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An Intervention to Raise a Sense of Belonging and Associated Outcomes for Secondary Aged Pupils with Low Socioeconomic Status

by

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ABSTRACT

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AN INTERVENTION TO RAISE A SENSE OF BELONGING AND ASSOCIATED OUTCOMES FOR SECONDARY AGED PUPILS WITH LOW SOCIOECONOMIC STATUS

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The first chapter of this document outlines a systematic literature review regarding the relationship between belonging and academic achievement, specifically in relation to adolescents. Three databases were systematically searched following a clear search strategy and inclusion criteria. Nineteen articles were identified and critically appraised in order to understand the current picture of the research. On balance, the review highlights that belonging is significantly related to academic achievement. This relationship was found across gender and different cultures. In addition, within the concept of belonging, some factors seem to influence achievement more than others, e.g., relatedness to teachers. However taken together, it indicates that relationships in general are important to support achievement. This review also highlights factors that contribute to differences in belonging and achievement such as gender (with girls achieving higher levels of both) and marginalisation by ethnicity and socioeconomic status. In addition, the articles indentified a range of variables that help to explain the relationship including academic emotions, engagement, behaviour conduct, educational efficacy and purpose. Despite the findings reported in the literature, there is a lack of experimental research regarding this relationship and the conclusion remains correlational. Following this review a gap in the literature appears regarding how to increase belonging and consequently achievement, using an experimental design. In addition, it highlights to educational professionals that relationships are important in supporting achievement and should be adequately supported in educational settings.

The second chapter of this document reports on experimental research conducted on the topic of belonging and associated outcomes for young adolescents. Previous research demonstrated that a brief psychological intervention increased belonging and attainment for a marginalised

population (individuals from African American backgrounds) upon transition to a new environment (college) (Walton & Cohen, 2011). The current research adapted and used this intervention with a different population, i.e., young adolescents who may experience marginalisation due to low socioeconomic status (SES), upon transition to secondary school. The aim of the intervention is to target individuals who may worry about belonging and implicitly change their attributions about negative experiences, i.e., that perceptions of social adversity are common and time limited, not due to the individual themselves. Three schools based in low SES areas agreed to take part. Year 7 pupils (*N* = 62) were allocated to either an intervention group (*n* = 25) or active control group (*n* = 37). Measures of anxiety about belonging and SES were taken pre-intervention. Measures of belonging, attainment and attendance were taken across a period of six months. Correlational analysis found that SES was significantly related to anxiety about belonging, i.e., those with low SES had higher levels of anxiety. Multiple regression analysis also found that SES significantly predicted attainment. T-tests were used to analyse the difference between the intervention and control conditions in regards to belonging, attainment and attendance. However, no differences were found between the intervention and control groups. Future directions regarding the development of this intervention are discussed.

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DECLARATION OF AUTHORSHIP

I, Joanne Lambeth declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

An intervention to raise a sense of belonging for children with low SES in secondary school.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed: .....

Date: .....

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Abbreviations

ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
GPA	Grade Point Average
HBSC	Health Behaviour in School-Aged Children Survey
SES	Socioeconomic Status
SSCS	Secondary Sense of Community Scale
NEET	Not in Education, Employment or Training
ONS	Office of National Statistics
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PSSMS	Psychological Sense of School Membership Scale
TA	Teaching Assistant
USA	United States of America

Chapter 1: To What Extent Does Having a Sense of Belonging Impact on Academic Attainment for Young Adolescents?

1.1 Introduction

1.1.1 Academic Achievement and Life Outcomes

Academic achievement can be defined as performance outcomes that indicate the extent to which a person has accomplished set goals, specifically in school, college and university (Steinmayr, Meibner, Weidinger & Wirthwein, 2014). In general, academic achievement is seen as important by society as it is related to positive life outcomes valued by society, i.e., employment (Rychen & Salganik, 2003) and life satisfaction (Steinmayr, et al., 2014). As a result, academic achievement is an increasing point of significance for children and young people, particularly during adolescence where they start to take examinations that will impact on their future opportunities. For example, in the UK, leaving school with 5 A-C grades (or equivalent), including Math and English, is considered a standard requirement which enables access to further education and improves the individual's chances to compete in today's international marketplace (Department for Education, 2013).

According to Bynner and Parsons (2002) poor educational attainment is a strong predictor of becoming NEET (Not in Education, Employment or Training), a category that is likely to lead to low income or low socioeconomic status (SES), isolation and limited resources. Whilst economic research has indicated that, once basic needs are met, increased income has no lasting effects on happiness (Ahuvia, 2008), a minimum requirement is fundamental in helping individuals meet their basic needs. For example, low SES is associated with a range of factors that can impact on life outcomes, including resource poverty, lack of access to social goods, poor housing, lower healthcare and health (Adler & Ostrove, 1999), wellbeing (Pinquart & Sörensen, 2000) and an increased vulnerability to undesirable life events (Mcleod & Kessler, 2008). In addition, low SES can increase the probability of further difficulties, i.e., lower academic attainment for children and young people from such backgrounds (Bradley & Corwyn, 2002).

Furthermore, unemployment has been found to increase distress and a range of mental health difficulties such as depression, anxiety, poor subjective wellbeing and self-esteem (Paul & Moser, 2009). Ross and Willigen (1997) suggested that education is important as it can reduce

such negative outcomes by leading to paid work, non-alienated work, and economic resources, which are associated with high personal control. In 2013, the Office for National Statistics (ONS) found that a higher level of education was associated with higher rates of employment, lower rates of inactivity, higher average earnings across a lifetime and more choice in work. Overall, the opportunities available for those with a good educational background are more positive and desirable than those without.

As a result, it is clear that academic achievement during adolescence is important to give individuals the best chance to gain further training, adequate employment, appropriate resources and better life outcomes. Therefore it is important to consider what factors contribute to academic success.

1.1.2 Factors Affecting Academic Achievement

Deci, Vallerand, Pelletier, and Ryan (1991) suggested that schools play a large role in promoting genuine enthusiasm and accomplishment in students through the thousands of hours they spend in school. It is here that children experience primary socialisation and where individuals develop an interest in learning (Deci et al., 1991). Ryan and Deci (2000) suggested that individuals are driven to learn, to master skills and to apply their talents. Deci et al. (1991) hypothesised that interest and volition lead to greater flexibility in problem solving and more efficient acquisitions of knowledge, personal worth and social responsibility. Holding and demonstrating such values allow individuals to achieve in a range of contexts and strive towards further opportunities to explore interests. Deci et al. (1991) suggested that these broad learning and adjustment outcomes are what we seek to promote in schools. In addition, the school context is thought to be able to simulate certain types of motivation in children, which can lead to conceptual learning, personal growth and adjustment and ultimately better achievement (Deci et al., 1991).

According to self-determination theory, there are 3 types of motivation which are inherent in human life (competence, autonomy and relatedness), all of which need to be satisfied in order for individuals to be sufficiently motivated (Ryan & Deci, 2000). Competence refers to optimal challenge, i.e., succeeding in a task that is carefully matched to what the individual is able to do, and performance feedback that allows an individual to know they are capable. Competence is thought to enhance intrinsic motivation, i.e., engaging in behaviours for their own sake, but only if the support for competence is administered in a way that also supports autonomy (Deci et al., 1991). Autonomy relates to the extent to which individuals hold an internal locus of control, i.e., for individuals to believe outcomes will be the result of their own behaviour, rather than the

control of others. Therefore competence may be experienced and intrinsic motivation increased when praise is given to an individual for following their own initiative. However, being praised for following the instructions of others leads to a feeling of being controlled (Deci et al., 1991). Finally, relatedness refers to developing secure and satisfying connections with others in their social setting.

According to Fredricks, Blumenfeld and Paris (2004), self-determination theory assumes that students will be more engaged when classroom contexts meet an individual's need for relatedness, i.e., where teachers and peers create a caring and supportive environment. Fredricks et al. (2004) described three types of engagement: 'Behaviour engagement', which includes positive conduct, effort, persistence and concentration, 'emotional engagement' which includes affective reactions to the classroom, i.e., happiness or boredom, and 'cognitive engagement' which includes investment in learning. Research has found links between relatedness and all three types of engagement (Fredricks et al., 2004), which is likely to lead to better educational outcomes.

As a result, self-determination theory suggests that motivation, performance and development is maximised in social contexts that provide people with the opportunities to satisfy these basic needs (Ryan & Deci, 2000). More specifically, Baumeister and Leary (1995) suggested belonging (a similar concept to relatedness) is a fundamental human need that directs behaviour. Across the literature, belongingness is a multi-faceted construct often referred to as connectedness, relatedness (as discussed above), community or membership (Master, Cheryan, & Meltzoff, 2017). Baumeister and Leary (1995) define belonging as a "pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (p. 497). To satisfy this need, "frequent, positive interaction with others must occur in a context of temporally stable and enduring framework of affective concern for each other's welfare" (Baumeister & Leary, 1995, p. 497).

The notion of belonging can be constructed at a number of different levels. For example, Social Identity Theory (Ashforth & Mael, 1989; Tajfel, 1974, 1978; Tajfel & Turner, 1979) proposes that part of a person's identity comes from a sense of themselves in relation to groups, and that people seek to value their group positively in relation to others. The Social Issues Research Centre (SIRC, 2007) identifies six areas through which an individual can achieve a social identity: family, friendship, lifestyle choices, nationality, professional identity and team spirit and shared interests. These elements represent systemic factors (Bronfenbrenner, 1974; Bronfenbrenner & Morris, 2007) that influence an individual's sense of belonging. However, belonging is also influenced at a more immediate psychosocial level (Erikson, 1963), by an individual's lived personal experiences

i.e., the individual's subjective experiences and how they have made sense of the sociological context they find themselves within. As a result, belonging is also impacted by psychosocial factors such as motivation, confidence and past experiences. In a school context, belonging relates to positive relationships with peers and adults at school, including perceived feelings of safety (Libbey, 2004) and beyond a liking for school, it reflects one's social adaptation, or fitting in at school (Benner & Graham, 2007). Within this literature review, consideration was given to both the wider construct of belonging and the reported lived experiences of an individual's sense of belonging.

Initial theories encompassing belongingness highlighted the importance of feeling that one belongs in order to achieve in life, e.g., "love and belongingness" features as an important component within Maslow's theory of human motivation. Although such early theories are drawn from implicit knowledge, a review of the empirical research by Baumeister and Leary (1995) provided an insight into the evidence base for the hypothesised importance of belonging. Baumeister and Leary (1995) concluded that belonging is indeed a fundamental motivational need and therefore will

> (a) produce effects readily under all but adverse conditions, (b) have affective consequences, (c) direct cognitive processing, (d) lead to ill effects (such as on health or adjustment) when thwarted, (e) elicit goal-oriented behaviour designed to satisfy it (subject to motivational patterns such as object substitutability and satiation), (f) be universal in the sense of applying to all people, (g) not be derivative of other motives, (h) affect a broad variety of behaviours, and (i) have implications that go beyond immediate psychological functioning. (p. 498)

The research included in the review, and that conducted since 1995, has continued to support these criteria and provide a convincing case for why a sense of belonging is important for psychological wellbeing, academic achievement and life outcomes in general (Gere & MacDonald, 2010). The current literature review is specifically interested in the impact belonging has on achievement in school.

1.1.3 Belonging and Achievement

To help us understand how a sense of belonging impacts on academic achievement it is important to consider the role of cognitive processing (Baumeister & Leary, 1995; Gere & MacDonald, 2010). That is to what extent do individuals prioritise the processing of socially relevant information over that of other information? In evolutionary terms, humans were likely to prioritise social information for survival purposes; belonging to a group was vital in order to share

resources, reproduce and gain protection (Baumeister & Leary, 1995). Therefore our attention is directed towards fulfilling such needs. According to the temporal needs-threat model of ostracism (Williams, 2009), humans experience a sense of pain in response to rejection. This alerts us to the potential threat of rejection and provides a reflective period which helps us identify our goal orientation, directing our behaviour in order to defend the threatened need. As a result, it is likely that individuals who sense a threat to their belongingness are likely to focus their cognitive energy on meeting the need to belong, i.e., the processing of socially relevant information, at the expense of non-social, complex cognitive tasks (Gere & MacDonald, 2010). This hypothesis has been supported in a range of studies which suggest that unmet belongingness is associated with better memory for social events, greater attention to and processing of vocal tone in speech, greater accuracy in identifying emotions in faces, and more accuracy in understanding others' thoughts and feelings (Gardner, Pickett, Jefferis, & Knowles, 2005; Pickett, Gardner, & Knowles, 2004). Such research therefore demonstrates an increased ability to process socially relevant information in response to rejection. As a result, interest in the area of belonging and cognitive processing has grown, with research looking at ways to manipulate belonging in order to measure the effects a sense of belonging (or rejection) has on task performance.

It has been argued that when a sense of belonging is felt, even with only minimal belonging cues, performance on tasks will increase. For example, Walton, Cohen, Cwir and Spencer (2012) found that providing a small social connection with another person, i.e., sharing a birthday with a high math achiever, led to the participants persisting more on unsolvable math problems and reporting a greater sense of belonging to the math department. In addition, they found that participants who were allocated to a maths group, but were asked to work on a math problem on their own, showed increased persistence compared to those who worked independently with no group connection. These findings suggest that even subtle cues regarding the possibility of future acceptance are enough to motivate higher persistence and consequently performance (Gere & MacDonald, 2010).

Similar results have even been found with young children. For example Master and Walton (2013) found that 4 year olds with minimal affiliation with a group associated with a particular task, persisted for longer with difficult puzzles and were able to learn more words than children who were given an analogous individual identity. Furthermore, Baumeister, Twenge and Nuss (2002) found that performance on intelligence tests decreased when individuals were provided with false feedback regarding belonging, i.e., that they would have a lonely future, compared to those that received feedback suggesting they would be accepted or would have a non-social misfortune in the future.

As a result, belonging can increase persistence and task performance in academic domains across people of differing ages. Given the importance of academic achievement for adolescents in terms of securing future education, training or employment, this systematic literature review sets out to identify and evaluate the research evidence to answer the title question: To what extent does a sense of belonging impact on academic achievement in adolescents? Gender, cultural factors and possible mediators will be explored in order to fully understand this relationship.

1.2 Literature Search

1.2.1 Search Strategy

The current review followed guidelines from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher, Liberati, Tetzlaff, Altman, & Grp, 2009). See Figure 1 for PRISMA diagram depicting the flow of information through the different phases of this systematic review. Three databases; PSYCinfo, Web of Science and ERIC were systematically searched for titles and abstracts that were potentially relevant for inclusion in this review. The databases were chosen as they include articles from the domains of psychology, sociology and education. All of which were considered possible sources of relevant literature. Searches were conducted using terms that addressed different conceptualizations of belonging, academic achievement and secondary school pupils (age 11-17). Where appropriate, terms that could have multiple spellings and suffixes, were entered into the database using an asterisk to search all related terms, e.g., belong* for belonging or belongingness. (See Appendix A for a full breakdown of the search strategy). Overall terms were kept broad to include all studies that may reflect elements of this topic. For example, social support was added as studies may include a measure of belonging when exploring this construct. Where applicable, filters were used to restrict the age of pupils and the target domains, i.e., social psychology rather than social services.

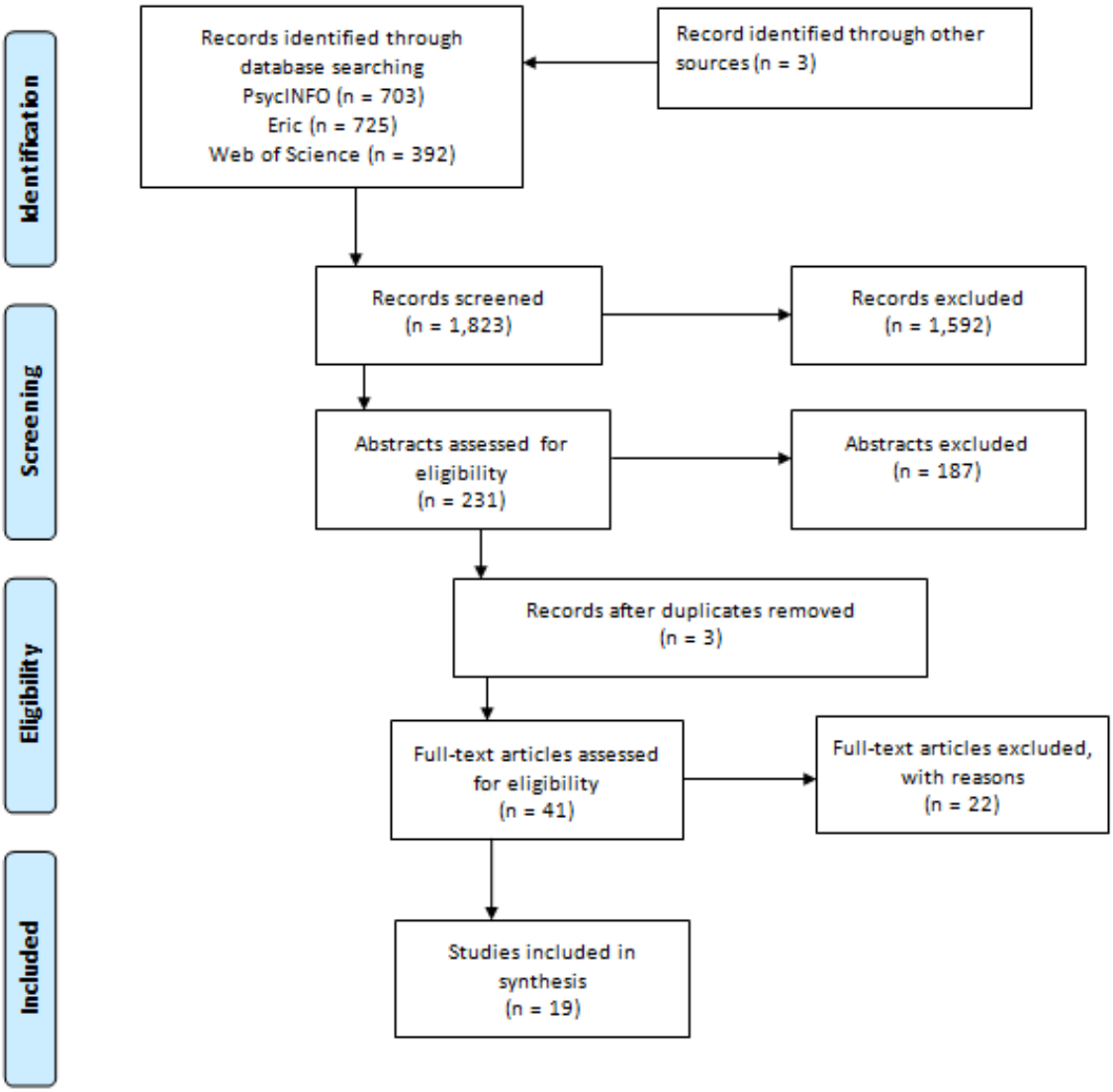

Figure 1. PRISMA flow chart (Moher et al., 2009). This figure illustrates the systematic literature review process followed for this review. *n* = number of articles.

