, you will meet with Chelsee for a direct observation. Chelsee will observe you whilst you are teaching a pupil and will conduct a baseline assessment of your skills. You will then participate in a group training together with your peers and Chelsee. An optional post-training feedback form will be available to fill in.

Chelsee will work alongside you to arrange observation and training schedules that are suitable to you. Chelsee will contact you from a Queen's University Belfast email address.

What are the benefits to participating?

Your involvement in this study will help us to develop organisational training which stays in line with the current literature. It will demonstrate strengths and weaknesses in training content and help to identify if the organisation needs to programme compassionate practice into training.

What are the risks of participating?

Whilst the questionnaire responses are anonymous, the second part of the study requires direct observation. If you become anxious or upset by the observations, you may wish to speak to a Mental Health First Aider. Alternatively, you may wish to contact your GP for advice or seek support from Anxiety UK

[<https://www.anxietyuk.org.uk/>]

Do I have to take part?

- Taking part is entirely voluntary. You do not have to participate in any activity.
- You can change your mind at any time, up until the moment of data analysis (20th July 2022)
- You can withdraw your consent to participate without having to provide a reason
- If you feel uncomfortable for any reason, please tell Chelsee as soon as possible.

- Chelsee will support you through all steps of the study, and will deal with your concerns confidentially. Your concerns will be supported in a sensitive, professional, and timely manner.

Will my participation be confidential?

- Your participation in the online questionnaire will be **strictly confidential**. Data will be collected using MS forms and responses will be anonymous. MS forms is secured by QUB and adheres to QUB's privacy policy (located at the bottom of this document). Chelsee will not be able to identify you by your responses for this portion of the study. You will be able to share your honest opinions during this portion of the study. However, if you indicate that you or someone else might be in danger, Chelsee will be obliged to tell the appropriate person.
- Your participation in the second portion of the study will require Chelsee to directly observe you. This may result in other participants being aware of your participation in the study. Measurements to mitigate this can include conduction observations in your class environment *and* filming observations for Chelsee to observe at a later date, if you feel this to be necessary.
- All information and data collected about you will be stored on a locked password protected computer and paper copies will be kept in a locked office. These will be destroyed 5 years after the completion of the project. Electronic data will be stored on a OneDrive account, linked to Chelsee's university email address. It is secured by QUB and adheres to QUB's privacy policy (located at the bottom of this document).
- Data collected will be shared with relevant QUB professionals if relevant. For example, data collected will be shared with the researcher's dissertation supervisor throughout the course of the research. Your data will be anonymised (your name will be removed) to protect your confidentiality.

What will happen to the results?

The work you will do alongside Chelsee and the data collected will be written up and presented in a variety of formats, for example, in a report, journal articles, or other academic presentations to tell others about this work. [OMITTED] may choose to use the materials we produce to develop/ improve [OMITTED] work.

This work may also be presented at academic conferences, seminars, and training events related to the study.

Privacy Notice: How the University processes your personal data

- Queen's University Belfast (QUB) is committed to protecting your personal data and informing you of your rights in relation to that data. Please see the website for more details [<https://www.qub.ac.uk/privacynotice/Research/ListofResearchPrivacyNotices/PrivacyNoticeforResearchParticipants.html>]
- Any information held about you will be used in line with the General Data Protection Regulation (GDPR) and Data Protection Act 2018.

8.5 Appendix 5: PARTICIPANT CONSENT FORM

Compassionate ABA: Consent form.

- I understand that I am being invited to participate in the above study
- I confirm that I have read and understood the attached information sheet in relation to the above study
- I have had the opportunity to ask questions and these have been answered fully
- I have been aware of the support I can seek if I experience anxiety as a result of the study
- I consent to participating in the online questionnaire related to this study and understand that my responses will be anonymous. I understand that the researcher will not be able to identify me from my responses
- I consent to participating in direct observation and training related to this study. I am aware that for the purpose of this study, the researcher will need to observe my teaching and therefore my anonymity will not be upheld for this portion of the study
- I understand that my participation in this study is voluntary and I am free to withdraw my consent at any point until **20th July 2022**, when data analysis will take place. I am aware that I do not have to give a reason for my withdrawal and that my employee rights will not be affected
- I understand that I will not be able to withdraw my consent after I have submitted my response to the online anonymous questionnaire. I am aware that the researcher will not be able to identify my responses and that my confidentiality will be maintained
- I understand the study is being conducted by a researcher from Queen's University Belfast and that my personal information will be held securely on University premises. I am aware that this data will be stored for at least 5 years in line with QUB's data handling and security policy, in accordance with the Data Protection Act 2018
- I agree to being directly contacted by the researcher through their QUB email address and understand that all correspondence will take place during traditional work hours
- I understand that data collected as part of this study will be looked at by the researcher. I give permission for the researcher to have access to this data
- I understand that, where relevant, data may be looked at by authorised individuals from Queen's University Belfast, in relation to this research. I give permission for authorised individuals from QUB to have access to this data
- I understand that my participation in this study will involve direct observation from the researcher. I give permission for this to take place
- I consent to audiovisual recording of the direct observations taking place
- I understand that this work will be published in the form of a report. I am aware that it may potentially appear in academic journals, seminars, training events, conferences etc. I am aware that my confidentiality and anonymity will be maintained

