University of Reading

Cooperative Learning in Sixth Form Supervised Study

EdD

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Acknowledgements

This EdD study has been a fruitful and arduous process. I have really enjoyed the journey. It would not have been possible without the staff and leadership at the school where the research took place, who were adaptable and flexible throughout. I would also like to thank the student participants who agreed to be part of the intervention and were honest and hardworking in their approach.

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Lastly, my humble thanks to my family, who gave me the time and space where needed to work on this thesis and get it across the line. It took a while, but good things come to those who wait.

Abstract

This research study investigated the effectiveness of the cooperative learning method, Stratified Team Achievement Divisions (STAD), in improving student progress and motivation within Sixth Form Supervised Study lessons outside of a traditional classroom setting. The study took place in a large secondary school in the UK and focused on students from a Year 13 A Level Business Studies class. Supervised study lessons were identified as an area where this intervention could have a positive impact, as students who attended these sessions often lacked motivation and direction in this timetabled study lesson, resulting in limited academic progress to be made. This study aimed to address this issue through the implementation of Stratified Team Achievement Divisions (STAD) (Slavin, 1989) within these supervised study periods.

The 20 students from the researcher's Year 13 A Level Business class were divided into five equal groups, organised by when their individual supervised study schedules matched. Following initial training on how to work as a group, each group met as a collective over the six-week cycle to work on a range of stimulus provided by the subject teacher. Students were then assessed through weekly quizzes, with scores contributing to the group total positive points based on individual improvements each week. In addition to the quiz data, other factors were analysed using group observations and focus groups with select student participants. Data, including attendance figures and attitude to learning scores, were also used to triangulate the findings.

The findings suggest that the STAD model positively impacted student motivation and progress for some in the intervention. Higher ability students, for example, often helped lower ability peers, fostering a supportive learning environment. Attendance and active participation within the groups were critical factors in the success of the intervention. Variability in student attendance and engagement affected overall group performance. Higher ability students also sometimes felt they were not benefiting as much

from the group work, and the absence of continuous teacher support during group meetings was also a significant limitation, resulting in disengagement from some participants.

Recommendations for future research and practice include encouraging consistent attendance and active participation in group STAD meetings when conducted outside of the classroom. It is also suggested that there is an essential requirement for continuous additional training and guidance for students on effective group work strategies to maximise this intervention's effectiveness. Other Sixth Forms looking to use this cooperative approach might also consider incorporating additional support and supervision from those who run the supervised study area to enhance the effectiveness of the STAD model. Overall, the study concludes that while the STAD cooperative learning method can improve student motivation and progress in a supervised study setting, its success is highly dependent on student engagement, attendance, and the level of teacher support provided.

Declaration of Original Authorship

Declaration: I confirm that this is my own work, and the use of all material from other sources has been properly and fully acknowledged.

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1.0 Introduction

1.1 Focus of the Study

This study addressed an identified issue within a supervised study environment in a sixth-form school setting. For many students, this area was used as a productive space, where they were able to use the time to extend their learning through the completion of teacher set tasks, extended reading and case study work. However, the environment in its original state was not effective for all students, with some making limited academic progress. This was caused by several contributing factors, including a lack of guidance from teachers on what should be completed at this time and a lack of knowledge from students on how to study effectively. Tasks set by teachers were sometimes complex, and students often found it difficult to secure support within supervised sessions due to the noise restrictions placed on the study environment and the lack of subject expertise of the supervising staff member. Student motivation in supervised study lessons also appeared to be a contributing factor, with a small proportion of students choosing to pursue alternative activities rather than to study, including playing games and browsing the internet.

This lack of motivation and confusion around studying effectively has been identified as a wider issue of independent study in general within schools. In a study by Stoten (2014), similar conclusions were made, suggesting that Sixth Form students in the UK can find it difficult to embrace independent learning. They suggested that students can be resistant to change, especially those who have become used to teacher led learning earlier in their school experience, instead preferring to have high levels of teacher guidance when studying independently. The study also found that students, when given a choice, preferred to work alone rather than collaboratively with others. Mistrano (2008) agreed with findings and suggested this when investigating independent learning in eight Bedfordshire schools, particularly on the importance students place on student guidance, but also stressed the importance of focusing on passing exams, which

can sometimes detract from developing deeper thinkers within independent study time. They go on to suggest that this overreliance on teacher guidance and support could be attributed to some schools' tight supervision and strict control over study areas, which might be ‘eroding students' personal responsibility’ (Mistrano, 2008, p. 175).

This appears to be an issue later in academic life, in higher education (HE) settings. For example, the study by Wilbraham et al. (2024) explored the impact of independent study on student well-being in HE. The study looked at feedback from students and staff and found that students had increased stress levels following the transition to university, where the requirement for independent learning was higher than when in school. Reasons given by students for not being successful in their independent study included procrastination and lack of motivation, which is in line with the examples highlighted in the school chosen for this research project. HE students from the Wilbraham et al. (2024) study explained that they often did not know how to study or what was expected, particularly those from certain backgrounds who lacked the cultural capital required to study effectively without their teacher. The study suggests that students could benefit from improved scaffolding from teachers and lecturers on what and how to study, with many stating that they ‘felt quite lost’ (Wilbraham et al., 2024, p. 10). Extrinsic rewards, such as praise, were stated as potential boosts to motivation. Positive study habits were also identified in a meta-analysis by Munusamy and Ganesan (2021) to have a clear correlation with academic success. This evidence suggested that the issue within supervised study may have been caused by a lack of knowledge of positive study habits and motivation, potentially preventing some students from reaching their academic potential in this allocated time.

1.2 Sixth Form Policy and Neo-Liberal Influences

Sixth Form provision, including the importance of a structured supervised study room for this key stage, has been shaped over recent years by several neo-liberalist agendas that have influenced Sixth Form

policies. These include curriculum changes and increased financial pressures on the state education sector. This section explores some of the neo-liberal developments in education and how they are directly linked to Sixth Forms, especially those with a supervised study provision.