1.2.2 Inclusion and Exclusion Criteria

To ensure retrieved articles were relevant to the stated aims, inclusion and exclusion criteria were established prior to conducting the systematic search. Retrieved articles were included if they (a) reported on pupils between the ages of 11-17 (b) were published in the English language, (c) had an online abstract available, (d) presented quantitative analyses, (e) were peer-reviewed, (f) had an outcome measure which included actual achievement in academic subjects (g) had an independent variable which included aspects relevant to the definition of belonging and (f) were published after 1990. See Appendix B for a breakdown of the inclusion/ exclusion criteria and screened articles that were excluded based on this criteria.

To assess the eligibility of retrieved articles, titles were first screened to include all that were broadly related to this review topic. The remaining articles were then screened for eligibility

against the stated inclusion and exclusion criteria by examining the articles' abstracts. Full articles were scanned if the abstracts did not provide enough information to make an informed decision regarding whether to include or exclude the article. In most cases this included looking at the specific ages reported in the studies. The final retrieved articles were read in their entirety to make sure the definitions and measures used were consistent with those outlined in the aims of this review. Additional studies were removed at this stage due to inconsistencies between reported constructs measured, the tools used to measure these and any other factors relating to the exclusion criteria.

1.3 General Characteristics of Articles Included in the Review

1.3.1 Sample Characteristics

See Appendix C for the data extraction table created to summaries the key information from all nineteen articles.

Throughout the articles the majority of the research took place in the USA, four of the studies were conducted in China and one study was conducted in each of Australia, Turkey, the Philippines and the Netherlands. Ten of the studies included gender in their analysis and five studies analysed racial/ ethnic/ socioeconomic features. As part of the inclusion criteria, only studies that reported on participants aged between 11-17 years old were included.

1.3.2 Study Design

Overall, twelve studies used a longitudinal design, i.e., they follow the same sample over time and took repeated measures (Anderman, 2002; Benner & Wang, 2014; Bond et al., 2007; Chen, Rubin, & Li, 1997; Delgado, Ettekal, Simpkins, & Schaefer, 2016; Hughes, Im, & Allee, 2015; King, 2015; Liu & Chen, 2003; Liu & Lu, 2011; Lubbers, Van Der Werf, Snijders, Creemers, & Kuyper, 2006; Gillen-O'Neel & Fuligni, 2013; Wentzel & Caldwell, 1997). Six studies used cross sectional surveys at one time point to identify differences in a given population (Adelabu, 2007; Arslan, 2016; Goodenow, 1993; Lam, Chen, Zhang, & Liang, 2015; Roeser, Midgley, & Urdan, 1996; Sánchez, Colón, & Esparza, 2005). Only one study used an experimental design; however the focus on the intervention was regarding a substance prevention programme (Eisele, Zand, & Thomson, 2009). Eleven of the studies included in the review collected data from participants that researchers had recruited themselves. However, eight of the studies used existing data which was obtained from larger longitudinal studies. Of the projects named, three of these studies (Anderman, 2002; Benner & Wang, 2014; Delgado et al., 2016) used data from the National

Longitudinal Study of Adolescent Health (1994). Other projects which provided the articles with pre-existing data included The Gatehouse Project (Bond et al., 2007), The Shanghai Longitudinal Project (Liu & Chen, 2003), The Centre for Substance Abuse Prevention (Eisele et al., 2009) and The Longitudinal Cohort Study in Secondary Education (Lubbers et al., 2006).

1.3.3 Measures and Analysis

The majority of articles measured academic attainment through cumulative grade point averages (GPA) or grades collected from the school on certain subjects. Other measures include teacher ratings, university entrance scores, track systems and The Woodcock Johnson III Tests of Achievement (developed by Dean, 2013 cited in Hughes et al., 2015). For the relevant independent variable, sixteen of the studies use self-report surveys/ questionnaires to measure belonging. Of these, six used the Psychological Sense of School Membership Scale (PSSMS; developed by Goodenow, 1993). Three of the studies used the measure designed for the Adolescent Health study. Other self-report measures include: The Relatedness Scale (Kuyper et al., 2003, cited in Lubbers at el., 2006); School Wellbeing (Renshaw et al., 2004 cited in Arslan, 2016); Social Integration (Benner & Wang 2014); Adaptive Learning Survey (Midgley et al., 1996 cited in Roeser et al., 1996); School Belonging (Delgado et al., 2016); School bonding (Eisele et al., 2009); the Self Perception Profile for Adolescents (Harter, 1985 cited in Liu and Chen, 2003); and Institutional Engagement (Tyler & Degoey, 1995 cited in Gillen-O'Neel & Fuligni, 2013). In addition, five of the studies used sociometric methods (peer nominations). Only two of these studies used both peer nominations and self-report surveys (both of which are self-report measures noted above).

Across the articles the analysis was appropriate for the questions being asked and the method of data collection. Five of the studies used regression analysis to look at predictor variables and correlations. Six studies extended their analyses, including mediating variables to help explain the relationship and moderating variables to help improve the strength of the relationship. Two studies look at group differences using analysis of variance. Five studies used Structural Equation Modelling to asses unobservable latent constructs (e.g., belonging) from a range of observable constructs, e.g., belonging questionnaires, to predict an outcome and test a specific hypothesis over time.

1.3.4 Overview of the Quality of Studies Assessed

To further assess the quality and relevance of these papers, judgements were made regarding the weight of evidence for all nineteen papers (Appendix D). The process was based on the framework outlined by Gough (2007), whereby each article is judged on four criteria:

A. Non-review-specific judgements about the coherence and integrity of the evidence in its own terms.
B. Review-specific judgements about the appropriateness of the evidence for answering this review question.
C. Review-specific judgement about the relevance of the focus of the evidence for this review question.
D. The combination of these categories to conclude the overall weight of evidence of each article.

In addition, a quality checklist (Boynton & Greenhalgh, 2004) was used to inform these judgments, specifically in relation to the methodology and quality of reporting. Generally, the articles were judged to be of good quality in relation to criteria A and B. This was as predicted, since all of the articles have been published in peer reviewed journals. Across these papers, factors that lowered judgements of quality included unreported information, smaller sample sizes, a lack of a specific theoretical framework and/ or inadequate measures.

1.4 The Relationship Between Belonging and Academic Achievement

1.4.1 Self-Report Measures

In terms of the direct relationships between belonging and academic achievement, as measured by self-report questionnaires, i.e., participants perceived experiences of belonging, three papers clearly found and reported significant correlations (Lam, et al., 2015; Benner & Wang, 2014; Bond et al., 2007). In addition, eight papers found that belonging significantly predicted achievement (Adelabu, 2007; Anderman, 2002; Arslan, 2016; Eisele et al., 2009; Goodenow, 1993; Hughes et al., 2015; King, 2015; Roeser et al., 1996). Within these papers, the self-report measures explained between 2.4% (Arslan, 2016) and 18% (Goodenow, 1993) of the variance in academic achievement. Of the 11 papers that found a significant relationship, seven were rated overall as high quality articles. One of these (Roeser et al., 1996) found a direct relationship between feelings of school belonging and end-of-the-year achievement, after controlling for students' prior achievement. Similar results were found by studies that looked at the impact of belonging on achievement trajectories. For example, Hughes et al. (2015)

hypothesised that trajectories of school belonging, from 6th grade (age 10 years) to 8th grade (age 13 years), would predict subsequent attainment in 8th grade. The findings demonstrated that higher belonging at age 10 predicted reading at age 13, above prior reading levels. In addition, belonging predicted maths attainment, which held above all other child and school level covariates, i.e., prior achievement, school size and average grades, parental education and gender.

Conversely, Liu and Lu (2011) looked at the trajectories of academic attainment across transition from middle school to secondary school (mean age of participants at the end of the research was 16 years). They found three trajectories: those that decreased in attainment, those that increased and those that remained level. In terms of the predictive relationship between belonging and attainment, the researchers found that neither initial levels of belonging, nor rate of change in belonging predicted achievement across the three trajectories. However, they did find that belonging was significantly higher in the 'increasing' group, i.e., those that made improvements in their academic attainment across the transition also had a significantly higher sense of belonging. Despite this, the authors fail to discuss this finding in more depth in their article and suggest that as Chinese students enter the more challenging secondary school setting, their academic achievement depends more on their cognitive abilities, rather than the emotional factor of belonging. This assertion may rely on an assumption that middle school requires students to use fewer cognitive skills, but more social aspects in order to achieve (e.g., group work), whereas secondary school does not. Whilst the paper highlights that some cultural differences may be present, the worth of such findings are reduced by issues in relation to the quality of the study. For example, the authors used a measure that was developed and tested on a Western population (e.g., the USA), which had been translated into Chinese. The paper does not refer to any attempts at checking the reliability or appropriateness of this questionnaire on their population sample. In addition, the participants were only tested across one term, which is a rather short longitudinal study. Finally, the paper failed to discuss any theory in the article on which to base their hypothesis and findings. In fact the paper was very short and did not include a clear rationale for their hypothesis, measures and conclusions, i.e., they make reference to resiliency factors, but measures of resilience were not included. As a result this paper was rated as low quality.

Two other papers also found a non-significant result, i.e., that a sense of belonging did not significantly predict academic attainment, both of which had higher quality ratings. Sánchez et al. (2005) focused on what the researchers describe as a Latino population, aged between 17 and 18 years (12th grade) in the USA. Gillen-O'Neel and Fuligni (2013) looked at participants with Latin American, Asian and European backgrounds in the USA, following students from age 14 to age 18.

Interestingly, despite the non-significant results, both articles suggested that a relationship was still present.

For example, Sánchez et al. (2005) claimed that belonging was related to academic outcomes, as the results did show that a sense of belonging significantly predicted absenteeism and academic effort. Gillen-O'Neel and Fuligni (2013) found positive within-person associations between school belonging and higher levels of intrinsic value and utility value. They suggested this would impact on enjoyment of school and consequently reduces drop-out rates. Throughout the papers the authors reported on a breadth of literature which demonstrates that these factors (absenteeism, academic effort, value and utility) were related to academic achievement. It is perhaps surprising therefore that the relationship to the dependent variable of academic attainment (both measured by GPA) was non-significant. Sánchez et al. (2005) acknowledged some limitations that may account for the lack of significance in their study. They suggested that there may have been an impact due to the collectivist culture sampled and that the schools in general had a high dropout rate. Therefore, only students who were resilient enough to remain in school were able to participate. Consequently, the sample may have been skewed towards those with higher than average belonging. Additionally, the mean age of the population involved in the study was at the highest end of the inclusion criteria, i.e., 18 years, which allows the possibility that age may have impacted on this relationship. Gillen-O'Neel and Fuligni (2013) suggested that due to the standardised nature of assessment used in high school, belonging may not directly contribute to the knowledge and skills necessary to succeed in such assessments. In addition, they felt that the within person, longitudinal analysis of belonging and achievement contributed to this alternative finding. However, significant relationships were still found in other papers included in the review that used a longitudinal design, similar assessments and with the same age population. As a result the unique factors that may have accounted for the results in this study are unclear.

1.4.2 Belonging to What?

On balance, the evidence discussed so far demonstrates a direct correlational relationship between belonging and achievement. However, of the papers that differentiated between to whom or what individuals felt a sense of belonging, i.e., parents, teachers, peers or the school itself, three papers found that particular features of belonging yielded more influence than others. This suggests that even within the construct of belonging, there may be some aspects that are more important than others, which may differ based on the population sampled.

For example, Goodenow (1993) found that in the USA, teacher support was the most influential component of belonging in terms of associations with effort and achievement for

participants aged 12. Conversely, King (2015) found that sense of relatedness to parents, not peers or teachers, formed a significant direct predictor of academic achievement for 14 year old students in the Philippines. In addition, Bond et al. (2007) found that although good school connectedness and good social connectedness was associated with the best outcomes (including academic achievement), good school connectedness and poor social connectedness increased the odds of obtaining good university entrance scores for 14 year olds in Australia. This association was non-significant, however this paper indicated that school connectedness may be more important than peer connectedness in terms of its relationship to academic achievement and therefore may be an important area for future investigation.

These points are interesting especially with regard to the fact these papers look at different cultures. However, none of the results were replicated in any other study assessed for this review. Furthermore, there were issues with the measures used and sample size; therefore all three of these papers were rated as medium in terms of weight of evidence. For example, Goodenow (1993) based 'academic achievement' on English scores alone. Therefore only data on participants who were in an English lesson when the study was carried out (instead of science, maths or social studies), were analysed. Thus the sample size for this part of her analysis was low (n = 87). In addition, the measure used by King (2015) was the relatedness scale, which allowed exploration of relatedness to peers, teachers and parents. However, it may not have been a good enough indicator of belonging overall as the focus was on being accepted by each subgroup, rather than exploring concepts of acceptance at school or overall feelings of belonging. Additionally, one might assume that the 'peer social connectedness' measure used in Bond et al. (2007), was the measure that focused on social relationships and therefore belonging. However, the 'school connectedness' measure looked at value of school, relationships with peers and teachers as well as a sense of belonging. Thus, having good school connectedness also demonstrated that an individual had some positive peer relationships.

1.4.3 Peer Nominations

In addition to the relationships explained through self-report measures, five papers used peer nominations to measure the wider, more observable constructs relating to belonging such as: peer acceptance, peer rejection, reciprocal relationships, friendship networks and group membership (Chen et al., 1997; Liu & Lu, 2011; Wentzel & Caldwell, 1997). Peer nominations were made as part of a sociometric exercise whereby children were asked to nominate three peers they most liked and three peers they least liked. Children who were reported frequently as being liked the most were seen as being accepted by peers. Those who were frequently rated as least liked were seen as being rejected by peers.

This measure offers alternative insights than the self-report measures, as it does not directly access an explicit construct of belonging, but instead reflects the lived experiences of peer interactions. Of the five articles that used peer nominations, two also used self-report measures. In terms of the direct relationship between peer acceptance and academic achievement, all five articles found significant results.

For example, Wentzel and Caldwell (1997) found that all of the peer variables significantly predicted GPA, both concurrently and one year later. In this study, group membership was consistently related to academic achievement in 6th and 8th grades (aged 10 and 13 respectively). This remained true for GPA for pupils aged 10, even when other social and emotional characteristics were controlled for. In addition, Chen et al. (1997) found a significant negative correlation between negative sociometric nominations and academic achievement. They also found that positive peer nominations (along with other factors i.e., sociability, competence and leadership) had a positive contribution to academic achievement, after controlling for gender and prior achievement for participants aged 12. In addition, Liu and Chen (2003) looked at differences between individuals aged 14, who were identified as a) group members (individuals who are a part of a large group of reciprocal friendships) b) dyads (individuals who have one or two reciprocal friendships) and c) those that were isolated (individuals with no reciprocal friendships at all). Significant effects were found, i.e., those who were identified as group members had higher scores on academic achievement than dyads and dyads demonstrated higher scores in academic achievement compared to isolates. Thus, the pattern in results suggested that as achievement increases, the amount of reciprocal friendships one has with peers also goes up.

The remaining two papers looked at how belonging and peer acceptance related to achievement using both self-report measures and sociometric measures. Lubbers et al. (2006) used the relatedness scale as a self-report measure for belonging, along with peer nominations for participants aged 13. The researchers found a significant relationship between the peer nominations and academic achievement. More specifically they found that well accepted students had a lower probability of retaining or moving down the track system, i.e., repeating a school year, than their poorly accepted peers. Although, interestingly level of peer acceptance had no impact on upward mobility or grade skipping. Furthermore, relatedness did not mediate the relationship between peer acceptance and achievement, i.e., when the self-report measures were included in the analysis the relationship did not decrease as expected. Thus, the research found that relatedness did not help to explain the relationship between peer acceptance and achievement. However, it is worth noting that the measure used to capture 'relatedness' in this study, was the combination of the school wellbeing scale, a five point Likert scale rating of whether individuals felt they were more or less liked by their peers. Whilst the school wellbeing

study had a Cronbach's alpha of .71, there was no exploration of validity or reliability for the combined measures for the construct of 'relatedness'. Consequently, the study may not have adequately measured belonging in this instance, as is noted by the researchers themselves.

Conversely, Delgado et al. (2016) found a significant relationship between both peer nomination and a self-report measure of school belonging (PSSMS) and achievement for participants aged 15. Additionally, they found that the self-report measure was in fact a significant mediator, i.e., it helped to explain this relationship. As a result, it may appear that being part of a peer network impacts on academic achievement as it creates the conditions that foster a sense of belonging, at least when measured by the PSSMS.

Whilst a general relationship between belonging and achievement is supported by the literature, the rest of this review aims to explore individual differences that may impact on this relationship.

1.4.4 The Impact of Gender

Of the papers that reported on differences between genders, similar themes arose. Eight papers found that girls had significantly higher GPA than boys (Adelabu, 2007; Anderman, 2002; Chen et al., 1997; Delgado et al., 2016; Goodenow, 1993; King, 2015; Liu & Chen, 2003; Sánchez et al., 2005). None of the papers found that boys had higher levels of GPA, although Gillen-O'Neel and Fuligni (2013), Liu and Lu (2011) and Eisele et al. (2009) found no differences in attainment across gender.

In addition, seven papers found that girls reported a higher level of belonging (or a lower level of rejection) than boys (Adelabu, 2007; Anderman, 2002; Delgado et al., 2016; Hughes et al., 2015; Liu & Chen, 2003; Gillen-O'Neel & Fuligni, 2013). Only Sánchez et al. (2005) found no gender differences in sense of belonging. Interestingly, Gillen-O'Neel and Fuligni (2013) found that girls' belonging decreased across high school, whereas boys' belonging remained steady. As a result, gender differences in belonging disappeared by the end of high school which could indicate that gender differences may be more apparent at the earlier stages of secondary school. The researchers suggest that the initial gender differences follows previous research carried out with middle school pupils, but may demonstrate that the importance of belonging is different in high school. Additionally, Wentzel and Caldwell (1997) found that differences in peer nominations predicted GPA differently across genders. They found that peer acceptance and group membership was significantly related to GPA for both boys and girls. However, having reciprocal friendships was also significantly related to GPA for boys, suggesting that the conditions that promote a sense of belonging differ across gender.