• I agree to take part in the above study.

• I do not agree to take part in the above study

Name of Participant (please print)

Signature

Date

8.6 Appendix 6: DIGITAL QUESTIONNAIRE- Microsoft Forms

Link to questionnaire form- [Questionnaire](#)

Lead Tutor questionnaire

This self-report questionnaire is designed for you to reflect on your personal qualities and your skills as an ABA practitioner. Some sections of this questionnaire are taken from Cattell's 16 Personality Factors (16PF questionnaire) (Cattell et al., 2008). This questionnaire should take participants on average 15 minutes to complete.

Participation in this questionnaire is voluntary and your responses are confidential. This is in line with QUB's Privacy Policy [<https://www.qub.ac.uk/privacynotice/Research/ListofResearchPrivacyNotices/PrivacyNoticeforResearchParticipants.html>].

Cattell, H. E. P. & Mead, A. D. (2008). The Sixteen Personality Factor Questionnaire (16PF). In G.J. Boyle, G. Matthews, & D.H. Saklofske (Eds), The Sage Handbook of Personality Theory and Assessment: Vol. 2, Personality Measurement and Testing., Los Angeles, CA: Sage

1. How long have you worked in an ABA setting?

- Less than 1 year
- 1-2 years
- 2+ years

2. How long have you held the position of 'Lead Tutor'?

- Less than 1 year
- 1-2 years
- 2+ years
- Prefer not to say

3. Rate your confidence as an ABA practitioner. This involves your understanding of ABA and its principles and how to apply this in your everyday practice with 1 meaning not confident at all and 10 being extremely confident.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

This next section will require you to reflect on your skills as an ABA practitioner and your qualities. These questions have been taken from Cattell's 16 Personality Factor questionnaire (16PF) (Cattell et al., 2008)

4. For each statement, indicate how accurate it is on the scale of (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I take time out for others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know that I am not a special person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take control of things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to forgive and forget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep in the background	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can't do without the company of others	<input type="radio"/> Strongly Disagree	<input type="radio"/> Disagree	<input type="radio"/> Neither agree nor disagree	<input type="radio"/> Agree	<input type="radio"/> Strongly agree

I trust others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not easily frustrated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cheer people up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel uncomfortable around others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seldom feel blue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I dislike myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I let others make the decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe in the importance of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to get lost in thought	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wait for others to lead the way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to talk about myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

I find it difficult to approach others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy my privacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. For each statement, indicate how accurate it is on the scale of (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I swim against the current	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel guilty when I say "no."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am hard to get to know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't talk a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe in one true religion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not easily annoyed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel crushed by setbacks	<input checked="" type="radio"/> Strongly Disagree	<input type="radio"/> Disagree	<input checked="" type="radio"/> Neither agree nor disagree	<input type="radio"/> Agree	<input checked="" type="radio"/> Strongly Agree

I am afraid that I will do the wrong thing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy being part of a loud crowd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I weigh the pros against the cons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do unexpected things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get angry easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am quiet around strangers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't mind eating alone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make people feel at ease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use my brain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a good word for everyone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel desperate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to be in charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

I feel comfortable around people

6. For each statement, indicate how accurate it is on the scale of (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
I am the life of the party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't let others discourage me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy being part of a group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love to daydream	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I distrust people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry about things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not easily bothered by things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I respect authority	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

I do things that others find strange	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I skip difficult words while reading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable with myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am exacting in my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to analyse things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I continue until everything is perfect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that people are basically moral	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am quick to judge others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am relaxed most of the time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy silence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I show my feelings	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
I judge					