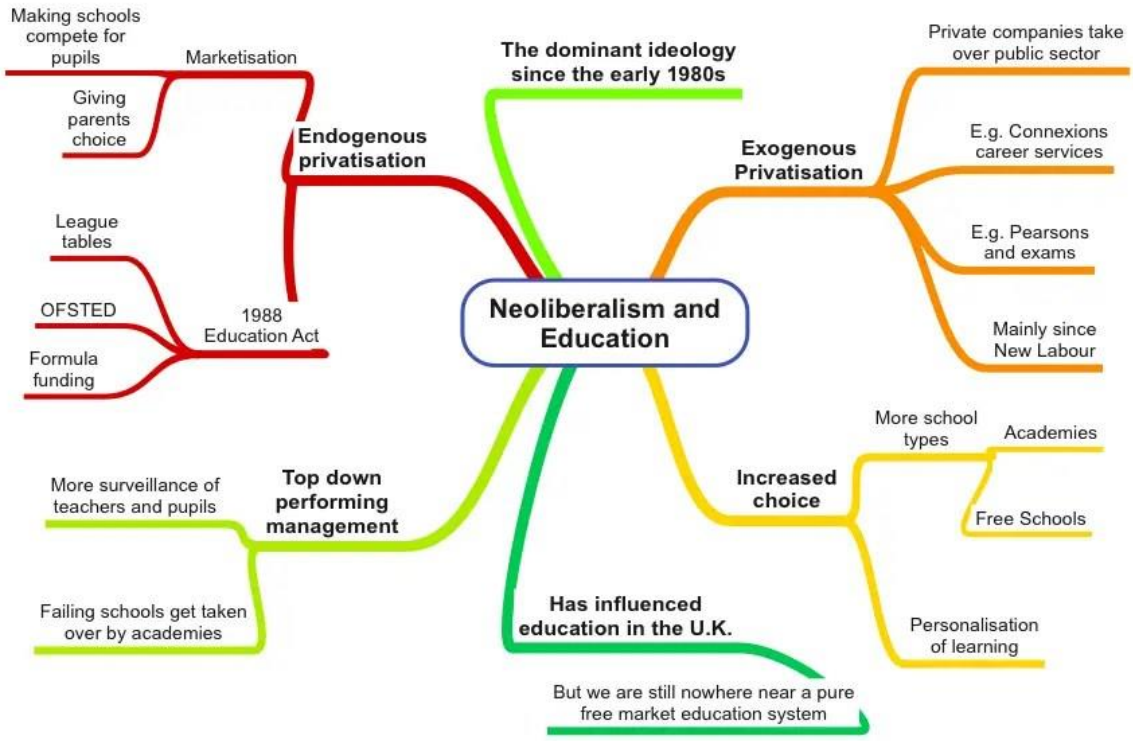


Figure 1: Neoliberalism and Education Summary Graphic (Thompson, 2023)

Neo liberalism is a political and economic approach that encourages the idea that people are best served through practices that promote individual entrepreneurship. This can include common free markets (with minimal government intervention), competition and equal opportunities (Harvey, 2006). In the UK, Prime Minister Margaret Thatcher first popularised the ideology in the 1980s, advocating for policies such as the privatisation of markets and cuts to public spending. The neoliberalist approach is now the primary political approach worldwide, particularly in the West (Harris, 2007). This has significantly impacted the UK education sector in recent years. Neo-liberal policies tend to target institutions outside of the economic market, including schools, and can involve reinventing them to be 'market-like', including

increased competition and oversight (Davies, 2014). As the graphic in Figure 1 depicts (Thompson, 2023), this has impacted education in the UK in different ways, with the most applicable to the context of this study explored below.

1.2.1 League Tables and School Competition

Prime Minister Magret Thatcher launched league tables in the UK state education sector through the 1988 Education Act (UK Government, 1988), which included other key policy shifts, including introducing the national curriculum and key stages. Many of these developments have endured and remain features of state education in the UK today. This includes the use of standardised testing and league tables. For example, on the UK government's compare schools website (Gov.uk, 2024), parents have the ability to review schools and how they compare to others on key metrics. At Key Stage 5, these include progress scores that compare the performance of the school's student results in public exams to those of others in the country (DfE, 2014). Other metrics include the average grade achieved and the percentage of students in the school who complete their programme of study. This method of comparing schools can cause pressure for school leaders, and as Harris (2007, p. 96) states can result in school priorities being 'overshadowed and displaced by the pressures to do well in the league tables and maintain their market position'.

This is a particular dilemma for the school chosen for this study, due to the high number of grammar schools in the local area. As these selective schools tend to perform exceptionally well in the league tables, parents of many high-ability students in Year 11 often desire to leave the school to attend elsewhere. When students do go, this can exacerbate the issue, as those students may have done well and contributed to the school's performance scores had they remained for their Sixth Form studies. This competition for students amongst local schools has resulted in schools attempting to make innovative developments to their provision and offer to attract both students and parents. The Sixth Form

improvements within the study school, including the introduction of the supervised study provision, were a direct attempt to provide enhanced resources to persuade prospective students to remain with the school instead of moving to an alternative centre for Sixth Form. This placed an increased importance on the provision, in terms of the quality of support it offered students on a day-to-day basis and its potential to improve student progress, potentially contributing positively to the school's public performance measures for the key stage.

1.2.2 Ofsted and School Accountability

Ofsted is the government body responsible for maintaining the quality of schools in the United Kingdom. The Sixth Form as a key stage area is currently a stand-alone inspection area for Ofsted, which, as part of its inspection framework, assesses the quality of Sixth Form provision and reports specifically on the strengths and areas of development in this key stage. Recent changes to the Inspection Framework in 2019 (Ofsted, 2019), included a greater focus on academic outcomes and developing student independence in the Sixth Form. This has impacted and influenced the school's Sixth Form priorities, which include the supervised study provision. For example, in the Ofsted Inspection Handbook (Ofsted, 2024) the 'good' descriptor for the Sixth Form includes the statement 'sixth-form students demonstrate consistently high positive attitudes and commitment to their education', highlighting the importance of structured support. This support includes the supervised study lessons, which encourage students to be committed to their studies through wider reading and completion of high-quality work outside of the classroom.

In addition, Ofsted's 'good' descriptor for personal development states that the 'curriculum and the school's effective wider work support pupils to be confident, resilient and independent, and to develop strength of character' (Ofsted, 2019). This relates to the supervised study provision within the Sixth Form, as this time was intended to encourage students to be independent while providing the space and

resources required for this independence and mindset to grow. Using the STAD cooperative learning method with the supervised study space could have also assisted with these desired outcomes, through support provided to lower-ability students within group meetings and the potential for relationships to be developed.