Consistent with the previous results, higher scores in belonging generally related to higher levels of attainment. However, there appeared to be clear gender differences, i.e., girls generally had higher levels of belonging and academic attainment, and boys tended to be lower in both. It is difficult to know therefore how much of the relationship between belonging and achievement can be explained by gender effects. Indeed, Hughes et al. (2015) found that when gender (and ethnicity) was included in the analysis, the relationship between belonging and achievement was strengthened, demonstrating a clear moderation effect of gender. Thus gender differences can influence this relationship. Nevertheless, Chen et al. (1997) found that the relationship between a sense of belonging and achievement persisted, even when gender was controlled for. This suggested that despite some differences across gender, levels of belonging still impacted on achievement. Therefore, it is important to look at what may lead to different levels of belonging across gender.

Interestingly, contrary to other articles, Eisele et al. (2009) found that in a sample of 12 year old pupils, boys reported higher levels of friendship and acceptance than girls; however, there were no gender differences in terms of school bonding or attainment. They found that the gender differences seen in friendship and acceptance scores were explained by gender identity, which was measured by self-reports on individual's independence and leadership skills. These differences were found to be significantly higher for boys than girls. The researchers therefore suggested that gender identity is a more important determinant of initial perceptions of friendship and acceptance than gender.

Whilst this is an interesting finding, the researchers did not replicate results seen in previous studies; therefore, it is important to consider factors that might explain this. First, the focus of the questions in the school bonding measure seemed to be on attendance and how often students enjoyed being in school, not relationships. Similarly, it is difficult to tell from the article the types of questions asked to assess levels of friendship and acceptance in the self-perception profile. Additionally, the concept of gender identity is not defined and explanations for how the self-report measures of 'independence and leadership' form this construct are not reported. Thus, this paper does not clearly demonstrate how or if they have measured the constructs reported within the study. Secondly, the researchers suggested that lack of gender difference in academic attainment, compared to previous research, was down to the way achievement was measured. For example, they acknowledged that girls outperformed boys in literacy, but did equally as well in maths and science. However, they used an average of all of the grades and therefore suggested that gender differences may have been found if they looked at a specific subject. Despite this, the majority of the studies discussed in this review used GPA as their outcome measure across cultures and as discussed, still found gender differences in GPA. Finally, this study looked

exclusively at adolescents from an African American population and therefore cultural differences in terms of comparisons to previous papers may be important.

A higher weighted paper that also attempts to explain gender differences in both achievement and belonging is that of Adelabu (2007). The researcher found that time perspective, i.e., the extent to which an individual thinks about and plans for the future, was significantly related to academic achievement for participants aged 16. More specifically, future time perspective contributed positively to academic achievement for girls and present time perspective contributed negatively to academic achievement for boys. In addition, future time perspective was positively correlated with school belonging for girls. As a result, time perspective may be an important factor in influencing the higher levels of belonging and achievement seen in girls. Again, a focus here is on a specific population, i.e., an African American population, as a result, the findings may not generalise to a more varied population. In addition, although a regression analysis is helpful in highlighting the relationships between time perspectives and belonging and achievement, mediation or moderation analysis was not used; therefore we cannot assume that time perspective impacts on or explains the relationship between belonging and achievement.

Overall, the literature indicates that girls may have a higher sense of belonging and academic achievement than boys. When included in analysis as a moderator, gender strengthens the relationship between belonging and achievement (Hughes et al., 2015). However, the relationship still persisted when gender was included as a covariate in the analysis (Chen et al., 1997). In addition, it is possible that school bonding and gender identity are factors that may help explain the relationships between gender and attainment. Furthermore, time perspective may contribute to the differences seen in academic achievement and belonging across genders, at least when looking at adolescents from an African American population. However, based on the literature included in this review, it would be unwise to draw any strong conclusions regarding what may contribute to the higher levels of belonging and achievement in girls.

1.4.5 Cultural Differences

As can be seen from the literature discussed above, seven papers focused their research on specific populations, i.e., individuals from African American (Adelabu, 2007; Eisele et al., 2009), Latino (Delgado et al., 2016; Sánchez et al., 2005) and Chinese (Chen et al., 1997; Lam., 2015; Liu & Lu., 2011) backgrounds. All of these authors justified the aims of their papers by referring to critiques of previous literature, i.e., that they only explored the relationship between belonging and achievement in White, Western cultures. The majority of the studies that focused on populations other than those in White Western cultures found significant relationships between

belonging and achievement, which was consistent with previous literature, despite the focus on a particular background. As discussed above, two of the papers that did not find a significant relationship between belonging and achievement, suggested that the lack of significant in their results was potentially due to cultural differences in the school system used in their sample (Liu & Lu., 2011) or the collectivist nature of the culture (Sánchez et al., 2005). However, such results were not seen in the other papers that target similar populations included in this review.

These seven papers indicated that generally the relationship between belonging and achievement occurs across different cultures, with perhaps some variation due to cultural values. However, the studies have looked at participants who share background characteristics with the rest of the sample population, i.e., the whole sample were made up of participants with a similar cultural background. As a result, differences across cultural backgrounds become clearer in the studies that used a diverse population and included background characteristics in the analysis.

For example, Hughes et al. (2015) found that when looking at participants aged 10 to 13 years old, boys of African American descent demonstrated similar levels of belonging to girls of all ethnicities, which was significantly higher than boys of Euro-American and Latino descent. The research found that when including ethnicity as a moderating variable, the relationship between belonging and achievement was strengthened. In addition, growth in school belonging, significantly predicted 8th grade (age 13) achievement, specifically for students from an African American population. This suggests that increasing school belonging in secondary school had a significant impact on attainment for this population, whereas only initial levels of belonging predicted achievement for other groups.

In addition, Delgado et al. (2016) found that for participants aged 15, being nominated as a friend and perceiving that oneself has friends was directly related to GPA through a sense of belonging for adolescents in all of the defined 'Latino' categories apart from individuals from Puerto Rico. Individuals from the Puerto Rican population reported significantly lower belonging than those from Central South America and lower GPA than individuals from Mexico. Friendship characteristics, i.e., behaviour and attainment of peers, were significant for adolescents from Mexico and Cuba. This study therefore suggested that there are some differences in experiences of belonging and achievement across individuals within the defined Latino population. Interestingly, Gillen-O'Neel and Fuligni (2013) found that the decline in belonging across secondary school was steeper for girls from a Latino population than other groups (girls from Asian and European backgrounds), i.e., their sense of belonging decreases faster. Therefore the literature indicated that levels of belonging and rates of change are different across cultures.

Interestingly, Benner and Wang (2014) focused on understanding the impact of ethnicity when such individuals form the minority of the targeted population. In this study, the researchers matched students' reported Socioeconomic Status (SES) with school level proportions of others who had different levels of SES, to calculate individuals' marginalisation. More specifically, dichotomous variables were created to identify students as either 'socioeconomically marginalised' (having more than 85% of peers at school with different levels of SES) or 'not socioeconomically marginalised'. The same procedure was used to calculated ethnic marginalisation. Benner and Wang (2014) found that SES marginalisation decreased academic attainment for all participants aged between 12 and 17, apart from adolescents of African American descent. This is interesting as it includes white participants, who, even when they are a part of a majority 'white' school, may be marginalised based on their SES. However, those that had dual marginalisation (i.e., were marginalised in terms of SES and ethnicity), showed less attachment to school, lower attainment and higher loneliness. Only adolescents of African Americans descent showed negative association with school outcomes, regardless of their level of SES. The research showed that school attachment was a significant mediating variable for marginalisation and attainment, i.e., it helped to explain the relationship. However, marginalisation itself was found to have a larger impact on achievement than gender. Overall, this research suggests that the fewer links an individual has with their peers in school (ethnic and SES), the less likely they are to report a sense of belonging and the more likely they are to have lower levels of academic attainment.

In addition, Anderman (2002) found that individual level belonging and aggregated (whole school) belonging, significantly predicted GPA across an ethnically diverse sample population of 11-17 year olds. Interestingly this research also demonstrated that in a school where many children feel that they belong, those that do not belong experience higher levels of rejection and school related problems. Therefore even in schools that generally seem to be supportive for overall belonging, that supportive environment may relate to problematic outcomes for the minority who do not feel supported. This may relate to the findings of Benner and Wang (2014) in that those who do not feel supported form the minority or become marginalised and may have lower levels of belonging and consequently attainment.

This section highlights that the relationship between belonging and achievement has been found across a range of cultures. However, there were differences in both experiences of belonging and academic attainment across individuals with different background characteristics. More specifically, the literature suggested that the impact of belonging and attainment operates differently across ethnic groups. However, these differences may be due to the school/ community composition in which individuals exist and whether an individual feels unsupported or

marginalised. Therefore marginalisation may be a very important factor and has been found to impact the relationship between belonging and attainment more so than gender.

1.4.6 Additional mediational factors reported

Whilst some of the mediational factors (gender and gender identity), and moderating factors (gender and ethnicity) have been discussed above, this section aims to outline the other mediational factors that have helped explain the relationship between belonging and achievement in this review.

The aim of mediational analysis is to explore other potential factors that may help explain why or how a predictor variable is related to a dependent variable. This analysis therefore looks at the way in which the predictor variable (e.g., belonging) affects the dependent variable (e.g., achievement) via the mediator (e.g., motivation). Historically, guidelines suggested there must be a strong, direct relationship between the predictor variable and the dependent variable in order for mediational analysis to be carried out. However, according to Hayes (2009), a direct relationship is not required. Instead, mediational analysis considers the indirect path, i.e., whether the predictor variable is significantly correlated with the mediator and whether the mediator is also significantly correlated with the dependent variable.

The following papers reported mediational analysis and were rated as high quality. Arslan (2016) included two variables in his analysis. Firstly, academic efficacy refers to the individuals beliefs that they can successfully achieve in academic tasks. Secondly, educational purpose is defined as an individual's expectations of the future and perceptions of school as being meaningful and important. The results of the study found that academic efficacy and educational purpose mediated the relationship between sense of rejection and academic achievement.

Additionally, Lam et al. (2015) defined academic emotions as emotions that are directly related to learning, classes, and achievement. These can be positive or negative and consequently impact on achievement in different ways. Therefore individuals who feel a greater sense of belonging may have more positive experiences and more positive academic emotions, which in turn impacts on achievement. The research demonstrated that for participants aged 13, the relationship between school belonging and academic achievement was mediated by positive activating emotions. School rejection was related to academic achievement through the mediator of negative activating emotions.

Similarly, King (2015) looked at the relationship between relatedness and achievement when behavioural engagement, emotional engagement and disaffection were included as

mediators. They found that students, who felt higher levels of relatedness, had higher levels of initial engagement and lower levels of initial disaffection. Furthermore, engagement positively predicted achievement, whereas disaffection negatively predicted it. Therefore the relationship was significantly mediated by engagement and disaffection.

In addition, Eisele et al. (2009) highlighted in their analysis that peer acceptance positively correlated with behaviour conduct, which in turn was positively related to school bonding. Thus, suggesting that both behaviour conduct and school bonding helped explain the relationship between friendship and acceptance and academic achievement. This is a similar finding to Delgado et al. (2016) as discussed above, i.e., that school belonging helped to explain the relationship between peer nominations and achievement.

None of the papers found variables that fully explain the relationships between belonging or rejection and achievement. Instead, the papers indicated that a range of factors are related to both belonging and achievement, many of which are still to be explored.

1.5 Discussion

The systematic search conducted for this review identified a relatively large collection of articles that met the inclusion criteria. The nineteen articles discussed reflect the current state of literature, published since 1990, with regard to the review question: To what extent does having a sense of belonging impact on the academic attainment of young adolescents? Sixteen of the studies reported a significant relationship between belonging and achievement. Three of the papers did not find a significant relationship. However, two of these papers found that belonging was significantly related to other factors thought to impact achievement (absenteeism, academic effort, intrinsic and utility value). All of the articles utilised self-report questionnaires or sociometric nominations to gather data on belonging. GPA was the most common method for analysing academic attainment. Many of the papers included a range of other factors in their research. As a result, a large amount of complex information has been examined and synthesised in this review.

Overall, based on the balance of papers, the literature indicated that belonging is significantly related to academic achievement. More specifically, where studies used sociometric measures they achieved consistent results in that all of the papers found a significant relationship between peer nominations and GPA. However, more variability in results was found across the papers that used self-report measures. This may suggest that a person's self-report of belonging is a less powerful predictor of achievement than the peer nominations produced by sociometry. In fact, Anderman (2002) highlighted that the reliability and validity of self-report measures tend to

be problematic in school based research. This may be because self-report measures could be influenced by the context, i.e., individual's experiences of belonging on the day the measure was completed. However, sociometric measures may be less influenced by such subtle changes. Despite this, significant relationships were still found between belonging and achievement when self-report measures were used, suggesting that both measures are useful in understanding the relationship between belonging and GPA. Sociometric methods may reflect friendship composition, group sizes and marginalisation and self-report measure may reflect the impact this has on one's sense of belonging. As Delgado et al. (2016) found that sense of belonging mediated the relationship between peer nominations and GPA, it is possible that peer connections (peer acceptance, reciprocal friendships, being a member of a group) may help to create the environment that fosters a good sense of belonging.

Within the self-report measures, some papers focused on the concept of relatedness and some on that of belonging. As discussed in the introduction, these constructs are similar and were therefore treated as the same in this review. Interestingly, papers that used a relatedness self-report measures found that relatedness to parents (King, 2015) and teachers (Goodenow, 1993) were more important predictors of achievement than relatedness to peers. This may suggest that the construct of relatedness includes broader relationships than the belonging measures. Despite this, both relatedness and belongingness were related to achievement. Tillery, Varjas, Roach, Kuperminc and Meyers (2013) suggest that a way of making sense of this relationship is through a social capital model, student-teacher attachment and self-determination theory. They suggest that students draw resources from the relationships they have with peers, teachers, and family members; however, those with fewer relationships have less social capital, i.e., they have a lower quantity and quality of social support in their interpersonal network and are consequently at-risk for poorer school outcomes. Taken together, sense of belonging and relatedness/ connections to adults should be considered and supported to improve outcomes for young people, especially for those that may be at risk of a lack of belonging, i.e., those who are marginalised.

Within the review, ten papers looked at gender differences in belonging and achievement. In general, girls had higher belonging and GPA than boys. From the information available, it could be suggested that girls have higher levels of GPA, because they have higher sense of belonging. However, there is little explanation across the papers to explain why gender differences in belonging exist. One paper (Eisele et al., 2009) highlighted that these differences may relate to the development of gender identity and that the way school is experienced differs between boys and girls. Gillen-O'Neel and Fuligni (2013) suggest that gender differences may occur due to the moderating effects of gender on student uptake of extra-curricular activities. The authors note that in the USA, extra-curricular activities are more likely to be designed for and taken up by boys

than girls. However, none of the papers found that boys had a high sense of belonging than girls; therefore this may not be a valid explanation for such differences. Adelabu (2007) found that there were gender differences in goal orientation/ time perspective, which impacted on GPA. In her introduction she highlighted some points that may explain these differences, i.e., that teacher expectations are higher for girls than boys, and that girls are more likely to plan ahead and focus on their interpersonal future (e.g., starting a career before having a family).

To explain the gender differences in belonging across the literature, Nielsen, Foels, and Stockton (2012) proposed a theory of cognitive representation. They suggested that girls and boys face different socialisation experiences, which lead to different cognitive representations of social groups. Consequently, girls have more specific representations of a group, whereas boys have representations regarding a group as a collective. For example, when reflecting on belonging, girls may think of a specific friend, classmate or teammate, whereas boys may think of the group as a whole. This may have implications when using self-report measures, i.e., if individuals focus on collective cognitive representations (does everyone in the class make me feel this way), as opposed specific representations (does one or two friends make me feel this way), it may be harder for boys to answer such questions and may lead to lower scores. However, interestingly, two papers (Chen et al., 1997; Delgado et al., 2016) used peer nominations and still found gender differences, i.e., that girls had higher levels of belonging and GPA.

This review also looked at the impact of ethnicity and culture on belonging and achievement. Generally across the papers, a significant relationship between belonging and achievement remained regardless of the target population. However, there were variations in the levels of belonging and attainment shown across different ethnic and cultural groups. An important finding arising from this review is that being part of a specific ethnic or cultural group does not inevitably impact on belonging and achievement; instead, the literature indicated that environmental/ demographic factors determine the level of belonging experienced by individuals. Thus demonstrating the impact sociological context can have on a sense of belonging. As a result, the variability across studies may be better explained by differences between the schools and communities in which individuals live, i.e., are individuals marginalised? Do they feel supported?

From the information gathered in this review, it will be important for those working within an educational setting to recognise the significance of the relationship between belonging and achievement. According to Arthur et al. (2015), 80% of teachers reported that the current assessment process in the UK hinders the development of the whole child and that exams in schools have become so pervasive that they overshadow other educational goals. This may lead to a more narrow focus, i.e., a system that privileges academic knowledge above the values

described in the introduction of this review. Such a system may decrease feelings of autonomy, competence and relatedness and consequently reduce opportunities to develop interest in or motivation for learning (Ryan & Deci, 2000). Given the current conclusions, i.e., that belonging is related to academic achievement, it is important that these factors are not lost within the education system.

In addition, at a systemic level, it will be important to identify individuals who may be at risk of marginalisation, may feel rejected, are isolated or do not feel supported. It may be useful to utilise a sociometric measure, to gain an overall picture of peer connections within a year group. Not only could this identify individuals who are rejected, but it may help identify the groups that are being marginalised. These factors may go beyond ethnicity and SES, i.e., anyone that forms a minority could feel marginalised and therefore lack opportunities to develop a sense of belonging. For example, pupils with high SES may feel marginalised in a low SES area, the same may be true for girls in a school where there is a majority of boys (often observed in pupil referral units), or those who are marginalised by sexuality and gender identity. Anderman (2002) highlighted that "when a school environment is perceived of as supportive by many of its students, that supportive environment may be related to problematic outcomes for those students who do not feel supported" (p. 806). It will therefore be important to recognise that even within schools that have high levels of belonging, there may be pupils with extremely high levels of a sense of rejection. As a result, sociometric measures may allow targeted support for those pupils, regardless of the overall ethos and atmosphere of the school. Furthermore, Graham and Benner (2009) highlighted that transition to secondary school can disrupt social connections and increase individuals sense of loneliness, which may impact on their sense of belonging. Therefore the first year of secondary school may be the best time to investigate pupils' sense of belonging and plan for interventions or targeted support.