...
 people by
 their
 appearance ○ ○ ○ ○ ○

7. For each statement, indicate how accurate it is on the scale of
 (1) Strongly disagree (2) Disagree (3) Neither agree nor
 disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Agree	Neither agree nor disagree	Agree	Strongly Agree
I prefer variety to routine	○	○	○	○	○
I never challenge things	○	○	○	○	○
I can't stand being contradicted	○	○	○	○	○
I try not to think about the needy	○	○	○	○	○
I am easily put out	○	○	○	○	○
I prefer to do things by myself	○	○	○	○	○
I get irritated easily	○	○	○	○	○
I know the answers to many	Strongly Disagree	Agree	Neither agree nor disagree	Agree	Strongly Agree

questions

I trust what people say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to stand during the national anthem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love flowers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it hard to forgive others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I leave my belongings around	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel others' emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I let myself be pushed around	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't like crowded events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy hearing new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I act wild and crazy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I read a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to follow the rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. For each statement, indicate how accurate it is on the scale of (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I enjoy wild flights of fantasy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use swear words	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't worry about things that have already happened	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I say what I think	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am easily hurt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy spending time by myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't mind being the centre of attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seldom get lost in thought	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seldom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I seldom daydream	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I suspect hidden motives in others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not interested in abstract ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am easily discouraged	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not afraid of providing criticism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I disclose my intimate thoughts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't like action movies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want everything to be "just right."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel threatened easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am the last to laugh at a joke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy discussing movies and books with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

I joke around a lot

9. For each statement, indicate how accurate it is on the scale of (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I have a poor vocabulary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I dislike loud music	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make insightful remarks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy bringing people together	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get chores done right away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I reflect on things before acting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not bothered by disorder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't like to get involved	Strongly Disagree <input type="radio"/>	Disagree <input type="radio"/>	Neither agree nor disagree <input type="radio"/>	Agree <input type="radio"/>	Strongly Agree <input type="radio"/>

in other people's problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I break rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can take strong measures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love large parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not like poetry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that others have good intentions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I leave a mess in my room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I put off unpleasant tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I oppose authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I resist authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I readily overcome setbacks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get confused easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how to comfort	Strongly Disagree <input type="radio"/>	Disagree <input type="radio"/>	Neither agree nor disagree <input type="radio"/>	Agree <input type="radio"/>	Strongly Agree <input type="radio"/>

others ~ ~ ~ ~ ~

10. For each statement, indicate how accurate it is on the scale of
 (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I am open about myself to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I rarely notice my emotional reactions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I amuse my friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love to think up new ways of doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I dislike works of fiction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not enjoy watching dance performances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I start conversations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make friends easily	<input checked="" type="radio"/> Strongly Disagree	<input checked="" type="radio"/> Disagree	<input checked="" type="radio"/> Neither agree nor disagree	<input checked="" type="radio"/> Agree	<input checked="" type="radio"/> Strongly Agree

I often feel blue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I counter others' arguments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not interested in theoretical discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seek quiet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have frequent mood swings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learn quickly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I rarely look for a deeper meaning in things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to read	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep my thoughts to myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to avoid complex people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I reveal little about myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not bothered by messy people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. For each statement, indicate how accurate it is on the scale of
 (1) Strongly disagree (2) Disagree (3) Neither agree nor
 disagree (4) Agree (5) Strongly agree.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I consider myself an average person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like order	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I avoid philosophical discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am annoyed by others' mistakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cry during movies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not really interested in others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that people are essentially evil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how to get around the rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seldom joke around	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

around	~	~	~	~	~
I carry the conversation to a higher level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I spend time thinking about past mistakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I talk to a lot of different people at parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I bottle up my feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to be left alone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take an interest in other people's lives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am wary of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy teamwork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have little to say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe laws should be strictly enforced	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do things by the book	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**8.7 Appendix 7: PARTIAL INTERVAL DATA SHEET FOR CHARACTERISTICS:
LIKES PEOPLE PLUS COMMUNICATION SKILLS**

Date:	Participant number:
Session type:	Session duration:
Data collection: First 30 intervals of session	Interval duration: 10 seconds

Behavioural Artistry characteristic measured: **Likes People**
Callahan et al., 2019: Can only be scored during times therapist was engaged in social interaction with clear communicative and therapeutic intent

Start timer as soon as video begins playback. Interval duration: 10 seconds. Record + if *any* criteria for positive interaction is exhibited by participant towards client at *any* point during the interval.
 Record – if no examples occurred.