Attendance is also a key feature of Ofsted inspections and audits, particularly for the Sixth Form. This has influenced Sixth Form policy regarding attendance, including supervised study lessons. Before the revised Ofsted framework, student timetables in the school, like those of many sixth forms and FE colleges, were flexible, meaning students were only required to attend school for their timetabled subject-specific lessons. A general work room was available for ad hoc use, although students did not have to use any of the study facilities and could leave the school site after their lessons. However, in response to Ofsted expectations and issues with student attendance and student independence in Year 11, the school leadership decided to adjust the policy in the Sixth Form to make the school day mandatory for all students, including the introduction of a structured supervised study lesson. This came at a financial cost; however, it did improve attitudes towards students and school attendance.

1.2.3 Funding Cuts

Over recent years, schools have faced a reduction in funding from several different sources. One consequence of the decrease in real-time teacher pay has resulted in trade union action, such as the National Education Union (NEU) strike in July 2023 (DfE, 2023). Funding cuts to staff pay, or the lack of adequate pay increases, and the linked teacher recruitment crisis (Mclean, 2024), have increased staff pressure regarding adequate teaching provision in some subject areas. In the context of the Sixth Form, supervised study is often a welcome source of academic support for students who have experienced staffing issues in their subject, as it provides a structured area for any cover or research work to be set for students to make some progress while a specialist teacher is being secured.

Sixth Form funding over 2010- 20 has been estimated to have dropped by 28%, following long periods of increasing costs and student numbers (Lewis, 2025). This has put pressure on school leaders to use surplus teaching hours more efficiently, which were traditionally used to staff the supervised study provision. As a result, teachers have often been reassigned to cover other lessons rather than staff the supervised study area, impacting the consistency and quality of the provision for students. Supervised study was negatively affected by this, as insufficient funds, especially with surplus teacher hours, created the risk of the provision being removed entirely. This highlights the need to review the provision's effectiveness and ensure it remains a valuable, viable provision. With Sixth Form student funding providing crucial financial income for the wider school, the outcomes in the key stage needed to be strong to ensure student recruitment internally and from other local external providers. When students join the Sixth Form, the environment and resources provided, including supervised study, are often quoted as reasons for school choice, again highlighting the importance of such provision.

In addition, there has been a recent cycle of defunding specific qualifications at Key Stage 5. For example, in August 2022, the government announced that over 5000 courses with low student take-up would be cut from available funding (Lewis, 2024), limiting student choice, particularly for subjects such as Business Studies and Health and Social Care. The introduction of T levels (Coultard, 2023), which allow students to study while gaining meaningful work experience through specialist FE colleges, again put pressure on Sixth Form schools. These schools had their course offer, such as the Level 3 BTEC Business Studies programme (Edexcel, 2023), replaced, although could not offer the quality or industry links required for the replacement T-level equivalent, further increasing pressure to secure student numbers from the more academic A level routes. Using STAD to provide data on progress and attainment within supervised study has provided further evidence and justification for such provision to continue to be funded, despite these financial pressures.

1.2.4 Academisation of Schools

Following the Academies Act in 2010, schools had the choice to become academies, independent of local authority control. The study school is an academy converter and part of a small growing trust incorporating primary and secondary schools. It is accountable to the Department for Education. It has the freedom as a trust to make its own curriculum decisions, including operating and running a Sixth Form supervised study provision. The multi-academy trust has been supportive in this regard, as it has been an advocate and supporter of improving the Sixth Form in the school and has assisted financially with improvements to this area. It has also had the flexibility and innovative approach to support this study, demonstrating its commitment to improving priority areas for the school.

1.2.5 Exam Reforms

In addition to the recent Key Stage 5 curriculum changes highlighted above with the introduction of T levels, other exam reforms over recent years have impacted the need for an adequate supervised study provision. Firstly, the phased 2015-17 introduction of linear A levels (OfQual, 2018) resulted in the removal of integrated AS exams, meaning that for A-level subjects, all final exams were to be taken at the end of the two-year programme of study, as opposed to AS exams taken after one year. This raised the stakes for students regarding independence and memory retention, as students are now required to remember more and be able to apply knowledge from a two-year programme at the end of Year 13. Recent vocational reforms have also removed coursework elements in favour of formal written examinations. For example, in the BTEC level 3 Business Studies reform (Edexcel, 2023), the coursework elements were reduced from 100% to 50%, with extensive assessments replaced with formal exams, such as a two-hour written finance examination.

These reforms aimed to increase academic rigour, resulting in schools focusing hard on developing student memory and sequencing the curriculum to include strategies such as interleaving. It has also

required an even greater need for students to have adequate study spaces, such as supervised study, to complete extended work in these subjects. Hence, much of the work set during this time includes further reading, exam practice, and wider research into the subject area. The use of STAD within supervised study should also improve this level of support further, potentially allowing students to work on structured academic tasks as a group in an A-level subject, assisting with the required demands that linear A Levels now bring.

1.2.6 Sixth Form Policy and Sector Developments

This section on the neo-liberal agenda and its influence on Sixth Form supervised study has provided a useful backdrop for explaining how recent government changes to the education sector, have for the most part, increased the pressure faced by schools such as the one in this study, to make difficult decisions when it comes to wider provision for students, particularly in the Sixth Form. It is important to situate this study into STAD and supervised study within the broader context of national policy shifts, funding constraints, and accountability pressures that schools face. As outlined earlier, neoliberal reforms have reshaped the expectations of post-16 education and have intensified the demand for student independence, academic rigour, and measurable outcomes. In its traditional sense, supervised study is a flexible, optional school facility. However, it has arguably now become a strategic necessity for student success and school performance. STAD, as a clear tool within this provision, may also help to harness and grow its reach to further develop student progress and independence through a well-researched, structured model of cooperative group work.

1.3 Context of the Study

This study occurred in a large secondary school in the south of the United Kingdom. The school was based in an area of high social deprivation, with a larger than average proportion of students receiving the pupil premium grant. Students with English as an additional language (EAL) were above average, and the student population widely diverse, with a larger than average population of Asian and black ethnicities. Many students were also first-generation university applicants and, despite some difficult circumstances, went on to do exceptionally well. This was evidenced by the school's strong Ofsted reports and impressive student destinations, ranging from Russell Group universities to high-quality apprenticeship placements. The Sixth Form within the school was larger than average in terms of student numbers and had recently gone through a range of developments, including investment into a refurbished supervised study room, library and gym. This has resulted in an improved environment for Sixth Form students. However, exam outcomes in the Sixth Form at the time of the study, despite seeing an improvement in some areas, were an area of focus for school leaders.