Overall, the research designs used were helpful in answering the current review question, however they had significant limitations. The most notable issue was that all of the papers utilized either a longitudinal or cross-sectional design to explore the variables in question. Cross-sectional designs look at a snap shot in time, therefore results cannot be generalised, are not followed up and can be heavily impacted by the time point in which the research is carried out, i.e., by social, politic, economical and cultural factors. In addition, results can only explore the correlation of the relationship between variables and causality cannot be inferred. Longitudinal studies, on the other hand, account for some of the issues within cross-sectional design, i.e., they measure a phenomenon over time and allow exploration of predictions. Gillen-O'Neel and Fuligni (2013) suggest that it is the differences in designs that impacts on the variability of findings, advocating for the use of longitudinal studies over cross-sectional. Nevertheless, within this review both

cross-sectional and longitudinal designs found significant and non-significant results. Therefore there is still variability in findings across both designs.

Despite most of the papers concluding that belonging is important for academic attainment, there is little mention within these articles of possible ways to increase, support or enhance belonging and the impact this may have on academic achievement. As a result, future experimental research to explore ways to improve belonging and increase attainment will be important in order to fully understand the nature of such a relationship.

1.5.1 Limitations of this Review

There are some limitations to this review. For example as part of the inclusion criteria, all articles had to be published in peer reviewed journals. This meant that all articles met the necessary criteria to be published and have gone through a peer review procedure. In addition, the exclusion of non-peer reviewed articles meant that a manageable amount of articles could be examined within the constraints of this thesis, i.e., given the time frame and word count. However, this may have resulted in publication bias. Dubben and Beck-Bornholdt (2005) highlighted that research that finds significant results have better chances of being published, are published earlier and are published in better journals. They suggested therefore that conclusions based on purely published studies should be interpreted with caution (Dubben & Beck-Bornholdt, 2005). This may explain why only three papers found non-significant results with regards to the direct relationship between belonging and achievement, but had other significant factors to discuss. Therefore robust research showing non-significant findings may have been missed and the inclusion of unpublished manuscripts may have produced a wider variety of results and a different conclusion.

Furthermore, the PRISMA process, whilst systematic, initially relied on visual scanning of a large amount of titles. Restrictions were applied where possible to reduce the amount of retrieved articles, however, a large amount of articles were still screened. Therefore articles based on the irrelevance of the title alone were removed before the abstracts were read. However, not all of the titles may have adequately reflected the content. Additionally, human error may have occurred during this process. As a result, some articles may have been excluded unnecessarily. Throughout the screening and assessment process, key articles cited within the papers, that had not been already identified, were checked against the inclusion/ exclusion criteria. The addition of papers via this process may have helped overcome any difficulties with missed articles. In future reviews it would be useful for the process to be replicated by a second researcher to support with this systematic process.

1.5.2 Conclusion

This systematic literature review aimed to identify literature that could help answer the question: To what extent does having a sense of belonging impact on the academic attainment of young adolescents? For this particular age group, a clear positive relationship between belonging and achievement was indicated. This was found across a range of cultures and may be experienced differently by boys and girls and those that are marginalised. A range of mediators have been identified which helped to explain the relationship including academic emotions, engagement, behaviour conduct, academic efficacy and educational purpose. Following this systematic review, no articles were identified that looked at experimental research on improving belonging and achievement for this age group. Future research should aim to identify interventions or strategies that could be used to foster belonging and use experimental methods to explore the relationship between belonging and achievement further. Finally, educators should be mindful of the relationship between belonging and attainment when trying to increase academic attainment in schools. Furthermore, sociometric data could help identify individuals that are rejected or marginalised and may need additional support to increase a sense of belonging.

Chapter 2: Can Changing Beliefs About Belonging Lead to Better Outcomes for Adolescents with Low Socioeconomic Status in Secondary Schools?

2.1 Introduction

Adolescence is a time where interpersonal environments undergo rapid change, e.g., biological, social and cognitive (Sebastian, Burnett, & Blakemore, 2008). According to Sebastian et al. (2008), during adolescence and early puberty, children become increasingly aware of and are concerned with the opinions of others. In addition, Gifford-Smith and Brownell (2003) suggested that what happens in a child's peer group and friendships, affects development in virtually every other aspect of the children's lives, e.g., family, school and community. Therefore, secondary school is a time where individuals' social world becomes increasingly important and the relationships they build support or hinder their ability to engage, participate and succeed in school.

In 1995, Baumeister and Leary put together a compelling argument for the assertion that belonging is a fundamental need for human motivation, behaviour and psychological wellbeing. The belonging hypothesis proposes that the need to belong is more than social contact; it cannot be satisfied with interactions with strangers or people that are disliked. Instead, Baumeister and Leary (1995) suggested that in order to fulfil this need individuals seek to form a minimum quantity of stable, enduring, positive relationships, consisting of pleasant interactions that are free from conflict.

Another similar construct used in the literature is that of 'School Connectedness', (see, for example Anderman, 2002; Gillen-O'Neel & Fuligni, 2013; Osterman, 2000; Tillery et al., 2013). However defining such a concept proves difficult, e.g., researchers do not provide clear distinctions between school connectedness and other related constructs such as belonging. Libbey (2004) suggested that a lexicon of concepts, terms and measurement tools have become confusing in their overlapping definitions and use in a variety of contexts. According to Libbey (2004), School Connectedness can be conceived as comprising several themes: academic engagement, belonging, discipline and fairness, liking of school, student voice, extra curricular activities, safety, teacher support and peer relations. This implies that School Connectedness is a broader concept than that of school belonging, for example through its consideration of the degree to which individuals participate in school based activities. However, the current research is

interested in a more specific part of School Connectedness, i.e., individuals' perceptions of relationships with others within a school context.

As a theory for human motivation, the need to belong should stimulate goal orientated behaviour, i.e., individuals should seek to form such positive relationships, at least until the minimum quantity is achieved (Baumeister & Leary, 1995). In addition, the need to belong may impact on cognitive processing as individuals hold a persistent concern to form and maintain relationships in order to meet the belonging need. Finally, emotional reactions should occur following experiences regarding belonging, i.e., positive affect should result from experiences where belonging is met and negative affect when belonging is threatened or broken (Baumeister & Leary, 1995).

Previous research has indicated that when individuals feel a sense of rejection they experience a sense of pain, i.e., the area of the brain responsible for pain detection is activated during fMRI scans when individuals are rejected (Eisenberger, Lieberman, & Williams, 2003). According to the temporal need-threat model of ostracism (need-threat model), there are three stages that occur in response to threatened fundamental needs, including that of belonging (Williams & Nida, 2011). In stage one or the 'immediate stage' it is this pain that alerts us to the threat to belonging. Contextual factors at this stage are irrelevant to this experience, but feelings of anger and sadness occur. In the second stage or 'coping stage' individuals reflect on the meaning of this experience and decide if it is worth paying attention to. Here individual differences and contextual factors are important and may help minimize or amplify the reaction. Finally, if rejection occurs long-term the individual's ability to cope is reduced which may lead to helplessness, depression and unworthiness. Given the importance adolescents place on social relationships (Sebastian et al., 2008) and the environmental changes from primary to secondary school, adolescents may experience varying levels of belongingness and may be hyper-vigilant to the threat to such belonging.

Taken together the theory of belonging and the need-threat model can explain how outcomes such as academic achievement could be impacted by an individual's sense of belonging. For example, if an individual feels rejected and notices a threat to their belonging, they are likely to direct their attention to socially relevant information, so that they can find a way to meet their belonging need. As a result, an individual's capacity to pay attention to other tasks such as academic activities is reduced. Thus, holding a sense of belonging means that individuals are more able to direct their attention to higher level cognitive tasks, whereas rejected individuals have a different goal and their motivation and behaviour is directed towards defending their threatened need (Gere & MacDonald, 2010). Sebastian, Viding, Williams and Blakemore (2010) discussed

several studies that found that adolescence are hyper-sensitive to peer acceptance compared to younger children, thus the impact of the social environment and rejection may be larger during adolescence. Not only does this explain how belonging impacts on outcomes such as academic attainment, but also on participation and attendance. For example, if the ability to cope with rejection can become depleted (Williams & Nida, 2011), repeated rejection may lead children and young people to become withdrawn and avoid situations where they may experience rejection, i.e., school. As a result, absenteeism may increase which may lead to gaps in knowledge, complete school drop-out, poor academic achievement, limited career choices, delinquency and poorer opportunities later in life (Goldstein, Little, & Akin-Little, 2003).

There is a vast amount of literature exploring the importance of belonging and the relationship it has with a range of outcomes and this provides support for the belonging hypothesis. In terms of positive outcomes, achieving a minimum set of qualifications at school, college and university is associated with better employability, higher socioeconomic status (SES) and better health outcomes (Rychen & Salganik, 2003; Steinmayr, et al., 2014). Therefore the impact belonging has on academic achievement at school is an important consideration. Many papers have explored and found that belonging significantly predicts academic attainment for students in secondary schools (Adelabu, 2007; Anderman, 2002; Arslan, 2016; Eisele et al., 2009; Goodenow, 1993; Hughes et al., 2015; King, 2015; Roeser et al., 1996). In fact, Hughes et al. (2015) found that belonging predicted grade point average (GPA) above and beyond that of prior grades. In addition, relationships have been found between belonging and academic effort and intrinsic value (Sánchez et al., 2005), academic efficacy and educational purpose (Arslan, 2016), expectancies for success (Goodenow, 1993; Sánchez et al., 2005), and enjoyment, usefulness and value for school (Gillen-O'Neel & Fuligni, 2013). Such correlational results are supported by experimental research that demonstrates that threats to belonging impair higher-order cognitive functioning (Gere & MacDonald, 2010). For example, Master and Walton (2013) found that children's persistence at difficult tasks, overall motivation and ability to learn new words was enhanced when they belonged to a minimal group. Similar results were found by Master et al. (2017), who looked at pre-school children aged 4, who were affiliated with a group prior to a maths task. This study also found that those who were affiliated with a group showed higher persistence, accuracy, reported self-efficacy and interest in maths, than those who were not (Master et al., 2017).

Conversely, when the need to belong is not met, these factors decrease. Sebastian et al. (2010) highlighted that as peer relationships become more important in adolescence, the potential negative effects of rejection are increased. In their study the researchers manipulated the feeling of ostracism in adolescent females aged 11-13, using a cyberball paradigm, as used in

Williams and Jarvis (2006). The research found that adolescents reported lower mood and significantly higher levels of anxiety in response to ostracism compared to adults. In addition, Lev-Wiesel, Nuttman-Shwartz and Sternberg (2006) found that young adults (aged 20 +), who experienced social peer rejection during adolescence, reported this experience as being their most traumatic experience and such rejection impacted on levels of depression. This is supported by Bond et al. (2007), who found that low levels of school connectedness was related to variation in mood, increased levels of substance misuse and the likelihood of school dropout. In addition, rejection in middle childhood has been found to predict antisocial behaviour in adolescents (Trentacosta & Shaw, 2009) and is related to internalising and externalising behaviour problems (Newman, Lohman, & Newman, 2007).

Clearly holding a sense of belonging is important for a range of outcomes including increasing achievement and attendance, decreasing drop out/ absenteeism and supporting psychological wellbeing. As a result, in order to increase positive outcomes, it is necessary to identify individuals that may be at risk of rejection and how a sense of belonging can be promoted.

2.1.1 Who is at Risk of a Poor Sense of Belonging?

Benner and Wang (2014) suggests that, within the US, young people from African American and Latino backgrounds brought up in low SES households, are worse off across a range of developmental outcomes compared to their white and more affluent counterparts. The researchers found that children and young people who are marginalised in terms of SES, i.e., those who had lower levels of SES than 85% of the rest of the school population, had a lower sense of belonging and achievement than those who were not marginalised (Benner & Wang, 2014). According to Goldstein et al. (2003) a number of studies have highlighted that economically disadvantaged groups have lower rates of attendance and academic achievement and higher rates of social stressors than higher SES families. Walton and Cohen (2011) suggest that socially stigmatised groups are more uncertain of whether or not they will be fully included in mainstream institutions, because their backgrounds may be negatively stereotyped and marginalised. They suggested that uncertainty about belonging undermines performance and impacts on ones interpretation of relationships. Thus individuals who worry about belonging may attribute negative or difficult social interactions to the fact that they do not belong, rather than other potential explanations. This may lead to poor overall perceptions of the school environment and consequently high drop-out rates; a result Goldschmidt and Wang (1999) found within a low SES population. Following the coping stage in the need-threat model, worrying about belonging may impact the way an individual responds to perceived threats to belonging (Williams & Nida, 2011).

Furthermore, they may be hyper-vigilant to such experiences, which may confirm the assumption that they do not belong. Consequently, individuals may spend more time processing social information above academic information and may self-ostracise in order to cope. This in turn, may account for the poor attainment and attendance outcomes often found within these groups. Whilst Walton and Cohen (2011) focused on one potentially stigmatised group (e.g., individuals from African Americans backgrounds), research also indicates that those with low SES are equally at risk of poor belonging and worrying about belonging, especially as they may be at risk of marginalisation (Benner & Wang, 2014).

2.1.2 When is Belonging at Risk?

A particularly difficult time where a sense of belonging is at risk, is upon transition to a new environment (Walton & Cohen, 2011). For example, Liu and Lu (2011) found that the majority of participants decreased in their belonging after transition to secondary school. Following the belonging hypothesis, simply being with people is not enough to meet the need to belong. Meeting new people provides at best the first steps towards positive relationships. However, the connections necessary to foster a sense of belonging takes time and requires the gradual accumulation of intimacy and shared experiences (Baumeister & Leary, 1995). Therefore it is not a surprise that belonging falls after transition to a new school.

According to Yeager, Walton and Cohen (2013), worrying about whether or not individuals will belong and if students and teachers will value them, is a chronic stressor. As a result, it is possible that all pupils will worry about belonging in this new environment. However, this may be a particularly tricky time for those that are marginalised or stigmatised in society. For example, Hargreaves and Galton (2002) suggested that those at risk of failing to belong at transition between schools, are those from low SES families. They suggest it is this period which contributes to the poor outcomes associated with a low SES population. In addition, Cook, Purdie-Vaughns, Garcia and Cohen (2012) suggested that early threats to belonging especially during the sensitive transition period, initiates a downward spiral where belonging decreases, perceptions of threat mount and grades are undermined. As a result, pupils from low SES backgrounds may need additional support when they start secondary school, in order to develop a sense of belonging. This may reduce attendance issues and the low academic attainment levels often associated with low SES pupils.

2.1.3 How to Support Belonging

There has been an increase in experimental research focusing on brief psychological interventions that aim to support academic achievement for young people at risk of poor achievement. Such brief interventions aim to change participants' thoughts, feelings and behaviour implicitly. For example, various studies have introduced the idea that intelligence is malleable and can grow, rather than being fixed. This theory of a 'growth mindset' has been introduced to ethnic minorities in an attempt to close the academic achievement gap, with positive results (Oyserman, Bybee, & Terry, 2006; Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003). Yeager et al. (2013) stated that these interventions are effective as they are discreet and deliver treatment messages in a way that does not create the stigmatisation that is often associated with needing additional support or being singled out for intervention.

Walton and Cohen (2011) developed a similar intervention focusing on changing the thoughts, feelings and attributions about belonging, specifically for individuals of African American descent (a group the researchers reported were at risk of stigmatisation and anxiety about belonging). The research targeted first year college students (age 18 +) as this was a transition period which the researchers felt may be particularly difficult for these individuals. The intervention required participants to read and reflect on a report that focused on the feelings associated with transition, suggesting that these are normal and time limited. The aim was to lead students to attribute their feelings about belonging to the difficulty of the transition period, rather than to their own identity or lack of ability to fit in. The researchers draw on the theory outlined above and suggest that when an individual fears that they will not belong, they may pay greater attention to criticism or signs of rejection. Their previous experiences and thoughts about stigmatisation or marginalisation may impact on how they reflect on and cope with potential threat in their new setting, possibly amplifying the experience (Williams & Nida, 2011). This is then seen as further evidence that they do not belong. This can increase stress and reduce motivation and engagement over time (Yeager et al., 2013). However, if they attribute criticism and the feelings associated with this to the situation, something that is normal and time limited, then these negative effects and the threat to belonging will be reduced. As a result, an individual will be able to pay more attention to academic demands. Walton and Cohen's (2011) results showed a decrease in the academic attainment gap between college students of African-American descent and their Euro-American counterparts. In addition, the interventions led to a GPA increase of .24 for individuals from an African American background. The effects of this intervention were maintained across 3 years.

Walton and Cohen's (2011) research highlighted the potential benefits associated with a brief psychological intervention aimed at changing attributions about belonging, within a potentially marginalised group of students, who have transitioned to a new environment. The literature highlighted that a sense of belonging is important for attendance and achievement at school, but it is at risk during and following the transition period. In addition, the literature suggested that individuals from low SES backgrounds may be marginalised/ stigmatised and as a result worry about belonging. Therefore they may be particularly at risk of failing to belong during transition. However, there is a lack of experimental research regarding how to support belonging and consequently achievement or attendance during secondary school. As a result, this study aims to extend the research of Walton and Cohen (2011), adapting and applying their intervention to a different population who may also worry that they will not belong upon transition to a new environment. Specifically, young adolescence from low SES backgrounds who have recently started secondary school.

2.1.4 Research Aims

The present research focuses on a low SES population. It aims to identify if a brief, well timed psychological intervention delivered to pupils who have recently transitioned from primary school to secondary school, increases a) a sense of belonging, b) academic achievement and c) attendance, compared to those in the control group. The relationship between anxiety about belonging and SES will be explored along with the overall relationship between the independent and dependent variables. It is hypothesised that those in the intervention group will have higher levels of belonging, attendance and achievement and that individuals from low SES backgrounds will have higher levels of anxiety about belonging.

2.2 Method

2.2.1 Design

A mixed group, experimental design was used with pupils who have recently started secondary school, to test the application and effects of a belongingness intervention. The first independent variable was intervention group. This is a between group variable and had two levels; the experimental group (those receiving the belonging intervention) and the control group. The second independent variable was the time that the dependent variables were measured. This is a repeated measures variable and had three levels: immediately after the intervention (for belonging only), at the end of the autumn term, and at the end of the spring term. The dependent variables were sense of belonging, GPA and attendance.

Information on participants' SES, gender and anxiety about belonging was gathered during the initial session, before the intervention took place. Participants were allocated to each one of two groups by being given a non-descript booklet, containing the questionnaires and intervention information (Appendix E) or control information (Appendix F). See Figure 2 for a clear breakdown of the design.