Instances of positive interaction are defined as:

	Example	Non-example
Pleasant facial expression	Relaxed facial muscles Smiling (e.g., lip corners pull up and the muscles around the eyes contract and wrinkles appear around eyes, can occur with and without teeth exposed)	Smiling with only lip movements (e.g., lip corners pull up, but there is an absence of movement in the muscles around the eyes) Frowning Tension in the face (e.g., clenched jaw, furrowed brows, pursed lips)
Positive appropriate tone of voice	Relaxed, natural cadence Varying vocal pitch (e.g., can include, but not limited to; low pitch when calm or ending a statement, higher pitch at end of sentences to communicate a question is being asked) Steady pace	Shouting (e.g., raised tone of voice accompanied by facial expressions and/or body language that communicates frustration/ anger/ anxiety) Slow pace Monotonous pitch Monosyllabic responses
Body gestures and proximity	Appropriate distance to client (e.g., less than 2 metres away, unless distance is relevant to activity) Age-appropriate physical interaction (e.g., can include but not limited to, hi-fives, fist bumps, hand squeezes) Hand gestures that enhance communication (e.g., gesturing to items in the environment, using open palms) Matching body language to client (e.g., if the client is sitting, the participant is sitting) Body facing towards client (unless relevant to activity)	More than 2 metres away from client (unless relevant to activity) Hand gestures that are used to communicate (e.g., Makaton signing) Hand gestures (e.g., pointing at the client, unless appropriate to activity) Inappropriate proximity (e.g., hands/ fingers in client's face, hugs, client or participant leaning on each other) Standing over client Body and head facing away from client (unless relevant to activity)
Sustained eye gaze	Eye contact when interacting with client Eye contact when client is interacting with participant	Looking at anything other than client (unless relevant to activity)
Communication	Uses client preferred method of communication Addresses client by name Talks directly to client Comments on wider environment Uses clear language appropriate to the learning level of the client Involves client in the activity	Does not use preferred method of communication of client Does not address client by name Does not talk to client Does not involve client in the activity (e.g., can include but not limited to, completing an activity independently without attempting to engage client in the activity)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Total intervals scored '+' per bx indicator:

PFE	PToV	SG	BPO	C	Total score
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8.8 Appendix 8: PERFORMANCE COMPETENCY ASSESSMENT FOR CHARACTERISTICS: LOOKS FOR THE PONY, PERCEPTION SENSITIVITY PLUS COMMUNICATION SKILLS

Performance competency assessment: Perception Sensitivity and Looks for the Pony		
Characteristic	Behaviours	+/-
Perception sensitivity	Age-appropriate activity	
	Client appropriate activity (e.g., pertains to interests, incorporates learning)	
	Observes and monitors pupil behaviour towards activity and responds appropriately (e.g., continues activity if pupil body language communicates participation/ changes activity if pupil moves away)	
	Builds and contrives motivation for the activity	
	Assesses if pupil is happy, relaxed and engaged throughout the session	
	Demonstrates flexibility (e.g., adapts teaching and flow of session if needed)	
	Demonstrates empathy and understands pupil's feeling whilst maintaining challenge and high expectations)	
	Incorporates choice making throughout session	
	Responds appropriately to pupil voice (e.g., accepting no, honouring requests where appropriate and providing explanations when not)	
	Support pupil to access strategies to support emotional wellbeing and self-management strategies	
	Appropriate level of enthusiasm	
	Pays careful attention to important indicators of pupil behaviour (e.g., small, subtle, gradual changes)	
	Looks for the pony	High level of learning opportunities throughout the session
Functional and appropriate learning targets that are meaningful to the pupil		
Pupil is constructively occupied throughout the activity		
Tutor demonstrates thick skin in challenging and unplanned moments		
Tutor demonstrates a sense of humour		
Tutor does not give up and adapts session accordingly		
Tutor's behaviour is relaxed and calm		
Evidence of session preparation		
Tutor demonstrates a natural tone of voice		
Tutor uses appropriate prompts to evoke the correct response		
Correct implementation of behaviour reduction procedures		
Tutor maintains composure throughout		
Pairs learner specific listener responding responses with activity		
Systematically fades prompts throughout session		

Perception Sensitivity (Total scored +)	Looks for the pony (Total scored +)

8.9 APPENDIX 9: THE 16PF SCORING SCALE

Warmth

Keyed +

I know how to comfort others
I enjoy bringing people together
I feel others' emotions
I take interest in other people's lives
I cheer people up
I take time out for others

Keyed -

I don't like to get involved in other people's problems
I am not really interested in others
I try not to think about the needy