The Supervised Study lessons used for this study were provided within the school's overall provision and took place weekly for students in Key Stage Five (five hours per week). The intended purpose of each lesson was to give students structured time in a suitable working environment, providing them with the opportunity to complete extended work beyond standard subject lessons. The supervised lessons took place in a purpose designed classroom with a university study area feel in mind, which included computer access, comfortable work areas and access to online journals/learning materials.

However, through their role as Head of Sixth Form, it had become apparent to the teacher-researcher conducting this study that students frequently lacked direction within these timetabled sessions and could be, at times, apathetic to its purpose and potential benefits. Examples of this student apathy

included instances of students playing video games and accessing social media. Student voice also identified that students felt they sometimes struggled to organise their work and effectively plan for this independent time. Wider research supports this suggestion, highlighting a lack of independent study skills in school students (Stoten, 2014) and undergraduates when they arrive at HE (Hockings et al., 2018). Sixth Form students are in a transitional period between school and university, and with the additional free time they have in school, the need for them to be able to learn and work well independently becomes more significant and important (Shenton, 2021).

This research project aimed to address the issue within Supervised Study through the use of the cooperative learning method, Stratified Team Achievement Divisions, or STAD (Slavin, 1987). This cooperative learning method was chosen as it has proven to be effective in improving student progress, motivation and their ability to work independently with limited teacher input. For example, the researcher had in the past found success with this method when looking to improve academic progress and motivation with a Year 10 GCSE Business Studies class (Forth, 2014). However, a current knowledge gap existed for this cooperative learning method and its effectiveness for students when working together entirely independently from the teacher outside of a traditional classroom setting. For example, the study by Tiantong and Teemueangsa (2013) trialled the use of STAD within an online resource hub 'Moodle' and found a positive impact on the understanding of learning materials, improved relationships between students and increased problem solving. However, this study was conducted through a comprehensive online support platform rather than students coming together to work physically. The study also lacked investigation into students' motivation before and during the STAD intervention, focusing primarily on quiz data. Hopefully, this more developed study will provide greater insight into STAD's impact on student motivation and progress in secondary school, working in the same space together. This research, therefore, contributed to addressing this gap by assessing whether the STAD intervention could be

effective in the alternative setting of supervised study, away from the subject teacher and traditional classroom environment.

1.4 Origins of the thesis

The concept of using the STAD cooperative learning method within sixth form supervised study originated from two distinct areas of the researcher's background and areas of experience. Firstly, the teacher researcher was an insider within this study as the intervention was a direct attempt to address an issue identified within their own practice. The researcher believed that supervised study could provide a useful bridge between the sixth form and the demands of independent learning at university. However, the motivation of students at this time and the value placed on the work completed were areas for concern for the researcher in their role as key stage lead. An alternative approach to supervised study that might improve motivation and the progress students made was a desired outcome for the teacher-researcher for this study. The teacher-researcher also had prior experience of using the STAD method successfully in their classroom (Forth, 2014). The intervention in this past study demonstrated a clear impact on student motivation and attainment in the subject. The researcher was therefore interested to see whether the same benefits could be yielded through the STAD method within a supervised study setting.

1.5 Research Aims and Questions

This study aimed to answer the following research questions:

- To what extent is the STAD cooperative learning method effective within Supervised Study for improving student attainment?
- In what ways can STAD improve student motivation to achieve in an academic subject?

  What are the further challenges and benefits of the STAD cooperative learning method on student and Sixth Form practice?

1.6 Methodology Overview

This study was an action research project in nature (McNiff, 2013) with an interpretivist mixed methods approach. Action research focuses on a teacher-researcher approach, with the primary objective of improving practice in everyday teaching. The method was first used by Lewin (1946) and involves, in most cases, teachers identifying a problem in their everyday practice, planning a solution, trialling the method, evaluating, reflecting and then adapting in response to the results. Its main advantage is often quoted as its ability for teachers to experience improvements for themselves (McNiff, 1992). A detailed outline of action research and the approach taken can be found in the methodology in Chapter 3.

The main purpose of the STAD method is to create cooperative, driven goals with individual accountability. 20 students within a Year 13 A-level Business Studies class were placed into five equal convenience groups, determined by when they shared supervised study lessons. Students were then given five weekly work packs to complete in their group meetings held within timetabled supervised study sessions, along with structured initial training on group working methods. These students were chosen for the study as they formed the teacher-researcher's subject class, allowing for the STAD quizzes and work packs to be set up relatively easily in lessons.

Each week, students were then assessed in the form of a knowledge-based quiz. As the researcher was also the subject teacher, these were able to take place within standard subject lessons as a class. Quiz scores were recorded individually and then collectively for each group. Individual student points were calculated by comparing the percentage achieved and the average percentage scores attained over the period by each student. This resulted in a competitive structure amongst groups, although students were competing against their own average, as opposed to each other, found in traditional ‘you sink, I swim’ competitive scenarios (Coleman et al., 2014, p. 4).

In addition to the quantitative quizzes, semi-structured observations of the groups were held over the five weeks, along with two focus groups involving several group participants. The findings suggest that for some students, the regular group meetings allowed them to strengthen their subject knowledge through the teaching and support of peers in their group. As a result, their quiz scores improved over time. Motivation improved for some students, with some enjoying supporting others and receiving recognition for winning the competition each week. Two of the five groups also improved their average score significantly over the five weeks and performed well in the summer public examinations.

However, student groups with a lower GCSE attainment level on entry into the subject in Year 12 generally performed statistically worse than their peers. This also correlated with attendance at the group sessions and examples of negative behaviours observed in the sessions. This suggests there may have been broader issues with motivation for these students over their schooling, which may have resulted in their approach to the intervention. Females slightly outperformed males in attainment across the period, although they appear to have struggled working together with students they did not usually work with. One example included a scenario where one female student decided to join another group to work with a recognised friend rather than work with their assigned group.

1.7 Positionality

As the action research study took place in the researcher's professional work setting, it was essential to acknowledge how the researcher's professional and personal backgrounds and beliefs might impact this study and the data provided (Thomas, 2024). Positionality refers to the impact a researcher's values and background might have on the research they are involved in. By its very nature, action research is practitioner-led, with the researcher not just an observer but playing an active role in the research environment. This brings both potential benefits and drawbacks. As a senior leader in the school and the student participants' subject teacher, the researcher brought an advanced understanding of the school

and the history of students in the key stage and supervised study. However, the researcher's approach and interpretations may have been skewed by this knowledge of the school and the researcher's past experiences and beliefs. A detailed reflection on these issues and the strategies adopted to mitigate their impact can be found in the Positionality chapter in the methodology (3.16).