Time 1 (T1) A one hour session at the beginning of the school year.	Time 2 (T2) Information gathered at the end of the autumn term.	Time 3 (T3) Information gathered at the end of the spring term.
Step 1: Consent and assent gained **Step 2:** All participants report on: • Age • Gender • Anxiety about belonging questionnaire • Family Affluence Scale (FASIII) **Step 3:** • N = 25 participants read intervention information • N= 37 participants read control information **Step 4:** All participants: • Write brief reflection on own experiences • Complete The Belonging Scale **Step 5:** Schools provide information on: • Participants post-codes	All participants complete: • The Belonging Scale Schools provide information on: • Grades (Maths, English, Science) • Attendance	All participants complete: • The Belonging Scale Schools provide information on: • Grades (Maths, English, Science) • Attendance

Figure 2. This figure illustrates the breakdown of the research design across 3 time points. Measures that already exist within the literature include the FAS III (Currie et al., 2014) and The Belonging Scale (Fredrickson & Dunsmuir, 2009).

2.2.2 Participants

Approximately 300 parental consent forms were sent home with year 7 pupils attending 3 secondary schools in the South of England. Parental consent was obtained for 76 participants across the 3 schools. Of these 76 participants, 64 pupils assented to participate in the study. However, two pupils moved schools following the initial session (one from the intervention group in school B and one from the intervention group in school C), therefore they were not included in the analysis (see table 1 for breakdown of participants across the 3 schools). The final sample consisted of 62 participants: 37 in the control group (62% female) and 25 in the intervention group (72% female). 91% of the participants were 11 years old at the time of the initial session. 9% of the participants were 12 years old (mean age 11.08 years).

Table 1

Participant information broken down by school and group allocation

	School A		School B		School C		Total
Parental consent	6		29		41		76
Pupil assent	6		24		34		64
	Intervention	Control	Intervention	Control	Intervention	Control	Total
Final sample	3	3	11	12	12	21	62
Male	1	2	5	4	4	9	25
Female	2	1	6	8	8	12	37

2.2.2.1 Demographic information for school A

According to the most recent Ofsted report (2016), school A was rated as 'good' across all areas. The school had 353 pupils on roll at the time of this report. The proportion of students deemed 'disadvantaged' and are therefore eligible for additional funding called 'Pupil Premium' is above the national average. Most students are from White British backgrounds. In addition, the proportion of disabled students and those with special educational needs supported is above the national average.

2.2.2.2 Demographic information for school B

The most recent Ofsted report (2017) for school B, rated the school as 'inadequate' across all areas. School B has 469 pupils on roll. Most pupils are from a White British background. A small proportion of pupils are from minority ethnic heritages. Over half of the school population are eligible for Pupil Premium funding and are therefore considered disadvantaged. The proportion of students with Especial Educational Needs is above the national average.

2.2.2.3 Demographic information for school C

The most recent Ofsted report for school C (2016), rated the school as 'requires improvement' across all areas. There were 591 pupils on roll at this school at the time of this report. The proportion of disabled students and those who have special educational needs is above average. The amount of pupils on roll that are eligible for Pupil Premium funding at this school is 'well above the national average'.

2.2.3 Measures

2.2.3.1 Anxiety about belonging

To the researcher's knowledge there were no existing questionnaires that looked specifically at anxiety about belonging at a new school. Therefore, this first measure was developed by the researcher to gain an indication of pupils' anxiety in relation to school belonging. This contained six questions, which required participants to rate statements such as 'Going to a new school makes me feel anxious' on a five point Likert Scale between 'strongly agree' to 'strongly disagree' (See Appendix G for the anxiety questionnaire). The potential range of scores for this measure is between 1 and 5. This measure was included to ascertain whether or not the participants felt anxious about belonging to their new school, as suggested by previous research. Following data collection, an initial test on the six questions produced a Cronbach's alpha of $\alpha = .59$. However, there was an increase in α if question 2 was removed. In addition, the 'corrected total item correlation' for question 2, i.e., the extent to which this question correlated with the other questions, was low (.11). Once question 2 was removed, the scale had a higher level of internal consistency; $\alpha = .62$. As a result, the average score calculated for this scale was based on the remaining five items. However, it is important to note that the level deemed acceptable to claim reliability is an alpha of around .8, therefore this measure falls short of this and caution should be used when interpreting analysis that includes this measure.

2.2.3.2 Belonging

Sense of belonging was measured using The Belonging Scale (Goodenow 1993, adapted by Frederickson & Dunsmuir, 2009) found in 'Measures of Mental Health and Psychological Wellbeing - A Portfolio for Education and Health Professionals'. This is a short self-report measure which contained twelve items such as 'I feel like a real part of my school', rated on the extent to which each statement is true for the individual (not true, unsure, and true). This tool was developed for and is commonly used with children aged between 8 and 14 years old. Frederickson and Dunsmuir (2009) reported high internal consistency and reliability (.87) for this scale. Cronbach's alpha in the present study was $\alpha = .72$. The potential range of scores for this measure is between 1 and 3. This measure was used immediately following the intervention/ control session and at two further time points, at the end of the autumn term and at the end of the spring term. A second measure (the Secondary Sense of Community Scale) was included in the initial session; however, due to the time frame of this session, a large proportion of participants failed to complete this questionnaire. Therefore the SSCS was omitted from the analysis.

2.2.3.3 Socioeconomic Status

SES can be difficult to measure due to various definitions across the literature and measures were often deemed inappropriate for children to complete. As a result, the Health Behaviour in School-Aged Children (HBSC) Survey recognised the difficulties associated with asking children about their parents' education and employment, which in many cases is unknown by the young person (Currie et al., 2014). Therefore, Currie et al., (2014) developed the Family Affluence Scale (FAS III) in the HBSC; a measure that was easy to answer for students aged 11-15 years and was applicable across countries. The FAS III asks six questions regarding the quantity of material assets in the family home. The use of such a tool has shown high test-retest reliability (*r* =.90) and consistency between child and parent reports (*r* =.80). The potential range of scores for this measure is between 1 and 13. In addition to this information, participants' postcodes were put into the 'Index of Multiple Deprivation' (Department for Communities and Local Government, 2015), which gives a decile score (and a colour coding system from 1-10, with 1 being within the 10% most deprived areas of the country). The aim of this is to allow for triangulation of SES information.

2.2.3.4 Academic outcomes (achievement and attendance)

Participants' academic performance was measured throughout the school year via formal and informal assessments by teachers. This information is formally recorded for all subjects and is updated regularly. Due to a change in the National Curriculum, there has been a change in the way schools are required to record grades, moving away from a standardised measure. However, all three schools used a similar grading system which could easily be compared, i.e., they all used a numerical system whereby each numerical grade has three levels (a, b, c, or plus, equals, minus). Therefore the main grading system (the numbers used) was the same (reflecting the new GCSE standard scores), but the way in which they describe the levels differed. Data was collected on the core subjects; Maths, English and Science and all grades were converted to a numerical value using the comparison table in Appendix H. Average scores across the three subjects were calculated to give a cumulative grade point average (GPA) for each time point collected, i.e., the end of the autumn term (T2) and spring term (T3). The potential range of scores for this measure is between 0 and 18.

School attendance was recorded following usual school procedures, i.e., via daily registration by school staff. Data was provided from the school as a percentage of school days attended. The potential range of scores for this measure is between 0 and 100%.

2.2.4 Development of the Intervention and Control Information

The content of the intervention information was carefully planned following Walton's (2014) guidance on 'getting the message right' developed from the Walton and Cohen (2011) intervention study. The aim of this brief psychological intervention is to change participants' beliefs about their current experiences and their attributions of any difficulties that arise. The key points of such an intervention are a) that if you feel like you do not belong in a new school, you (and other people like you) are not alone; and b) if you feel this way, your experience will improve over time (Walton, 2014). The materials for the intervention group followed this guidance, and were developed to be accessible for the target population. As part of the guidance, it was also important to make sure the information reflected actual concerns from children as they transition to secondary school. Therefore, the information reflected experiences of other students in the UK who overcame such difficulties. This was created using previous research that sought the views and experience of pupils at the end of year 7 (Rice, Frederickson, Shelton, Riglin, & Ng-knight, 2015). Materials used in the intervention are set out in Appendices E and I and included 2 sides of A4 paper. The first page included a brief summary of the social aspects that other children worry about when they go to secondary school. The second page included quotes based around different social concerns from children who have recently moved from primary to secondary school. Both pages highlighted the message that that everyone feels this way and experiences get better over time.

The control group information also reflected this guidance (see Appendices F & I) but only looked at the non-social aspects related to the difficulties of transition, i.e., worries about getting lost, rather than not fitting in. The control group followed the same format as the intervention group i.e., information was presented over 2 sides of A4 paper including a summary and quotes. The same message, that difficulties are due to transition to secondary school and will get better over time, was also given in the control group so that any difference found can be related to the social/ belonging aspect of this brief intervention.

There were several difficulties in the development of the control and intervention information. Firstly, there was a limited amount of previous qualitative research regarding the views and concerns of children who are transitioning from primary to secondary school. Therefore, it was difficult to find information in a specific format, or information that follows the guidance from Walton and Cohen (2014). Therefore, the quotes had to be designed by the researchers, using the concerns highlighted in the Rice et al. (2015) paper. Secondly, the original research by Walton and Cohen (2011) targeted university students. Therefore, it was necessary to

adapt the format and presentation of the information developed for the current research, so that it was age appropriate in terms of content, as well as in the length and vocabulary used.

2.2.5 Procedure

Schools were contacted via their link Educational Psychologist to gain permission to conduct the study in their schools. Consenting schools sent information and parental consent sheets home with all of their year 7 pupils. The initial session took part in the first 2 months of the school year. This was so that time was allowed for parental consent to be gained and so participants had some experience of their new school, but it was still early enough to impact on their belonging following the transition. Prior to the initial session, the researcher had briefed all staff members who would be present during the session. This included an explanation of what was expected and a run through of the scripts that would be followed. This was to try to maintain treatment integrity across the groups. Where possible the researcher was present (i.e., in one group per school). Within each school, pupils who had parental consent to take part gathered either all together in one room or in designated classrooms (e.g., in school A, the 6 participants gathered together in one classroom, in School B the 23 participants also gathered in one class and in school C participants were split between two classrooms; a group of 15 pupils in one room and a group of 18 pupils in another).

All of the information required for individuals to participate in the study was made into non-descriptive booklets (e.g., they included an information sheet, assent form, questionnaires and the control or the intervention information). There was no particular schedule to divide participants into groups. However, booklets were alternated into a pile so that nobody knew which booklet contained the intervention or control information. Booklets were handed out to participants who already had parental consent. This meant that participants looking at the intervention information and those looking at the control information took part in the study at the same time and in the same room. An adult then read out the written script (Appendix I) to the group delivering the instructions, i.e., to explain the tasks, pace the session and provide support for reading or writing when necessary. At the beginning of the session participants were asked to read the information sheet which gave the explicit opportunity to decline to proceed; if they were happy to take part, they were asked to provide written assent (Appendix J). The information sheet and assent form informed them of their rights to withdraw from the research at any time without any consequence.

All assenting participants provided basic information regarding their age and gender and then completed the anxiety about belonging questionnaire and the FASIII questionnaire (Currie et

al., 2014). The procedure for the intervention was adapted from Walton and Cohen (2011) with the removal of a video presentation to make it more age appropriate. In the intervention group the participants read silently to themselves a report (as described above), with adult support if necessary. They were then asked to briefly write about how their own experiences in their new school echoed those summarised in the report, to help them internalise the message. For the control group, participants read an alternative passage silently to themselves that related to difficult environmental factors, instead of social factors. They too were asked to briefly write down their experiences relating to this topic. Both groups concluded the session by completing the belonging scale (Frederickson & Dunsmuir, 2009).

In total, the pupils had roughly an hour to complete the initial session (T1), although staff discretion was used as to whether some participants needed additional time. Further data regarding participant's attendance and academic achievement in maths, English and science at the end of the autumn term (T2) were recorded by school staff and collected by the researcher. At this time point a second belonging scale was also administered. Finally, data on achievement and attendance was gathered again at the end of the spring term (T3) and a further belonging scale completed. All participants were entered into a prize draw to win one of three gift vouchers for taking part. The prize draw was completed and the debrief statements distributed at the end of the academic year.

2.2.6 Ethics

An ethics proposal was submitted to the University of Southampton Ethics Committee, followed by the Research Governance Office before the project went ahead (ethical approval reference number is 20875). Written informed consent from parents was gained before participants were invited to take part. Every participant was given an information sheet and assent form at the beginning of the initial session. The participants were given time (and support if necessary) to carefully read through the information and assent sheet before signing. Both of these forms explained that they can withdraw from the research at any point without consequence. All participants were provided with a debrief statement at the end of the research. See Appendix J for ethical information including example information sheets, a parental consent form, a pupil assent form and a debrief statement.

2.3 Results

2.3.1 Missing Data

Multiple imputations were carried out as there was a considerable proportion of missing data at certain time points, commonly found in longitudinal studies. This type of missing data would reduce the sample size and the equality of groups, leading to various difficulties such as loss of efficiency, complications in data inference and statistical analysis and potential bias (Barnard & Meng, 1999). Multiple imputations is a principled method in which a complete data set is created by filling each missing value several times, using several independent draws from an appropriate imputation model given the observed variables (Zhang, 2003). Initial assessment of the patterns of missing data showed that the data set had 4.87% missing values. A general rule is to use multiple imputations when there are more than 5% missing values. However, it is recommended that multiple imputations should be used when the initial sample size is small, rather than trimming the data, which is more suitable for larger data sets. Five iterations were completed and pooled imputations were then generated during analysis. Where pooled data was not given in the output, averages of the imputed output were calculated as the estimates of the missing values. Table 2 shows the mean scores and standard deviations for all of the measures based on pooled data.

2.3.2 Data Preparation and Plan for Analysis

Missing values within questionnaires, along with any missing variables at any time points were overcome by using the multiple imputation approach discussed above. All of the variables were checked to see if they met the assumptions required to run parametric analysis. Where necessary the data was transformed in order to meet the criteria. Most of the variables were approximately normally distributed (as assessed by visual inspection of histograms and the Shaprio-Wilks test). However, the attendance variables were extremely negatively skewed. This is because the attendance data could range from 0-100%, but very poor attendance would be deemed at around 85% and good attendance between 95-100%. Therefore the data fell between 85 and 100%. Consequently, a 'reflect and inverse' transformation was applied to the attendance data so that it met the assumptions of normality. Following this, all of the variables showed homogeneity of variance as assessed by the Levene's test for equality of variance, i.e., all variables demonstrated $p > .05$.

The initial plan for analysis was to carry out a series of two-way mixed model ANOVAs (one for each dependent variable: belonging, GPA and attendance). This was because there were

two independent variables; one of which was an independent measures variable (intervention or control group) and the other was a repeated measures variable (the time the dependent measures were measured; T1, T2 and T3). However, due to the need to use multiple imputations to complete the missing data set, analysis with repeated measure variables was not possible. Instead, independent t-tests were carried out to look at the differences between the intervention and control group for each dependent variable. In order to demonstrate that the intervention information has had any impact on the outcome variables, it was expected that the dependent variables would be significantly higher in the intervention group than those in the control group.

In addition to group comparisons, descriptive statistics and analysis of the relationships between variables e.g., the predictive relationships, were also carried out.

2.3.3 Descriptive Statistics

Descriptive statistics for each variable and the time in which they were measured is displayed in table 2. Only belonging was measured at every time point.

Table 2

Descriptive statistics for all of the measures included in the study

Measure	Time 1		Time 2		Time 3	
	Control	Intervention	Control	Intervention	Control	Intervention
	M (*SD*) Range	*M* (*SD*) Range	*M* (*SD*) Range	*M* (*SD*) Range	*M* (*SD*) Range	*M* (*SD*) Range
Anxiety	2.31 (.67) 1.00-4.00	2.26 (.67) 1.00 - 3.40	-	-	-	-
FASIII	1.27 (.34) .67-2.00	1.21 (.36) .67-1.83	-	-	-	-
Deprivation Scale	2.97 (2.27) 1.00-7.00	2.20 (1.60) 1.00-9.00	-	-	-	-
Belonging	2.61 (.28) 2.00-3.00	2.58 (.35) 2.00-3.00	2.63 (.28) 2.00-3.00	2.55 (.37) 2.00-3.00	2.55 (.37) 2.00-3.00	2.49 (.39) 2.00-3.00
GPA	-	-	4.77 (1.97) .67-7.67	4.22 (2.05) .00 - 9.67	4.75 (2.44) .67-8.33	3.97 (2.12) .67 – 9.00

Attendance %	-	-	96.87(4.01) 82.00 -100.00	96.72 (4.15) 81.00 -100.00	96.89 (3.09) 89.00 -100.00	95.56 (4.89) 85.00-100.00

Note. All descriptive statistics are based on pooled scores of the imputed data. M = mean; SD = standard deviation. Control N = 37 intervention N = 25. The range includes the minimum and maximum scores recorded for each variable.

Table 2 highlights that generally, the population demonstrated high average levels of attendance, relatively low average levels of GPA, high levels of deprivation and low average levels of FASIII. This suggests that the overall population sampled demonstrated low levels of SES. From this initial data, subtle differences in average scores across the two groups are not clear.

To check that the two groups were similar in terms of potential confounding variables, independent t-tests were conducted to see if the groups differed in terms of anxiety about belonging, the deprivation scale and the FASIII. The results demonstrated that there were no significant differences between the groups for any of these variables. Therefore the levels of deprivation, FASIII and anxiety about belonging were evenly distributed across the two groups.

2.3.4 Correlations

In order to identify any associations between key variables and to check the extent to which measures taken repeatedly related across time, Pearson's correlations were conducted. Table 4 shows the correlation matrix.

Table 3

Correlation Matrix for all variables included in the study

		1	2	3	4	5	6	7	8	9	10
1.	Anxiety	-									
2.	Deprivation	.26*	-								
3.	Belonging T1	-.29*	.02	-							
4.	Belonging T2	.16	.18	.27	-						
5.	Belonging T3	.02	.11	.48**	.35*	-					
6.	FASIII	.11	.15	.03	.10	-.15	-				
7.	GPA T2	-.12	-.11	.48**	.14	.36*	.16	-			
8.	GPA T3	-.06	.06	.29	.08	.23	.26*	.74*	-		

9.	Attendance T2	-.03	.07	.02	.16	.17	.04	.04	-.08	-	
10.	Attendance T3	-.00	.08	.09	.29*	.18	.03	.16	.07	.59*	-

Note: all values are based on pooled values resulting from the use of multiple imputations. *p<.05, ** p<.001.