Intellect/ Reasoning

Keyed +

I make insightful remarks

I know the answers to many questions
I tend to analyse things
I use my brain
I learn quickly
I counter other's arguments
I reflect on things before acting
I weigh the pros against the cons

Keyed -

I consider myself an average person

I get confused easily
I know that I am not a special person
I have poor vocabulary
I skip difficult words when reading

Emotional Stability

Keyed +

I seldom feel blue
I feel comfortable with myself
I readily overcome setbacks
I am relaxed most of the time
I am not easily frustrated

Keyed -

I have frequent mood swings
I often feel blue
I dislike myself
I feel desperate
I am easily discouraged

Assertiveness/ Dominance

Keyed +

I take charge
I want to be in charge
I say what I think
I am not afraid of providing criticism
I take control of things
I can take strong measures

Keyed -

I wait for others to lead the way
I never challenge things
I let others make the decisions
I let myself be pushed around

Gregariousness/Liveliness

Keyed +

I am the life of the party
I love large parties
I joke around a lot
I enjoy being part of a large crowd
I amuse my friends
I act wild and crazy

Keyed -

I seldom joke around
I do not like crowded events
I am last to laugh at jokes
I dislike loud music

Dutifulness/ Rule-consciousness

Keyed +

I believe laws should be strictly followed
I try to follow the rules
I believe in one true religion
I respect authority
I like to stand during the national anthem

Keyed -

I resist authority
I break the rules
I use swear words
I oppose authority
I know how to get around the rules

Friendliness/ Social Boldness

Keyed +

I feel comfortable around people
I talk to lots of different people at parties
I do not mind being the centre of attention
I make friends easily
I start conversations

Keyed -

I find it difficult to approach others
I often feel uncomfortable around others
I have little to say
I am quiet around strangers
I keep in the background

Sensitivity

Keyed +

I like to read
I enjoy discussing movies and books with others
I read a lot
I do not like action movies
I cry during movies
I love flowers

Keyed -

I do not enjoy watching dance performances
I do not like poetry
I dislike works of fiction
I rarely notice my emotional reactions

Distrust/ Vigilance

Keyed +

I find it hard to forgive others
I suspect hidden motives in others
I am wary of others
I distrust people
I believe that people seldom tell you the whole truth
I believe that people are essentially evil

Keyed -

I trust what people say
I trust others
I believe that people have good intentions
I believe that people are basically moral

Imagination/ Abstractedness

Keyed +

I do things others find strange
I like to get lost in thought
I enjoy wild flights of fantasy
I love to daydream
I swim against the current
I take deviant positions
I do unexpected things

Keyed -

I do things by the book
I seldom daydream
I seldom get lost in thought

Reserve/ Privateness

Keyed +

I reveal little about myself
I am hard to get to know
I do not talk a lot
I bottle up my feelings
I keep my thoughts to myself

Keyed -

I am open about myself to others
I am open about my feelings
I disclose my intimate thoughts
I show my feelings
I am willing to talk about myself

Anxiety/ Apprehension

Keyed +

I am afraid that I will do the wrong thing

I feel threatened easily
I am hurt easily
I worry about things
I spend time thinking about past mistakes
I feel guilty when I say "no"
I feel crushed by setbacks

Keyed -

I do not worry about things that have already happened
I am not easily bothered by things
I do not let others discourage me

Complexity/ Openness to change

Keyed +

I believe in the importance of art
I love to think up new ways of doing things
I enjoy hearing new things
I carry the conversation to a higher level
I prefer variety to routine

Keyed -

I avoid philosophical discussions
I rarely look for a deeper meaning in things
I am not interested in theoretical discussions
I am not interested in abstract ideas
I try to avoid complex people

Introversion/ Self-reliance

Keyed +

I want to be left alone
I prefer to do things by myself
I enjoy spending time by myself
I seek quiet
I do not mind eating alone
I enjoy silence
I enjoy my privacy

Keyed -

I enjoy being part of a group
I enjoy team work
I can not do without the company of others

Orderliness/ Perfectionism

Keyed +

I want everything to be "just right"
I get chores done right away
I like order
I continue until everything is perfect
I am exacting in my work

Keyed -

I am not bothered by messy people
I am not bothered by disorder
I leave a mess in my room
I leave my belongings around
I put off unpleasant tasks

Emotionality/ Tension

Keyed +

I get irritated easily
I get angry easily
I am quick to judge others

Keyed -

I am not easily annoyed
I try to forgive and forget
I have a good word for everyone

I am annoyed by others mistakes

I am easily put out

I cannot stand being contradicted

I judge people by their appearance