1.8 Significance and Outcomes

Overall, the findings suggest that the STAD model can be useful in improving motivation and attainment for students outside of a traditional classroom setting. However, this study recommends that further attempts to implement STAD in study areas involve careful guidance for students on how to work together as a group. This project also demonstrates that for STAD to be used outside of the classroom, students must be willing to independently commit to group meetings to have a meaningful impact. This research has contributed important knowledge to the effect STAD can have outside of the traditional classroom setting. For example, the study suggests that STAD can successfully improve outcomes for some students without a teacher present at all sessions. It also provides similar school settings with important considerations when implementing a cooperative-based element into study areas.

1.9 Overview of the thesis

The thesis is split into six chapters. Chapter 2, the Literature Review, gives an overview of the primary learning methods, including individual, competitive and cooperative approaches. The cooperative approaches are then outlined in detail to provide the reader with clear information on how STAD connects to cooperative learning as an approach to learning, along with its features and differences from alternative methods. The research study also has close ties to assessment, motivation and social dynamics; these areas are also explored, including their links to cooperative learning and their potential impact. The methodology in Chapter 3 explores the theoretical and conceptual framework adopted for the study, along with a critical analysis of the mixed research methods used and how the potential

limitations were mitigated. Chapter 4 gives a detailed breakdown of the research findings, including the impact of the STAD intervention on quiz attainment, along with a qualitative analysis of the findings from both the observations and focus groups. The Discussion in Chapter 5 breaks down the findings into clear themes using the posed research questions, including student attainment/ progress and motivation. Finally, the Conclusion in Chapter 6 explores the broader impact and possible implications for future practice in the study school and the wider educational sector. These include the importance of group selection, further group training and possible development of teacher presence within the STAD model outside of the traditional classroom setting.

1.10 Conclusion

This introduction summarises the research project, including the context of the case study school and the issues of teacher guidance and student progress identified within the supervised study provision. The cooperative method of STAD, which promotes group goals and individual accountability, was trialled over a five-week period. The five groups of four students chosen as part of the study were asked to participate in weekly group meetings where they were to complete set work packs as a collective. Data from the collection cycle included quiz results from assessments, sat individually each week, and data from observations and focus groups. The study findings positively impact progress and motivation, especially for higher-ability students and students who attended the group sessions. However, the impact of the STAD method appeared to be more limited for students with a lower ability level and those with wider motivational issues. There was also a clear impact of the teacher not being present at all the group meetings, with some students struggling in the group meetings due to a lack of knowledge on how to work effectively as a group. The literature review in Chapter 2 will now explore the approaches to learning, with a critical review of their effectiveness and comparable features with the chosen cooperative learning approach.

2.0 Literature Review

This literature review aims to provide an overview of the primary researched cooperative learning methods to provide a clear foundation of cooperative learning and a rationale for why the specific STAD method (Slavin, 1996) was chosen for this particular study. However, to explore the cooperative learning methods, we will need to explore the other approaches to learning. These include working alone (independent and individual learning) and working against each other (competitive learning) rather than cooperatively for a common purpose. The review then gives an overview of the areas that can influence the impact of this method, including student motivation and the social dynamics that may exist within both a group and a school setting.

2.1 Conceptual Model

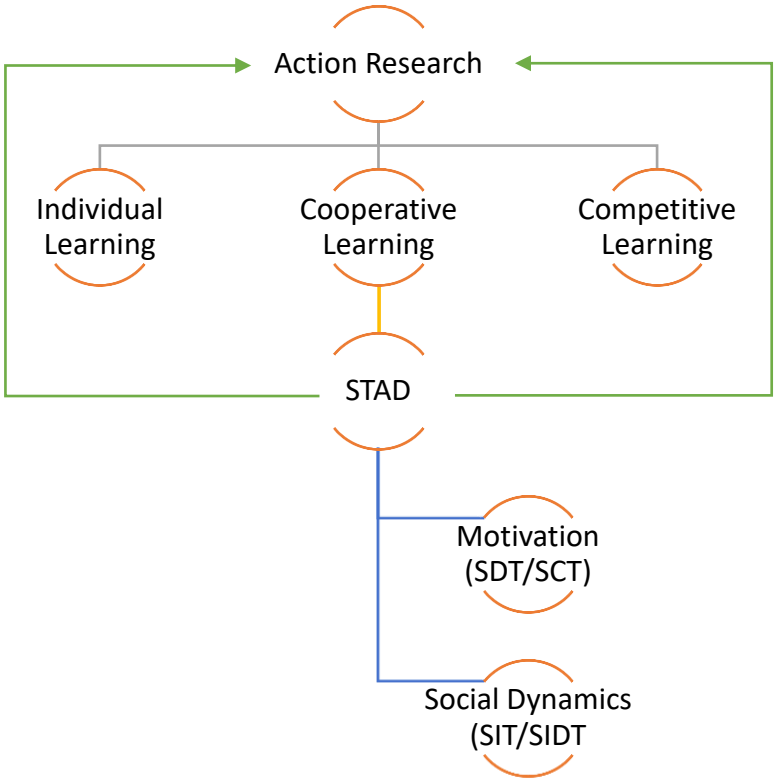


Figure 2: Cooperative Learning and the Connecting Areas

This research project's heart is cooperative learning, which involves students working together towards a shared goal. However, several factors sit alongside a cooperative learning philosophy that can influence the success of cooperative learning when looking to improve student attainment. The conceptual model in Figure 1 above visually demonstrates these influences and their close relationship with the cooperative learning method used. It is, therefore, important that these factors are considered and further explored in this literature review. These include the following key aspects:

2.1.1 Action Research

Action Research is a practical, enquiry-led process that is cyclical in nature (Elliott, 1991). It underpins the methodological framework of this study and embraces the emergent and unpredictable nature of complex environments such as those in a school setting. A problem-based approach drives the investigation into the problem identified in the supervised study. This issue was identified in supervised study that encouraged exploration of learning methods, to find something that can be used effectively in the supervised study room without subject teachers present. A complete, critical account of action research can be found in section 3.2.