The correlations from the table above demonstrated that the measures taken over time displayed stability, i.e., there were significant correlations between belonging at T1, T2 and T3, GPA at T2 and T3 and attendance at T2 and T3. Other interesting relationships were apparent in the correlation matrix too. For example, as suggested by the literature, anxiety about belonging correlated with deprivation, suggesting that as levels of deprivation increase, anxiety about belonging also increases. In addition, anxiety about belonging was negatively correlated with initial belonging. This suggests that as levels of anxiety about belonging increased, levels of belonging decreased. However, as noted above, the anxiety about belonging measure did not reach a high level of reliability and therefore such results should be interpreted with caution. Furthermore, belonging at T1 correlated with GPA at T2, belonging scores at T2 was related to attendance at T3. The FASII was also related to final GPA. However, the FASIII and the deprivation scale were not correlated, suggesting that the two different measures for SES could not be triangulated. To further analyse these relationships it was important to see if any of the variables could significantly predict the outcome variables measured in the spring term (T3).

2.3.5 Predictive Relationship

A series of multiple regressions were carried out to see if the independent predictor variables, i.e., FASIII, anxiety about belonging, the deprivation scale, belonging at T1 and T2, GPA at T2 and attendance at T2, could predict the outcome variables (measures taken at T3 in the spring term). Regression coefficients and standard errors for all outcome variables and predictor variables can be found in Table 5.

Model 1 specifically looked at the outcome variable of GPA measured at T3 and included all of the predictor variables. This multiple regression model significantly predicted GPA $F(7, 53) = 12.11$, $p < .001$. Durbin Watson = 2.05. R^2 for the overall model was 0.61 (61%) with an adjusted R^2 of .56 (56%). However, only GPA at T2 (end of autumn term) uniquely predicted GPA at T3. Therefore the other variables did not significantly predict GPA when T2 GPA was controlled for.

Model 2 looked at the outcome variable of attendance measured at T3 and included all of the predictor variables. The model significantly predicted attendance at T3 $F(7, 53) = 5.45$, $p = .000$. Durbin Watson = 2.12. R^2 for the overall model was 0.41 (41%) with an adjusted R^2 of .34

(34%). However, only T2 attendance uniquely predicted T3 attendance. Therefore other variables did not significantly predict attendance when T2 attendance was controlled for.

Model 3 looked at the outcome variable of belonging measured at T3 and included all of the predictor variables. The multiple regression model significantly predicted T3 belonging $F(7, 54) = 4.83$, $p = .000$. Durbin Watson = 2.27. R^2 for the overall model was 0.38 (38%) with an adjusted R^2 of .30 (30%). However, only belonging at T 1 and T2 uniquely predicted T3 belonging. Therefore again, other variables did not significantly predict belonging when T1 and T2 belonging was controlled for. However, the FASIII was approaching significance at p = .051.

Table 4

Summary of Multiple Regression Models for three outcome variables (T3 GPA, T3 attendance and T3 belonging) and all predictor variables.

	Outcome Variables								
	Model 1			*Model 2*			Model 3		
Predictor	*T3 GPA*			*T3 Attendance*			T3 Belonging		
Variable	*B*	*SE*^{b}	β	*B*	*SE*^{b}	β	*B*	*SE*^{b}	β
Intercept	9.56	5.26		39.70	10.97		-1.29	1.25	
FASIII	.67	.60	.10	-.37	1.27	-.03	-.28	.14	-.32
Anxiety	-.22	.33	-.05	-.17	.71	-.05	.07	.07	.07
Deprivation	.18	.10	.16	.08	.22	.06	.01	.02	.14
Belonging T1	-.89	.82	-.10	-.61	1.69	-.05	.44	.17	.38*
Belonging T2	-.03	.79	-.04	2.35	1.48	.22	.22	.17	.12*
GPA T2	.93	.11	.79**	.27	.24	.13	.04	.02	.21
Attendance T2	-.08	.05	-.13	.53	.10	.54**	.01	.01	.06

Note. Pooled multiple imputations were used for this analysis. *B* = Unstandardised regression coefficient; *SE*^{b} = standard error of the coefficient; β = standardised coefficient.* $p < .05$.** $p < .001$

2.3.6 Group Comparisons

Aggregated Imputed data can only been used with univariate data, i.e., between subjects variables. Therefore, with this imputed data set, the planned mixed model ANOVAs were not applicable.

Instead, a series of independent-samples t-tests was carried out to determine if there were any differences between the control and intervention groups in terms of the outcome variables. Differences across time were not analysed due to the issues of using repeated measure analysis on multiple imputation data. However, t-test analysis of each dependent variable, at each time point, was included to see if the intervention had any effect on: belonging immediately following the intervention (T1); belonging, GPA and attendance 3 months after the intervention (T2); and belonging, GPA and attendance 6 months after the intervention (T3).

All of the t-tests were deemed appropriate for this research design as they met initial assumptions required to carry out this statistical analysis: a) the dependent variables were continuous, b) the independent variable has two categories and c) there was independence of observations, i.e., all participants only took part in one group or the other. Additional assumptions (e.g., identification of outliers, normal distribution and homogeneity of variance) were tested in SPSS throughout the analysis; all assumptions were met unless otherwise stated.

Unfortunately, there were no significant differences between the control and intervention group for any of the dependent variables at any time point. Thus the main hypotheses were rejected, i.e., participants in the intervention group did not have higher levels of belonging, GPA or attendance compared to those in the control group.

2.3.7 Discussion

The present research aimed to identify if a brief psychological intervention delivered to pupils who have recently transitioned from primary school to secondary school could increase a) a sense of belonging, b) academic achievement and c) attendance, compared to those in the control group, across a period of 6 months. This research also aimed to explore the relationship between these variables along with that of anxiety about belonging and SES.

When looking at the difference between groups immediately following the intervention, there was no difference in terms of belonging. This analysis was included as a manipulation check and shows that this particular intervention did not immediately improve a sense of belonging. Furthermore, the group comparisons for all of the main variables (belonging, attendance and achievement) at the follow up time points, demonstrated non-significant differences between the intervention and control groups. Therefore the intervention did not impact a sense of belonging across time. As the research suggests that it is an increase in sense of belonging that improves GPA and attendance, it is not surprising that the intervention did not improve attainment or attendance across the 6 months of this study.

Correlations within this study supported previous literature (e.g., Walton & Cohen, 2011; Goldschmidt & Wang, 1999; Williams & Nida, 2011; Yeagar, Walton & Cohen, 2013) as they demonstrated that high levels of anxiety about belonging were related to low levels of initial belonging and high levels of deprivation (low SES). Therefore this research supports the assertion that those from low SES backgrounds worry about belonging more than their higher SES peers and experience lower levels of belonging, at least with the measures used within this study. The research of Walton and Cohen (2011) would suggest that individuals from low SES backgrounds are likely to have previous experiences of social stigmatisation or marginalisation, which lead to a difference in the way they internalise and understand new social experiences. Therefore, on transition to a new environment, they may be hypervigilant to signs of rejection and may perceive the action of others as evidence that they do not belong, which in turn reduces their level of belonging. However, the current research did not find that anxiety about belonging or SES were able to uniquely predict belonging or any of the outcome variables. Due to the low level of reliability for the anxiety about belonging measures, this is perhaps not surprising. However, it is interesting to note that SES, as measured by the FASIII, was approaching significance in terms of its ability to predict T3 belonging.

Overall, the outcome variables were only predicted by initial scores of the same variable, e.g., T3 GPA was predicted by T2 GPA, T3 attendance was predicted by T2 attendance and T3 belonging was predicted by T1 and T2 belonging. As a result, when controlling for initial scores, none of the other variables predicted the outcome variables. This does not corroborate some of the previous literature that found that belonging predicted achievement even when controlling for initial achievement (Roeser et al., 1996) and in some instances showed higher levels of predictive power than previous GPA (Hughes et al, 2015).

The results of this study clearly stand in contrast to the results found by Walton and Cohen (2011) and the main hypotheses were rejected. The intervention, for this specific population, was not effective in supporting belonging or subsequently academic achievement and attendance. In terms of the impact on a sense of belonging, the intervention did not seem to change individual's thoughts and feeling about their experiences of transition.

As discussed above, if the intervention failed to impact on a sense of belonging, academic achievement and attendance were unlikely to be impacted by the intervention. In general, although not predictive of the outcome variables, the correlations supported previous literature and showed positive associations between belonging and GPA and attendance. Thus, if the intervention group's sense of belonging was adequately increased, it would follow that their achievement and attendance would have increased too. As the intervention did not increase any

of these factors it is important to consider the strengths and limitations of this study that may have contributed to such results.

2.3.8 Strengths and Limitations

Previous literature highlights difficulties, in regards to belonging, for potentially marginalised groups (e.g., those from low SES backgrounds), as well as those who have transitioned to a new environment, (e.g., young adolescents after transitioning to secondary school). In addition, belonging has been linked to a range of factors including attainment and attendance. However, to the researcher's knowledge, this is the first study employing an experimental design to explore an intervention created to raise belonging, attainment and attendance in such a population. Based on the limited literature on belonging interventions, this study sought to utilise and extend one intervention that did find powerful effects on a population university students of African-American descent, i.e., Walton and Cohen (2011). As a result, this study was carefully designed following Walton's (2014) guidance to replicate his research, whilst making it relevant and accessible to the target population. In addition, as this study was longitudinal, albeit over a short period, this research allowed for exploration of relationships and the impact of the intervention over time.

Furthermore, the research utilised an active control group to enable manipulation of a single variable across the two groups, i.e., social versus environmental aspects about transition. This approach meant that participants across the two groups experienced the same instructions, amount of time out of class/ with adults and the same environment in which the information was delivered. In addition, allocation of non-descript booklets across the active intervention and control groups meant that teachers were blind to the group in which the pupils were participating, whereas with a passive control group, knowing which students took part in the intervention may have affected the way teachers behaved towards the pupils. As many factors were shared across the groups, it meant that any differences found would be down to the manipulation of the information. As no differences were found, this research highlights that the impact of reflecting on transition, i.e., that the issues associated with it are time limited and down to the situation itself, may be enough to support or increase belonging, attainment and attendance. Perhaps just knowing that things will get better over time is the power associated with the brief-psychological intervention, not necessarily the belonging component. As this study did not have a passive control group, or an active control group who completed a different task, e.g., reading and reflecting on plants, the full impact of providing information about transition is not clear. However, the results of this study provide a unique contribution to the existing literature.

Despite this, a number of limitations are also noted. For example, due to logistical reasons the participants completed the tasks in mixed groups, i.e., the participants in the intervention group took part in the research at the same time and in the same room as those in the control group. This was a different approach to Walton and Cohen (2011) who administered the intervention to participants individually. Unfortunately, in terms of timings and resources this was not possible. Instead group administration allowed timely completion of the intervention, i.e., in the first 2 months of starting secondary school and this approach allowed for a closer reflection of what would happen when applying such an intervention to a real life context. As a result, the experimental aspect of the intervention may have been compromised. Despite asking for the participants to read the information to themselves, this may not have happened in all cases. There may have been discussion about the information between individuals who took part in each group, during and after the session. In addition, although a script was followed in all cases and teaching assistants (TAs) were directed to help participants read information where necessary, there were limited controls around what else a TA could support with. Therefore a TA helping one participant during the internalisation section may have read the information for that participant and then made a similar suggestion on what to reflect or write about to another participant, without realising they were in a different experimental group. On general inspection of the reflection paragraphs it was clear participants were writing about both social and environmental aspects about transition, regardless of the group they were allocated to. Thus the distinction between the two groups may not have been clear enough. These examples demonstrate that the procedure followed for this experiment may have led to 'design contamination', i.e., the participants in the control group may have been exposed to information from the experimental group. This in turn could have impacted on the internal validity of the experiment, i.e., the ability to conclude that a relationship exists between the independent and dependent variable is reduced (Craven, Marsh, Debus, & Jayasinghe, 2001).

Furthermore, there was no particular schedule used to allocate participants into either the intervention or the control group. As this was not a randomised process the researchers cannot be sure that the results were not systematically bias, i.e., that any differences found between or within the groups were not systematic at the outset of the experiment.

Another difficulty in this study may have been the actual information presented. Walton and Cohen's (2014) guidance highlights the importance of closely reflecting participants lived experiences, capturing what they may worry about. During the design of the information, previous literature was reviewed to see what this age group worry most about and this was translated into either the control group information (if environmental) or intervention group information (if social). However, the paper from which this information was developed reported

upon experiences from individuals from a range of backgrounds. Therefore the information may not have accurately reflected the worries of this specific population, i.e., children and young people from low SES backgrounds.

When looking at how appropriate this intervention was for the age range, it is important to think about the developmental stage of the population that have been targeted. When looking at Piaget's stages of development, Grave and Blissett (2004) suggests that from the concrete operational stage (7 years plus), children can use logical thinking about concrete concepts. This is followed by the development of abstract and hypothetical thinking of the formal operational adolescent (12 years and over). The participants in the current study were 11-12 years old, suggesting that they would fall between these two stages in terms of their cognitive development. Therefore it is possible that using an intervention that aims to cognitively reframe individual's experiences may not have matched the cognitive development of this particular age range. This may explain why such an intervention was found to be more effective with university students, e.g., in Walton and Cohen's (2011) research.

Whilst research is limited in terms of how effective 'cognitive reframing' is for children, research has been conducted into the developmental appropriateness of cognitive behavioural therapy (CBT). This is an approach that is based on the assumption that irrational or maladaptive attitudes and beliefs, thoughts, images and processing influence behaviour (Grave & Blissett, 2004). Thus CBT uses a form of cognitive reframing to change these factors. Grave and Blissett (2004) suggest that 'the cognitive capabilities required to understand and participate in this therapeutic approach are likely to be self-reflection, perspective taking, understanding causality, reasoning and processing new information, as well as linguistic ability and memory'. (p. 402).

Most research into the effectiveness of CBT is conducted with adults; however, Grave and Blissett (2004) found that age/cognitive developmental level play a central mediating role in the efficacy of CBT. However, they recognised that CBT has been found to be effective for children over the age of eight. In fact, they suggest some principles from CBT can even be applied to children between the ages of five and eight, if the intervention is carefully developed to match their development stage. The researchers suggested using a narrative approach (e.g., stories), rather than a rationalist paradigm, may help overcome the developmental barriers of CBT with young children (Grave & Blissett, 2004). The development of the current intervention uses more of a concrete narrative about other children's experiences to explain that any difficulties during transition are common and get better with time. However, an element of perspective taking and hypothetical thinking was necessary, which may have been difficult for some participants in this

age group to engage with. Levels of cognitive development were not explored throughout this research, however may have impacted on the effectiveness of the intervention.

Furthermore, following the central limit theory (Field, 2013), as a sample size gets bigger (usually larger than 30), the sample population is more likely to be normally distributed. As we have two groups and 62 participants, the sample size was deemed appropriate for the analysis. However, due to the method of distribution and participant attrition, the intervention group had a sample size of less than 30 and therefore may have increased the chance of a type II error, i.e., not finding a significant result when there may be one. Not only does participant attrition impact on sample size, but it can lower the power of the study, affecting internal and external validity and the type of analysis that can be done (Barry, 2005). With a larger sample size, further analysis may have been included, for example, it would have been interesting to see if belonging mediated the relationship between SES and GPA.

As discussed above, the intervention did not significantly increase belonging even immediately after the information was received. As a measure of belonging, self-report measures were chosen as they are practical; they explore student's perceptions and are used in a lot of previous literature looking at the construct of belonging (e.g., Adelabu, 2007; Anderman, 2002; Arslan, 2016; Benner & Wang, 2014; Bond et al., 2007; Eisele et al., 2009; Goodenow, 1993; Hughes et al., 2015; King, 2015; Roeser et al., 1996). However, as Anderman (2003) highlights, there is difficulty in the test-retest-reliability for self-report measures, especially in a school setting. Therefore the measure may not have reflected changes in belonging accurately.

As a result of these strengths and limitations, this research has highlighted key learning points that will enable a clear future direction for the development of this intervention.

2.3.9 Future Direction

Based on the limitations outlined above, there are key factors that could be developed to take this research forward. Firstly, the information given to participants should clearly reflect the concerns and experiences of the specific population (Walton and Cohen, 2014). One way to do this would be to use the reflection paragraphs from this research as the overall population within the research were of low SES. Another way would be to use a qualitative approach to explore and capture the experiences of low SES pupils before and after transition to secondary school. By making the intervention information reflect their worries more accurately, the impact of the intervention may be increased. However, it will also be important to consider the age/ cognitive developmental level of the target population, in order to make sure the content of the

intervention is appropriate and does not require higher levels of cognitive skills than should be expected for this age group (Grave & Blissett, 2004).

Craven et al., (2001) recognised that for most classroom research, in which there is a modest sample size and a limited amount of classrooms, the use of 'within-classroom control groups' are usually the most viable option. However, they found that an 'external-control group' was a more effective control as it was less likely to be contaminated by the intervention. Therefore it will be important for future research to separate those in the intervention group from those in the control group(s). It would be useful to include another control group that is distinct from the topic of transition. Better control of the conditions would also be advisable, i.e., clearer instructions for support staff or, if possible, for the information to be delivered individually to participants.

Ensuring a larger sample size would allow for better analysis of the results, as well as putting measures in place to help retain participation over time to account for participant attrition. The largest difficulty during this research in regards to the sample size was two-fold. First of all finding schools that were willing to participate was difficult. This was improved by linking with Educational Psychologists who already have good working relationships with secondary school staff. The second difficulty was in gaining parental consent, or at least getting parental consent returned. Generally, the feeling from school staff was that parents would be happy for their children to participate, but return rates for forms were generally low. An opt-out procedure may have accounted for this. Previous research (e.g., Chen et al., 1997) has used an opt-out approach based on the reasoning that whilst children are at school, teachers are in the role of 'loco parentis', i.e., in the role of the parent. Alternatively, attending parents evening, gaining consent without the need for paperwork to be returned and offering parents opportunities to discuss the research, may have resulted in a higher consent rate. In terms of making sure follow up measures are completed, allowing larger time frames to account for absence would be beneficial. Overall, a longer study would be helpful in looking for long term effects.

Another change that may support the outcomes of such an intervention is to remove the difficulties associated with self-report measures for belonging. In fact, research has consistently found that sociometric methods are related to GPA (Chen et al., 1997; Delgado et al., 2016; Liu & Chen, 2003; Lubbers, et al., 2006). Sociometric methods use peer nominations of individuals they most and least like. This data is used to assess whether or not peers are accepted by others, belong to a group or those that are isolated/ rejected. As this relies on triangulated information from peers, it removes the difficulties with test-re-test reliability.