2.1.2 Individualised Learning

Individualistic learning is a traditional method in which students work alone, without peers, but with help from the subject teacher (Johnson & Johnson, 1994). It has several benefits in appropriate contexts; however, this method was not pursued as a method for this study intervention due to its requirements that each student have their own individually pitched learning materials, and consistent teacher support and guidance. Students also need to work independently without peers, which would be difficult to manage in one supervised room with over 60 students at a time. This learning approach is explored further in section 2.2.

2.1.3 Competitive Learning

The competitive learning approach is concerned with students working against each other, often with limited winners, who achieve recognition at the expense of others (Stanne et al., 1999). Again, this approach can have its benefits, including its ability to motivate students, particularly those who can compete for recognition. However, this study did not choose this method due to the limitations around communication issues between students and the potential for only those who can win to be motivated.

Section 2.3 of this literature review covers competitive learning, including its varying approaches and limitations, in more detail.

2.1.4 Cooperative Learning

Cooperative learning is where students learn together towards a common goal (Slavin, 1987). Over time, there have been various cooperative learning approaches, including Jigsaw (Aronson, 1978), Learning Together (Johnson & Johnson, 2002), Complex Instruction (Cohen et al., 1999), Group Investigation (Sharan & Sharon, 1989) and STAD (Slavin, 1985). Each cooperative learning method differs slightly in its approach, although common characteristics include clear group goals and individual accountability. Research into this method has continuously shown improved outcomes for students (Johnson et al., 2000) and other benefits, such as improvements in engagement in task completion and positive behaviour. Out of the cooperative learning methods explored, STAD was chosen as the intervention focus for this study because the group meetings were able to be conducted outside of the classroom, using in-class quizzes in lessons to assess progress. The cooperative learning methods are outlined in section 2.4.

2.1.5 STAD

The specific cooperative learning method, STAD, was chosen as the primary method to address the identified issue of student apathy within supervised study. The STAD method was designed by Slavin (1989) and, like many other cooperative learning methods, focuses on group goals and individual accountability (section 2.4.6). This method was chosen over alternative cooperative learning approaches as the group meetings could be held outside the classroom, within the supervised study sessions. The individual accountability from the individual quizzes also suited the setting well, as the quizzes could be conducted in standard subject lessons. As the participants also had their supervised study at different times, STAD supported the need for convenience mixed activity groupings based on when students had

supervised lessons, due to the assessment structure involving students competing against their own attainment rather than with each other.

2.1.6 Motivation

The study explored the impact STAD might have on student motivation, which influenced their effort and perception of the group meetings within STAD. As Slavin (2015) outlines, the group goals created in STAD should create motivation for students to want to succeed. To this end, the motivational theories of Self-Determination Theory (SDT) and Social Cognitive Theory (SCT) were used to provide meaning and explanation for the findings. SDT (Deci et al., 1991) has the view that motivation in students comes from three primary areas: autonomy, competence and relatedness. SCT (Bandura, 1986) however, offers an alternative theory that student motivation comes from students observing peers and can be impacted by their relationships with the environment and people around them. These theories of motivation and their features are discussed further in section 2.6.

2.1.7 Social Dynamics

Theories of how students work socially together include Social Interdependence Theory (SIT) and Social Identity Theory (SIDT). SIT is concerned with how students can be influenced by peers, either positively or negatively, depending on how closely they see their own success interlinked with the success of others around them (Deutsch, 1949a). SIDT takes this concept further (Tajfel, 1978), advocating consideration of how well connected students are to each other. Characteristics such as gender, ethnicity, and academic ability are key variables that can impact the level of togetherness students feel within a group. These approaches to social dynamics are explored further in section 2.7.

2.1.8 Model Structure

The model shown in Figure 1 attempts to visually depict the connection between these key aspects of this study. Figure 1 demonstrates that the features of the conceptual model are interconnected and cyclical in nature. Action research is the foundation of the study, which forms the basis of the inquiry into the identified practitioner-based issue within the Sixth Form supervised study. The model also displays the relationship between the approaches to learning and where STAD fits with these approaches. STAD is heavily influenced by student motivation and the social dynamics within the cohort studied. Approaches such as those suggested with SCT and SIT offer valuable insights into how these areas can influence the success of the STAD intervention. This iterative model also demonstrates the connection and interconnectedness of STAD and action research. STAD encourages reflection within its structure of regular group meetings and individual quizzing, aligning with the action research philosophy. The study's outcomes, therefore, feed back into the action research cycle, informing future changes and developments. Finally, it is hoped that this model will frame the inquiry into STAD's potential impact on attainment, motivation, and practice within the Sixth Form supervised study. In doing so, the model should assist in predicting how the STAD intervention's success might be shaped by student motivation and group dynamics and how these areas develop in a live context school setting. Having outlined the conceptual framework, the following sections explore each component in greater depth through a review of relevant literature.

Before exploring the relationship between cooperative learning, group dynamics and student motivation, we must examine the background for cooperative learning as a learning approach, including its connection and relationship to individual and competitive learning methods. It is important to note that the three approaches detailed in this chapter are not exclusive or in competition with each other. Each

approach has its purpose, and each of them can be powerful goal structures when adopted appropriately by classroom teachers and students (Johnson et al., 1994).

2.2 Individualistic Learning

In this section, we will look at individual learning, which centres on students working alone in the classroom, independent of their peers, although still receiving support from the teacher. We will also investigate the benefits of independent learning, which involves students working alone, similar to individual learning. However, independent learning is carried out away from the classroom, for example, at home or in a library. There are times in a student's school career when they will need to work on their own, independently of others. As stated by Johnson and Johnson (1994, p. 7), humans do not always interact well with others and will often 'desire solitude'. This could involve students working independently with their different materials at their own pace in the classroom. This individualistic approach and the skillset required to be successful increase as students progress through secondary school to HE. Gocłowska et al. (2017) suggest that when done well, it can promote independent thinking and creativity. The key elements of individualistic situations are set out by Johnson and Johnson (1994) and are summarised below:

1. Firstly, the tasks set should be appropriate, with clear instructions, simple in nature and something that can be completed independently. This would usually involve the teacher setting clear objectives that students should follow. These instructions could then be followed up with targeted questioning to check student understanding before the task begins. Students should also see the importance of the task they are being asked to complete as worthwhile and relevant to their learning. This links to student motivation, which will be explored in Section 1.5.

2. The interaction between the teacher and students is also important, as this goal structure revolves around the students working and learning independently. Their primary source of assistance comes from the teacher, which may result in a large amount of teacher time required for frequent visits to each student for support. This could also be where individual accountability is promoted, through the teacher asking students to explain their work.

3. Students require their own individual materials, as the shared use of materials is not possible in this structure. The materials and instructions given would be the focus of learning. As students work on their tasks at their own pace, student-to-student interaction within this structure is also not helpful and should be avoided. This can be promoted through the room layout, which could have students seated in rows or to the wall. Students should be expected to work on their own without disrupting others. They should also be able to take responsibility for completing the task and actively evaluate their success.

4. Finally, there should be a clear evaluation system in place. This should be criteria-based so that every student can succeed based on their individual goals. This criteria should be clear to students; for example, what would result in a 'B Grade' should be clearly defined so that students are not in competition with one another. It is suggested (Johnson & Johnson, 1994) that the skills required to work effectively in an individualistic situation are the least developed compared to other approaches, such as cooperative learning. The most essential skills include the ability to work alone, ignoring other students and any external noise or disruptions. Throughout the task, the students also need to be able to monitor their progress through the criteria and be able to evaluate the progress they have made at the end of the learning journey (Johnson & Johnson, 1994).

Hattie (2009) agrees with this as part of their meta-analysis relating to student achievement, where they suggest that for individualised learning/instruction to go well, teachers would usually need to have a strong overview of every student's needs so that the instructions could be personalised. This could be difficult for a teacher to do regularly, especially when teaching several students in a range of lessons. They also agree with Johnson et al. (1994) For this to be effective, there would need to be regular review, students working at various paces, and a range of choices built in for students to be able to work individually. Again, despite providing well-differentiated learning experiences for students, this level of individual task design could put a large amount of work onto the teacher, with potentially limited benefits. However, as argued by Gocłowska et al. (2017), an individualistic learning approach can allow students to think creatively and independently.

2.2.1 Limitations of Individualistic Efforts

A number of areas can limit the impact of an individualistic approach in the classroom. Talking and disruption by others can lower the productivity of the task in an individualistic set-up. Students should be working on the materials alone, and if they talk/socialise with their peers, this can limit the effectiveness of the individualistic effort. Despite the task design resulting in students working independently, with their progress and attainment not affected by the progress of others, students can still compete with each other. This has been found in previous studies where students working in close proximity to others began to compete in an attempt to achieve more than those around them (Johnson, 1981). The actual tasks assigned should also be simple in nature. If a task is too complex, this may result in students being unable to understand the task and the content they have been asked to study alone. The actual task of working alone on materials may also be a hurdle for some students, who might struggle with not socialising with others or lack the skills of self-motivation to be able to work on their own effectively. Finally, students are required to have their individual spaces and materials to be able to work on their own. If this is not the

case, progress can 'grind to a halt' (Johnson & Johnson, 1994, p. 160). In a meta-analysis related to achievement, it was also found that individual learning did only slightly better than regular classroom instruction (Hattie, 2009). It also made only a limited contribution to student self-esteem, critical thinking, or attitude to the subject matter being taught, supporting the suggestion that individual learning methods can be limited in their impact on not only student learning but also their development in engaging with topics and their own self-esteem. This is supported by Gocłowska et al. (2017), who suggest individual learning can be isolating and create missed opportunities for social support.

Several research studies have been completed on the effectiveness of individualistic efforts compared to more cooperative approaches. In a meta-study conducted by Johnson (1981) it was found that cooperation promoted higher achievement in 108 out of 120 studies explored. One specific example was a study on high-ability students by Johnson et al. (1993), where it was found that students not only performed better academically in areas such as recall and higher-level reasoning but also personal variables such as self-esteem. This was possibly due to the increase in social interaction for higher-ability students, who can sometimes lack self-esteem due to peer rejection. Another study by Faust and Paulson (1998) found that when it came to problem solving, cooperative learning was far superior in outcomes for all types of problem-solving tasks, including both verbal and spatial. Similar findings were found by Hattie (2009), who found that cooperative learning has a slightly better result than individual learning. He does, however, state that the effectiveness of the two depends on the context, with individualistic learning practical for self-regulation and cooperative learning having a positive impact on engagement with peers.

However, when individualistic efforts were compared to competitive approaches, there were no significant differences in achievement found (Johnson, 1981). One example of this is the meta-analysis

conducted by Stanne et al. (1999) on the impact of individualistic, competitive, and cooperative approaches on motor skills. The study found that cooperative approaches had a greater impact on performance and interpersonal skills as opposed to individualistic efforts. However, the study does recognise that in a measure such as motor skills, it can be difficult to avoid competitive elements due to the public, obvious results on motor skills in front of peers.

However, it is also important to note that despite having suggested limitations compared to methods such as cooperative learning, individual learning generally receives little attention as a primary focus of study. Instead, this learning approach is often used in many cases, as Murayama and Elliot (2012, p. 1050) claim, to provide a 'comparison for the current central focus of cooperation'. This might result in a limited discussion of benefits because the method focuses on comparison for many studies rather than the focus itself.

2.2.2 Independent Learning

Expectations of a student's ability to self-manage their learning increase when they enter a Sixth Form setting and extend to environments outside of the traditional classroom (Stoten, 2014). This includes students working independently at home or in the study spaces provided. In these scenarios, students are often expected to focus on their learning and not the learning of others around them. In the study by Hockings et al. (2018, p. 22), HE students reflect on this time at school as often having things 'handed to them on a plate'. Due to the quiet environment established, group work was also commented on as not commonplace. This was also found by Stoten (2014), who also suggested that students preferred to work alone rather than collaboratively in these study areas. In HE, this approach increases in expectation again, with lectures that take place mostly without discussion and assignments that require a student to

complete work individually, usually within the confines of university study areas and students' own work desks.

Outside the traditional classroom setting, individual learning can develop into 'independent learning' where students learn away from the classroom environment, without teacher-student interaction or role expectations that are suggested as essential elements for effective classroom individualistic approaches (Johnson & Johnson, 1994). Independent time can, however, be an important element of learning, especially within HE programmes. The balance between contact hours (lectures, seminars) and independent study work is often the topic of discussion when building and evaluating degree programmes (Morgan, 2014). However, what students do during this independent study time might require further exploration.

Characteristics of independent learning in HE are closely linked to the essential elements of classroom-based individualistic approaches outlined by Johnson and Johnson (1994), with some key important differences. These characteristics are given by Hockings et al. (2018) as:

- Taking responsibility for one's own learning.
- Choosing and setting one's own objectives.
- Deciding what, as well as when and how to learn
- Monitoring one's own progress.
- Developing an ability for inquiry and critical evaluation
- Evaluating and reflecting on what has been learnt within the context of a programme of study facilitated by an academic.