Beyond the potential for future research, the outcome of the study also highlights to educational professionals the impact of low SES on GPA. This supports previous literature and acts as a reminder of the negative impact SES can have on life outcomes. In addition, when thinking about transition to secondary school, those with low SES may feel higher levels of anxiety about belonging and therefore may need additional support to prepare for transition.

2.3.10 Conclusion

Whilst individuals who experienced higher levels of anxiety about belonging had lower levels of SES and lower levels of initial belonging, the current intervention did not significantly impact on achievement, attendance or belonging for this population. Overall, this study highlights key factors that may increase the impact of the intervention on the dependant variables. These include adding a third control group (unrelated to transition), controlling the experimental conditions more carefully, running qualitative research/ analysis on the concerns of this particular population, matching the content and messages to the population's developmental level, extending the length of the research and using other methods to measure belonging such as sociometric measures.

Appendix A Search Strategy

The following search terms were used to identify relevant articles via registered databases, i.e., PSYCinfo, Web of Science and ERIC.

Search with OR		Search with OR		Search with OR
Belong* "School connect*" "Sense of belong*" Friend* "Peer acceptance" "Peer support" "Social support" "School Belong*" "School community" "School acceptance" "Peer relationships" Relatedness "Social inclusion"	**Search with AND**	"Academic achievement" Grade* "Grade point average" "GPA" "Learning progress" "Academic progress" Attainment Achievement "Academic competence" "Academic performance" "Education* attainment" "Education* achievement" "Academic attainment" "Education* progress" "Education* performance"	**Search with AND**	Adolescen* "School age" "High school" "Secondary school" "Young people" Teenage*

Filters applied for PSYCinfo and Web of Science:

- Age range 13-17
- Years 1950-2016
- No books
- English Language only

Additional filters for ERIC were added as the database had no age filter and when using above search terms only, 355,018 articles were produced across a range of disciplines.

Additional filters for ERIC include:

- Articles only
- Removal of articles relating to:
    - Health
    - Politics

- Stress or depression
- Those with a focus on parent
- Family and teacher relationships
- Those that reference over 17 year olds
- Sexual behaviour
- Social services and sociology (where reference to belonging has not been made).

Appendix B Inclusion and Exclusion Criteria

	Inclusion	Exclusion
Population	• Age range to fall within 11-17 years old. To include all school years across countries where children are within this age range, e.g., UK year 7-12. • To include longitudinal studies that collect follow up data from within this age range, regardless of the age of participants at the start.	• All studies where the mean ages of the participants are outside of the 11-17 age bracket.
Outcome variable	• Studies that measure actual academic achievement (in any subject or GPA) as the outcome measure.	• Studies where academic achievement is the independent variable. • Studies including perceived or preferred academic outcomes only. • Studies looking at peer academic attainment. • Studies that focus on academic motivation only. • Studies focused on attendance.
Independent variable	• Studies that measure a sense of belonging, peer acceptance, sense of school or group membership, i.e., aspects that relate to belonging. • Studies that include this variable as only a small part of their research. • Studies that look at friendship groups in terms of acceptance and rejection.	• Studies that focus on perceived social support (including that from peers, parents and teachers) as this does not necessarily relate to a sense of belonging. • Studies that look at social capital i.e. those that measure peers behaviour or performance. • Studies relating to participants social skills or social competence. • Studies looking specifically at peer victimisation and bullying. • Studies that focus on cliques. • Studies that look at teacher or parent perspectives of belonging.
Methodology and types of paper	• Quantitative research including a range of measures and research designs. (Sociometric, questionnaires, surveys, longitudinal, correlational, intervention studies etc).	• Not qualitative (unless actual academic attainment is also measured). • Thesis papers (that have not been published). • Not conference papers.
Other	• Research in all countries, including participants from different cultures.	• Papers which are not written or accessible in English. • Papers with specific focus, i.e., SEN/health/ weight/ physical activity.

Excluded Articles	Reason for Exclusion
• Jou and Fukada (1995) • Chen, Chang and He (2003) • Van Ryzin, Gravely and Roseth (2009) • Irvin, Meece, Byun, Farmer and Hutchins, (2011) • Shin and Ryan, (2014)	Does not measure actual academic attainment.
• Azmitia, and Cooper, (2001) • Hernández, Robins, Widaman, and Conger (2016).	Participants are outside the age range.
• Rothon, Head, Klineberg, and Stansfeld, (2011) • Wormington, Anderson, Schneider, Tomlinson, and Brown (2016)	Bullying/victimisation, not focused on belonging.
• Chen (2008)	Academic support not peer support/ belonging.
• Dumais (2009)	Friend academic values/ attitudes rather than belonging.
• Jones, Audley-Piotrowski, and Kiefer (2012)	Perception of friends skills not belonging.
• Fortuin, van Geel and Vedder (2016)	Peer selection and social capital not belonging.
• Hernandez, Oubrayrie-Roussel and Prêteur (2016)	Social support not belonging. Does not clearly measuring actual attainment.
• Rosenfeld, Richman and Bowen (2000).	Perceived support not belonging
• Rosenfeld, Richman, Bowen and Wynns (2006)	Not directly related to peer relationships.
• Irwin (2013)	'Hanging out behaviour' not belonging.
• Ngai, Cheung, To, Liu, Song (2013)	Does not relate to belonging.
• Glozah and Pevalin, (2014) • López and Ehly (2002)	Social support not in reference to belonging or peers.
• Rabaglietti and Ciairano (2008)	Does not mentioned belonging.
• Wentzel (1991)	Social competence not belonging.

Appendix C Data Extraction Table

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
Adelabu (2007)	• 16.5 years • 9th, 11th and 12th grades • 232 students • 139 females • 93 males • USA	Cross Sectional Regression Analysis	**DV:** *Academic achievement:* GPA for history, math, science and English grades. **IV:** *Time perspective:* Adapted from the Zimbardo Time Perspective Inventory to look at orientation towards the present or future. *School Membership:* The Psychological Sense of School Membership Scale (Goodenow, 1993).	Significant positive relationship between belonging and achievement. Time perspective significantly mediated the relationship.
Anderman (2002) **Study 2**	• Age not specified • 7th to 12th grade • 20,745 students in 132 schools • 48.8% male • 51.2% female • USA	Longitudinal Regression Analysis	**DV:** *Academic achievement*: GPA for grades in English, maths, social studies and science. **IV:** *Perceived school belonging and* *Self concept:* Both measure developed by the researchers. *Absenteeism*: Home interview regarding amount of days off and reasons.	Individual and aggregated belonging significantly predicted GPA.
Arslan (2016)	• 16.93 • 9th and 12th grade. • 353 students in 2 schools • 217 females	Cross Sectional Structural	**DV:** *Academic Achievement:* GPA for last semester **IV:** *Sense of rejection:* The Psychological Sense of School Membership Scale (Goodenow, 1993). *Academic Efficacy:* Subscale of the Student Subjective	A sense of rejection significantly predicted academic achievement. Academic efficacy and educational purpose

Appendix C

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
	• 136 males • Isparta, Turkey	Equation Modelling	Wellbeing Questionnaire (Renshaw et al., 2004). *Educational purpose:* Another subscale of the Student Subjective Wellbeing Questionnaire (Renshaw et al., 2004).	partially mediated the relationship between sense of rejection and academic achievement
Benner and Wang (2014)	• Age not specified • 8th to 12th grade. • 6,302 students • 54% females • 46% male • USA	Longitudinal Structural Equation Modelling	**DV:** *Academic achievement:* Cumulative GPA *Educational attainment*: Rated on a scale from 1 (high school dropout) to 7 (four year college degree or higher). **IV:** *Socioeconomic marginalisation*: Based on parental occupation and education. *Racial/ Ethnic Marginalisation:* Self reported. *Social Integration:* Student's ratings on a Likert scale for one 'loneliness' question and 3 'school attachment' questions.	Loneliness and poor school attachment was significantly related to lower GPA at the end of high school and lower educational attainment. Those with dual marginalisation demonstrated the worst outcomes.
Bond, Butler, Thomas, Carlin, Glover, Bowes and Patton (2007)	• 14 Years • 8th grade • 2678 from 26 schools • 47% male • 53% female • Victoria, Australia	Longitudinal Regression Analysis	**DV:** *Academic Achievement:* End of year 12 grades and University entrance grades. **IV:** *Social connectedness:* With three questions adapted from the Interview Schedule for Social Interaction assessing adequacy of attachments. *School connectedness:* Self report measure covering commitment to school, relationships with teachers and with peers, opportunities to participate and belong.	Compared to good school and social connectedness, all other combinations of connectedness decreased the likelihood of completing school.

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
			Interpersonal conflict: Two self report measures including being bullied recently and having arguments with others.	
Chen, Rubin and Li (1997)	• 12.1 years and 9.11 years • 6th and 4th grade students • 482 children in 2 schools • 128 boys in 4th grade • 117 girls in 4th grade • 127 boys in 6th grade • 110 girls in 6th grade • Shanghai, China	Longitudinal Regression Analysis	**DV:** *Academic achievement*: Maths and Chinese grades. **IV:** *Peer assessment of social behaviour:* Chinese version of the Revised Class Play (Masten et al., 1985) and T-CRS (Hightower et al., 1986) – teacher rating on children's problem behaviours and children's social competence. *Peer acceptance and rejection:* Sociometric nominations. *Leadership:* Taken from school records.	Academic achievement was significantly and positively correlated with positive sociometric nominations and negatively related to negative sociometric nominations.
Delgado, Ettekal, Simpkins and Schaefer (2016)	• 15.10 years • 7th and 12th • 6782 Latino youth in 132 schools • 52.9 %female • 48.1% male • USA grades	Longitudinal Path Analysis	**DV:** *Academic achievement:* GAP for self reported grades in English, math, social studies and science. **IV:** *School-Based Friendship Network Indicators:* Peer nominations as being a friend, perceived number of friends and close knit friendship groups. *Friend's characteristics:* Academic achievement and problem behaviour were created based on friends' self reported data. *School belonging:* Mean of two items scored on a 4 point	Having peers nominate you as a friend and perceiving to have friends, were consistent predictors of school belonging. Belonging mediated the relationship between peer nominations and attainment.

Appendix C

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
			scale.	
Eisele, Zand and Thomson (2009)	• 11.94 years • 174 African-Americans • 91 males • 83 females • USA	Experiment/ Longitudinal Path Analysis	**DV:** *Academic achievement:* Self reported grades. **IV:** *Gender Identity:* Children's Personal Attributes Questionnaire (CPA!; Hall and Halberstadt, 1980) including: independence, leadership and interpersonal domains. *Friendship/Acceptance and Behaviour conduct:* Behavioural Conduct and Friendship/Acceptance self-concept domains of the Self-Perception Profile for Adolescents (SPPA: Harter, 1988). *School bonding:* The school bonding scale.	Gender significantly predicted gender identity factors. Gender identity mediated the relationship between gender and friendship/ acceptance. There was a significant positive relationship between friendship/acceptance and behaviour conduct, between behaviour conduct and school bonding and school bonding and academic achievement.

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
Gillen-O'Neel and Fuligni (2013)	• 14. 88 years • 9th to 12th grade • 527 participants in 3 schools • USA	Longitudinal Structural Equation Modelling	**DV:** *Academic achievement:* GPA across of Participant's classes. **IV:** *School belonging:* Based on items from the work of Tyler and Degoey (1995) on institutional engagement. *Utility and Intrinsic value for school:* Items adapted from Eccles (1983).	No significant findings were found regarding within-person associations between school belonging and GPA. These findings did not differ by gender or ethnicity.
Goodenow (2003)	• 12.6 years • 6th, 7th and 8th grades • 353 children in 1 school • 187 boys • 166 girls • New England, USA	Cross Sectional Regression Analysis	**DV:** *Academic achievement:* Term grades and teacher based effort ratings in English. **IV:** *Motivation:* Measured as expectancies (expectation for success) and value (interest, value and importance students attach to academic subjects). *Belonging/support and classroom climate:* Primary measure was the Class Belonging and Support scale (CBSS) – personal sense of being liked, included and respected in class. Affiliation and Teacher Support subscales from the Classroom environment Scales (CES) were also included.	Belonging was significantly related to expectancies for success and value. Expectancy for success was the primary predictor of academic effort and grades, belonging and support was also associated with these outcomes, more highly than intrinsic value.

Appendix C

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
Hughes, Im and Allee (2015)	• Age not specified • 6^{th} – 8^{th} grades • 525 students • An ethnically diverse sample • Texas, USA	Longitudinal Structural Equation Modelling	**DV:** *Academic achievement:* The Woodcock Johnson III Tests of Achievement (broad reading and maths skills). Or (if more proficient in Spanish than English) the Bateria III was used (Spanish version of the WJ-III). **IV:** *Belonging:* Psychological Sense of School Membership Scale (Goodenow, 1993).	School belonging at grade 6 predicted grade 8 reading above prior reading and Maths levels. Significant moderations were found for ethnicity and gender.
King (2015) **Study 1**	• 14.64 years • 848 pupils in 2 schools • 42.8% males • 57.2% females • Metro Manila, Philippines	Longitudinal Structural Equation Modelling	**DV:** *Academic achievement:* GPA for final grades in Filipino, Maths, English, Social studies and Science. **IV:** *Sense of Relatedness:* The relatedness scale (Furrer & Skinner, 2003) *Engagement and Disaffection:* The Engagement verses Disaffection in Learning Questionnaire- student report (Skinner, Kindermann and Furrer, 2009).	Sense of relatedness was significant direct predictor of academic achievement.
Lam, Chen, Zhang and Liang (2015)	• 13.92 years • 406 in 15 schools • 56.4% female • 43.6% male • Macau, China	Cross Sectional Path Analysis	**DV:** *Academic achievement*: GPA (self-reported by participants)**.** **IV:** *Belonging/ rejection:* Psychological sense of school membership (translated into Chinese). *Academic emotions:* The Adolescence Academic Emotions Scale.	Direct relationship between belonging/ rejection and achievement. School belonging was related to academic achievement through the mediators of

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
				academic emotions.
Liu and Chen (2003)	• 14.2 years • 296 in 2 schools • 163 males • 133 females • Shanghai, China	Longitudinal MANOVA	**DV:** *Academic achievement:* Maths and Chinese grades. **IV:** *Friendship networks:* Hallinan (1981) procedure based on friendship nominations. *Peer assessment of Social Behaviour:* A Chinese version of the Revised Class Play (originally Masten et al., 1985). *Sociometric nominations:* Select three peers they like most and three they least like. *Teacher ratings:* Teacher-Child Rating Scale (T-CRS, Hightower et al., 1986). Ratings related to problem behaviour and school-related competence. *Self perception:* The Self-perception Profile for Children (Harter, 1985). *Loneliness and social dissatisfaction:* Self report measure by Asher et al. (1984).	Significant effects of network status were found on academic achievement. Group members had higher scores of academic achievement than dyads. Isolates had the lowest scores of academic achievement.
Liu and Lu (2011)	• 16 years • 567 students in 2 schools • 306 females • 261 males • Jiangsu Province, People's Republic of	Longitudinal Structural Equation Modelling	**DV:** *Academic achievement:* GPA for Chinese, maths and English grades. **IV:** *Belonging:* Sense of School Belonging by Goodenow (1993).	Initial levels of belonging or rate of change of belonging did not predict academic achievement trajectories across high school. However, there was a significant

Appendix C

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
	China.			improvement in belonging for students for the 12% of students in the increasing class (those who significantly improved in their grades).
Lubbers, Van Der Werf, Snijders, Creemers and Kuyper (2006)	• 13 years • 18,735 in 796 schools • 50% female • 50% male • Netherlands	Longitudinal Regression Analysis	**DV:** *Academic achievement:* Measured through a) promotion to next year b) grade retention c) downward mobility among tracks d) upward mobility among tracks or skipping a grade. *Performance level:* Arithmetic tests developed by the national Institute for Educational testing. *Recommended track and Track level:* Normal data collected from school. **IV:** *Peer acceptance and Number of friends:* Peer nominations. *School engagement:* *Achievement motivation:* Items from Kuyper and Swint, (1996). *Educational Aspirations:* 5 point scale regarding plans to continue education. *Relatedness (i.e. belonging): School wellbeing (Kuyper et*	Well accepted students have a lower probability of retaining a grade or moving downward in the track system than poorly accepted students. The effect of peer acceptance on upward mobility and grade skipping was non-significant. Relatedness did not mediate the relationship between peer relations and academic achievement.

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
			al., 2003).	
Roeser, Midgley and Urdan (1996)	• Ages not specified • 6th and 8th grades • 296 students • 49.6% female • 50.4% male • USA	Cross Sectional Regression Analysis	**DV:** *Academic achievement:* GPA for English, math, science and social studies. **IV:** *School context perceptions:* Measure goal dimension and relationship dimensions (school ability goal structure, school task goal structure, teacher student relationships). *Process Measures:* Three scales used to measure school belonging, personal task goals and personal relative ability goals. *Psychological outcomes:* Related to students beliefs about mastery (academic self efficacy), positive school affect and academic self-consciousness.	Prior GPA was the best predictor for academic achievement at the end of the year. However, school belonging also had small positive effects on achievement, above and beyond the variance explained by prior achievement.
Sánchez, Colón and Esparza (2005)	• 17.97 years • 12th grade • 143 students • 74 female • 69 male • USA	Cross Sectional Multiple Regression	**DV:** *Academic achievement:* Cumulative GPA. **IV:** *School Belonging:* The Psychological Sense of school membership (Goodenow 1993). *Motivation:* Two scales developed by Pintrich and DeGroot (1990) were used to measure motivation. *Academic effort:* Measured with Murdock et al., 2000) 4-item scale. *Educational aspirations and expectations:* Based on a measure used by Stevens, Putchell, Ryu,	Belonging significantly predicted absenteeism, expectancies for success in English, intrinsic value for English, and academic effort. However, sense of belonging did not significantly predict GPA, educational aspirations,

Appendix C

Study	Population Characteristics	Design and Analysis	Relevant Measures	Key Findings in relation to review question
			and Mortimer (1992).	and educational expectations.
Wentzel and Caldwell (1997)	• 11.87 years • 6th -8th grade **Study 1:** • 213 students from 10 classrooms • 52% female • 48% male **Study 2:** • 404 students in 17 classrooms • 48% female • 52% male • USA	Longitudinal ANOVA Cross Sectional (Study 2) ANCOVA	**DV:** *Academic achievement*: End of year cumulative GPA. **IV:** *Reciprocated friendship:* Peer nominations. *Peer acceptance:* Asher and Dodge (1986) procedure – based on the rating they received from other peers. *Group membership:* Using the peer nomination information groups were determined statistically. *Antisocial and pro-social behaviour:* Peer nominations on set statements and teacher ratings.	6th grade group membership is consistently related to students 6th grade GPA even when controlling social and emotional characteristics. Reciprocal friendships and peer acceptance were related less to GPA.

Appendix D Weight of Evidence Table

Study	A (Internal methodological coherence)	B (Relevance of design for this review question)	C (Relevance of focus to review question)	D (Overall weight of evidence)
Adelabu (2007)	High / medium	High	Medium	High
Anderman (2002)	High	Medium/ High	High	High
Arslan (2016)	High / medium	High	Medium/ high	High
Benner and Wang (2014)	High	Medium	High	High
Bond et al. (2007)	High	High	Medium/Low	Medium
Chen et al. (1997)	Medium	Medium	Medium	Medium
Delgado et al. (2016)	High/Medium	Medium	Medium	Medium
Eisele et al. (2009)	Medium	High	Medium	Medium
Goodenow (2003)	Medium	Medium	Medium	Medium
Hughes et al. (2015)	High /Medium	High	High	High
King (2015)	High/ Medium	High	Medium	High/ Medium
Lam et al. (2015)	High/ Medium	High	High	High
Liu and Chen (2003)	Medium	Medium	Medium	Medium
Liu and Lu (2011)	Medium/ Low	Low	Medium	Low/ Medium
Lubbers et al. (2006)	Medium	Medium	High/ medium	Medium
Gillen-O'Neel and Fuligni (2013)	High	High	High	High
Roeser et al. (1996)	Medium	High	Medium	Medium
Sánchez et al. (2005)	Medium / Low	High	High / Medium	Medium
Wentzel and Caldwell (1997)	Medium	Medium	High	Medium

Appendix E Intervention Information

Previous research was completed with 10 secondary schools in the South-East of England to find out how pupils experience the move to secondary school. They asked pupils about how they felt about the transition before (at the end of Year 6) and after their transition to secondary school.

These are the concerns that many children experience:

1. Losing old friends
2. Not fitting in at my new school
3. Feeling that I am not the type of pupil who will do well in school

The research also showed that these concerns were experienced by pupils from different backgrounds. This included pupils whose family members liked and were successful at school, and those who did not like and were less successful at school.

Good news: Within a short time, pupils' concerns are reduced

Young peoples' worries about losing old friends, not fitting in, or feeling "out of place" soon reduce and for most children, they have entirely disappeared by the end of Year 7.

Even children who did not go to their family's first choice of secondary school were just as settled at the end of Year 7.

This is great news!

In summary, the results of the study tell us two things:

- Concern about the transition to secondary school is very common. Almost all pupils, from all backgrounds, share these concerns.
- These concerns are usually short-lived. The large majority of children have settled in well academically and socially by the end of Year 7.

Appendix E

"The scariest thing about starting secondary school was knowing I would have to make new friends, I didn't know anybody, not many people from my primary school came to this school with me. It didn't take long to make friends though. Everybody was worried about meeting new people so that made it easier. I have a really close group of friends here now and people I like working with in

"Before starting secondary school I worried about getting lost, this school is so much bigger than my primary school. But once I started I realised everyone was worried about getting lost and we generally found places together. The older students and teachers were helpful too and I got used to it pretty quickly."

"I was worried that the teachers would be really strict compared to my teachers at primary school. I was worried that they might not like me and I would end up with detentions. But it didn't take long of everyone to relax more in lessons and feel more comfortable to talk to the teachers. They are not different to my old teachers really, they just want everyone to do well."

"I was worried about fitting in at secondary school. There are so many people there and I often feel different to other people. I didn't really share interests with people at primary school. But it was different here, it was a good thing that so many people were here. It was easier to find people who liked the same stuff as me. Talking to my friends now I think we all worried about being different or not fitting in, everybody does when you start somewhere new."

"I'm not really the kind of person to do well in school. I was worried secondary school would be rubbish and hard work. But I do like it here , I

Appendix F Control Information

Previous research was completed with 10 secondary schools in the South-East of England to find out how pupils experience the move to secondary school. They asked pupils about how they felt about the transition before (at the end of Year 6) and after their transition to secondary school.

These are the concerns that many children experience:

1. Getting lost at school
2. Lessons and homework being tedious
3. Following a new routine

The research also showed that these concerns were experienced by pupils from different backgrounds. This included pupils whose family members liked and were successful at school and those who did not like and were less successful at school.

Good news: Within a short time, pupils' concerns are reduced

Young peoples' worries about getting lost reduced quickly and students felt they knew their away around the school by the end of year 7. Pupils that struggled academically at first, felt that this lessened with time and they managed to follow the routine well with the help of timetables.

This is great news!

In sum, the results of the study tell us 2 things:

- Concerns about secondary school are very common. Almost all pupils, from all backgrounds, share these concerns.
- These concerns are usually short-lived.

Appendix I

"I was worried that I wouldn't get used to the routine of secondary school. All the different lessons and getting to them on time. I'm pretty used to it now though. The timetable was helpful when I started to remember what lesson I had next and with what teacher. Now I don't even need to look at the timetable really".

"Before starting secondary school I worried about getting lost, this school is so much bigger than my primary school. But I got used to it quickly. Having lessons in different parts of the school helped. It doesn't feel that big now".

"When starting secondary school I struggled a bit with the new work, it was different to the work at primary school. It's ok now though and I think I am doing well. I think I just needed to adjust to the different lessons and types of work".

"Getting homework was a bit scary. I was worried that there would be too much. But it's similar to the work you do in class. I don't remember having any problems with it this year".

Appendix G Anxiety Questionnaire

Please indicate how much you agree or disagree with the following statements

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1) I think it will be easy to fit in at school					
2) I am afraid others will not approve of me at school					
3) I feel comfortable talking to new people at school					
4) Going to a new school makes me feel anxious					
5) I worry about talking to new people at school					
6) I find it easy to make new friends at school					

Note: Question 2 was removed for the analysis following Cronbach's Alpha.

Appendix H Grade Comparison Table

School level descriptors and how they correspond to each other (higher numbers = higher grades)			Numeric value given for SPSS
School A	School B	School C	
1c	1-	1-	1
1b	1=	1	2
1a	1+	1+	3
2c	2-	2-	4
2b	2=	2	5
2a	2+	2+	6
3c	3-	3-	7
3b	3=	3	8
3a	3+	3+	9
4c	4-	4-	10
4b	4=	4	11
4a	4+	4+	12
5c	5-	5-	13
5b	5=	5	14
5a	5+	5+	15
6c	6-	6-	16
6b	6=	6	17
6a	6+	6+	18
w	NA	u	0

Appendix I Script for Intervention/ Control

Hi! My name is ____

It's important that you understand how this study will work. Today you'll be here for about an hour. Then, after today's session, you will be asked to complete 2 more sets of questionnaires later in the year. These questionnaires won't take long to complete – about 10-15 minutes– but it is important that you complete them. We'll entre you into a prize draw with the opportunity to win £50 for doing this. If you don't think you can do this now please let me know so that we can make sure that people who participate can complete the study. So, is this something that you think you'll be able to do?

<get verbal commitment>

Great. Then I would like you to sign one copy of the consent form. The second copy of the consent form is yours to keep.

<consent form>

OK, now let me tell you a bit about this study. We are interested in the experiences and attitudes of students who transition into secondary school. Previous research from a sample of students, gave us information on how they felt about the transition to secondary school before (at the end of year 6), and a year later (end of year 7).

This particular study has two purposes. The first purpose is to better understand your personal experiences and attitudes about transitioning from primary to secondary school. The second purpose of this study is to help us provide incoming year 7 pupils, next year and in the years to come, with more accurate expectations about what secondary school is like. So, to do this, we'll be asking you questions about your experience so far at this school. This is also why we want you to complete the follow up questionnaires – to better understand what it is like to be a year 7 pupil. We'll also ask you to help us prepare some materials and ultimately we hope to take selections of these to distribute to incoming pupils to help them learn what secondary school will be like. Does that make sense?

<makes sense>

Great. Now the first thing I'd like to do is to give you a brief summary of the results of the previous research that I mentioned before. I'm going to tell you about one aspect of the results that was particularly interesting to us. These results were consistent across different groups in our sample – social class, race, gender, and so on. We are now trying to understand the results of this research, and therefore we wanted to talk to people like you – year 7 pupils who are experiencing the transition – and getting your responses to the results which will hopefully help us to understand them. Please read through this carefully, and take your time. It would be really helpful if you could do this silently. Later on, we'll get your reactions to it. Go ahead, please ask if you need any help or have any questions.

Appendix I

<Summary of research results: silent reading; 10 minutes max>

All done. Now we would like to get your views about why you think people's experience in secondary school develops in the way the other students describe. I want you to take some time and reflect on your own experiences as a new pupil here. In a moment I will ask you to write down about why people's experience in secondary school develops as it does. When you write this, consider especially how some of your experiences have been similar to the research results you read about. There are instructions here, but the goal is to really understand how people's experiences in secondary school changes over time. In addition, next year we plan to take excerpts of what people write here and show them to students coming in September or in subsequent years so they will know what their experience is likely to be like. So is this something you could do?

<assent>

Great. So again, we'd like you to write about why you think people's experience in secondary school changes in the way the research describes. It will be helpful to have some examples from your own experience. I'll leave the research summary here with you so you can look back on it as you work. Go ahead and take your time and work on this as long as you want. What is important here is that you get your ideas across, so don't worry so much about spelling or grammar or the quality of the writing.

Now, just so you know, all your responses will be kept confidential.

Take your time with this, but try to finish up within half an hour.

- write own experience; *time this allow 10 minutes*-

Now we would just like to get some basic information from you and ask you to complete a couple of questionnaires. It's really important to us that you take your time and answer these questions carefully. So, is that all right – could you do that for me?

-Get Verbal Consent-

Thanks. Again, all your responses will be kept confidential. Just let me know when you're done.

<Belonging and FAS measure>
That was great - thanks so much for doing that!
In the next two terms we would like you to complete similar questionnaires to the first one (belonging measure). These will be given to you and collected by a teacher, so don't worry about remembering when these will need to be completed. OK so we're about done now.

Thank you very much for your help, and don't hesitate to contact (name of contact) if you have any questions over the next week.

Appendix J Ethical Information

J.1 Parent Information Sheet

Parent Information Sheet [Version 1, 10/06/2016]

Study Title: Can changing beliefs about belonging lead to better academic and attendance outcomes for children in secondary schools? Researcher: Jo Goodman

Supervisor(s): Dr. Sander Thomaes, Associate Professor, Tim Cooke, Academic and Professional Tutor

Ethics number: 20875

Please read this information carefully before deciding on whether your child may take part in this research. If you are happy for your child to take part, you will be asked to sign a parent consent form.

What is the research about?

This research will form part of a doctoral thesis in Educational Psychology. The research will look at how information given to new pupils at the beginning of school could affect academic attainment, school attendance and a sense of belonging across the academic year.

Why has my child been chosen?

All pupils starting year 7 in your school are eligible to participate because your child's school has agreed to participate in our research.

What will happen to my child if he/she takes part?

The study will be conducted at your child's new secondary school. All participants will be invited to a classroom to take part in the study. Participating pupils will be randomised and put into one of two groups. A member of staff from your child's school will read out instructions and give further information about the study. They will then ask your child to sign an assent form if they are happy to take part in the study. Your child will then receive a booklet which will have some questionnaires in and information in for them to read regarding other student's experiences in school. Participants will then be asked to write a short summary of their experiences in relation to this information. There will be 3 short questionnaires in total (regarding worrying about belonging at school, current belonging and family affluence) for your child to complete. The whole process

will take approximately 1 hour and teacher support will be available throughout. The researcher will collect this information as well as information on your child's attendance and achievement in Maths, English and Science lessons from their school throughout the year. Your child will be asked to complete similar belonging questionnaires before the end of the autumn and spring term. This will take approximately 15 minutes each time. Are there any benefits in my child's taking part? Your child's participation will help develop our knowledge regarding how best to support new students when they start secondary school. In addition, all participants will be entered into a prize draw with the opportunity of winning one of four £50 prizes at the end of the academic year.

Are there any risks involved?

Reflecting on experiences of belonging and family affluence might bring about some level of discomfort. Besides this, no risks can reasonably be anticipated.

Will my child's participation be confidential?

Yes, all of your child's information, including responses on the questionnaires and other measurements will remain confidential. All data will be kept in a locked cabinet in the School of Psychology, University of Southampton and will be kept on a password protected computer. This research complies with University policy to ensure confidentiality of research participant responses.

What happens if my child decides not to participate?

When you as a parent have given your consent, we will also ask your child to provide his/her own assent to take part in the research. Your child can decide not to take part or to withdraw from participation at any time they want without any consequences.

What happens if something goes wrong?

It is unlikely that taking part in this study could cause your child any harm. However, if you have questions about participant rights in this research, or if you feel that your child has been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk

Where can I get more information? If you would like any more information about the research, please contact:

Researcher: Jo Goodman: jcg1g14@soton.ac.uk
Supervisor(s): Dr. Sander Thomaes, Associate Professor: s.thomaes@soton.ac.uk
Tim Cooke, Academic and Professional Tutor: t.cooke@soton.ac.uk

J.2 Parental consent form

Parental consent form (*Version 1, 23/05/2016*)

Study title: Can changing beliefs about belonging lead to better academic and attendance outcomes for children particularly those from low socioeconomic status families?

Researcher name: Jo Goodman

Supervisor: Dr. Sander Thomaes, Associate Professor
Tim Cooke, Academic and Professional Tutor

Ethics reference: 20875

Please initial the boxes if you agree with the statements below:

I have read and understood the study ☐

I agree to my child taking part in this ☐

I understand my child's participation ☐

Data Protection

I understand that information collected about my child during their participation in this study will be completely anonymous and stored on a password protected computer.

Child's Name……

Parent's Name……

Parent's Signature……

J.3 Pupil information form

Participant Information Sheet [*Version 1, 10/06/2016]*

Study Title: Can changing beliefs about belonging lead to better academic and attendance outcomes for children in Secondary schools? Researcher: Jo Goodman

Supervisor(s): Sander Thomaes, Associate Professor: Tim Cooke, Academic and Professional Tutor

Ethics number:

Please read this information carefully before deciding to take part in the research. If you are happy to participate you will be asked to sign a participant assent form.

What is the research about?

This research will form part of a doctoral thesis in Educational Psychology.

The research will look at how information given to new pupils at the beginning of school could affect academic attainment, school attendance and a sense of belonging across the academic year.

Why have I been chosen?

All pupils starting year 7 in your school are eligible to participate because your school has agreed to participate in our research.

What will happen to me if I take part?

The study will be conducted at your new secondary school.

All participants will be invited to a classroom to take part in the study. Participating pupils will be randomised and put into one of two groups. A member of staff from your school will read out instructions and give further information about the study. They will then ask you to sign an assent form if you are happy to take part in the study. You will then receive a booklet which will have some questionnaires in and information in for you to read regarding other student's experiences in school. You will then be asked to write a short summary of your experiences in relation to this information. There will then be 3 short questionnaires in total (regarding worrying about belonging at school, current belonging and family affluence) to complete. The whole process will take approximately 1 hour and teacher support will be available throughout. The researcher will collect this information as well as information on your attendance and achievement in Maths, English and Science lessons from your school throughout the year. You will be asked to complete similar short questionnaires about belonging before the end of the autumn and spring term. This will take approximately 15 minutes each time.

Are there any benefits in my taking part?

Your participation will help develop our knowledge regarding how best to support new students when they start secondary school. In addition, all participants will be entered into a prize draw with the opportunity of winning one of four £50 prizes at the end of the academic year.

Are there any risks involved?

Reflecting on experiences of belonging and family affluence might bring about some level of discomfort. Besides this, no risks can reasonably be anticipated.

Will my participation be confidential?

Yes, all your information, including responses on the questionnaires and other measurements will remain confidential. All data will be kept in a locked cabinet in the School of Psychology, University of Southampton and will be kept on a password protected computer. This research complies with University policy to ensure confidentiality of research participant responses.

What happens if I change my mind?

You can withdraw from participation at any time you want, without any consequences and you will still be entered into the prize draw.

What happens if something goes wrong?

It is unlikely that taking part in this study could cause you any harm. However, if you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk

Where can I get more information?

If you would like any more information about the study, please contact:

Researcher: Jo Goodman: jcg1g14@soton.ac.uk

Supervisor(s): Dr. Sander Thomaes, Associate Professor: s.thomaes@soton.ac.ukTim Cooke, Academic and Professional Tutor: t.cooke@soton.ac.uk

Appendix J

J.4 Pupil assent form

Study title: Can changing beliefs about belonging lead to better academic and attendance outcomes for children particularly those from low socioeconomic status families?

Researcher name: Jo Goodman

Supervisor(s): Dr. Sander Thomaes, Associate Professor : Tim Cooke, Academic and Professional Tutor

Ethics reference:

Please initial the boxes if you agree with the statements below:

I have read and understood the

Appendix L

I am happy to take part in this study

I understand that I may withdraw my

Your Name.....

Date.....

J.5 Debrief form

Participant Debriefing [*Version 1, 10/06/2016]*

Study Title: Can changing beliefs about belonging lead to better academic and attendance outcomes for children in secondary schools?

Ethics Reference: 20875

Researcher: Jo Goodman

jcg1g4@soton.ac.uk

Supervisor(s): Dr. Sander Thomaes, Associate Professor s.thomaes@soton.ac.uk

Tim Cooke, Academic and Professional Tutor t.cooke@soton.ac.uk

Thank you for taking part in this study.

The aim of this study was to identify if a brief psychological intervention, delivered to pupils who are new to secondary school, could increase a sense of belonging, academic achievement and attendance, especially in children who may have worried about fitting in at school (e.g. pupils from low socioeconomic backgrounds). In addition, this research aims to identify if such effects are maintained across the academic year.

The results of this study will be written up into a report, which may be published in a scientific journal. We would like to remind you that your individual data i.e., your responses to the questionnaires, and the measurements of your academic attainment and attendance will remain strictly confidential. Only group data will be reported.
We hope that you have enjoyed taking part in our research. However, if you have any questions regarding the research, or would like a information regarding the findings of this research, please feel free to contact the researcher.

Once again, thank you for participating in this study.

Jo Goodman, Sander Thomaes and Tim Cooke
School of Psychology, University of Southampton

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk

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