It could be argued that these independent learning requirements are similar to individualistic approaches that students may have experienced in the school classroom. For example, in both approaches, students are expected to take responsibility for their own learning. They are also expected, whatever the approach, to be able to monitor their progress throughout the task and evaluate their progress over time, supported by a facilitator and academic framework.

However, independent learning does expect more from students regarding their ability to self-manage their time and study. For example, in individualistic instruction, students are given simple, clear guidance along with set criteria, whereas within the independent learning model, students decide what, when and how to learn along with their own objectives they use to measure their success (Hockings et al., 2018). As discussed earlier, the Hockings et al. (2018) study also revealed that when students reflect on their use of independent study time, they regularly link back to their experiences at school, comparing things like school homework to their current university independent study. It was also suggested that, because of this, many students felt overwhelmed by the freedom this new independent learning offered, with many feeling they lacked the self-motivation and organisation required to be successful once they realised that there would be no regular follow-up or teacher support. Due to this lack of guidance, the majority of students, through trial and error, continued doing the things they found effective back in school.

Mistrano (2008) despite agreeing with the idea of students not developing independence enough in schools, does, however, suggest that it might be the tight control teachers place on independent study in Sixth Form, which can be attributed to this. He also explains that this is often down to teachers and senior leaders focusing too much on exam outcomes rather than developing independent learning, failing to realise that independent learners could lead to better exam results in the long term. It can also be difficult

to assess the effectiveness of an independent learning approach, as independent learning can present itself in several different ways (Lau, 2017).

It appears that this transition from school to HE, and the level and frequency of teacher support and task structure, might be an area where a model such as Sixth Form Supervised Study time might potentially offer an opportunity to bridge the gap and offer students a chance to develop these independent skills before they become a necessity for their university careers.

2.3 Competition

In the previous chapter, we explored the use of individualistic and independent learning in education. This included individualistic efforts within classrooms with teacher support and independent learning outside of the classroom. This section will now explore the use of competition within learning structures and its potential benefits and limitations. Competition is all around us and can be seen across many walks of life. So much so that one's excellence is 'often defined in terms of a person's performance in relation to others' (Stanne et al., 1999, p. 133). Many studies have investigated the use of competition in the classroom (Ames et al., 1977; Coleman et al., 2014; Deutsch, 1949a, 1949b; Johnson & Johnson, 1994) and have found that when conducted in the right environment under appropriate conditions, competition can have a positive impact on student learning.

2.3.1 Types of Competition

Competition can be placed in the larger context of social interdependence and how people relate and work with others around them. Vu et al. (2021, p. 248) define social interdependence as the 'degree to which individuals perceive their success as being affected by other individuals' actions'. The degree to which students perceive this level of social interdependence can impact how students learn, and the impact competition can have on student development. In competitive structures, for example, Johnson

& Johnson (1994) suggest that individuals work against each other towards a goal that only a limited number of the group can attain (Johnson & Johnson, 1994). However, there may be situations within competitive scenarios where students may support one another.

Competitive structures can be either constructive or destructive in nature. Destructive competition is when winning at the expense of others is the primary focus, often resulting in an 'I swim, you sink' scenario (Coleman et al., 2014, p. 4). This can often result in participants working against each other to achieve a goal only some can attain, essentially creating an environment that encourages students to hope others fail or give up if they do not have a winning chance (Johnson et al., 1994). This is supported by Slavin (1987, p. 30), who suggests that these 'negative linkages' can sometimes result in students who cannot look for alternative ways to 'promote their self-image', which can include poor behaviour.

2.3.2 Constructive Competition

In contrast to destructive competition, constructive competition aims for everyone involved in the competition to benefit through feedback and communication with winners and losers in order for the losers of the competition to improve (Coleman et al., 2014)Several factors should be considered for constructive competition to be successful. The act of winning should not be important, as if winning becomes the sole focus, this can impact the success of the task and create anxiety for those involved.

In a meta-analysis of constructive competition, Stanne et al. (1999) refer to this situation as a negative outcome interdependence. If the negative outcome interdependence is weak (for one to win, others must lose), this can result in other benefits from the activity, such as learning and fun. In this scenario, there should be a chance for all those involved to win. If this is not the case, the participants might attempt to win through unfair practice, which could result in a lack of enjoyment for all. There should also be clear rules and guidance on how each participant can succeed and monitor each other's progress. Deutsch

(1949b) adds that this could result in those involved learning from each other and, as a result, improving their performance.

Stanne et al. (1999) demonstrated that the impact of competition was apparent in the development of basic motor skills, such as collecting marbles or pegs. However, this particular study was completed with students 10-12 years old, making this study possibly less relevant when compared to those looking at adolescents. It was suggested in an analysis by Murayama and Elliot (2012) that this positive impact might have been be due to the improvement of motor skills requiring a low degree of interdependence, meaning that students do not require help or involvement from any of their peers to succeed. Vu et al. (2021) supported this view and suggested that for competitive structures to be effective for higher-order learning, a cooperative element must be present. The more students engage in competition as a group, the more they cooperate and learn from each other.

It is possible to summarise destructive and constructive competitive structures, as outlined in Table 1 below. The table demonstrates the difference between the two when comparing negative outcome independence, the importance of winning and the chances of other learning.

	Destructive / Zero Sum Competition	Constructive / Appropriate Competition
Negative Outcome Independence	High	Low
Importance of Winning	High	Low

Chance of other learning/development	Low	High

Table 1: Summary of Competitive Approaches

2.3.3 Limitations of Competition

As noted by Coleman et al. (2014) competition is and always will be a part of life, including education, politics, and economics. Developing the ability to compete can be an asset, and when done constructively, it can also be fun. However, compared to cooperative approaches in the classroom, competitive models can result in limited progress. Competition can impede communication, as students might not trust each other and attempt to gain the upper hand by keeping information to themselves. Students might also become hostile towards each other as the stakes increase, resulting in negative attitudes and behaviours.

Within a destructive competitive structure, there is only a limited amount of students who can win or receive the reward for beating their peers, which can make it hard to maintain motivation levels in the classroom for those who rarely have the option to 'reach the top' (Slavin, 1987). For example, in a study investigating competitive reward structures by Ames et al. (1977) it was found that those who lost the competition perceived their task to be more difficult and also found themselves less satisfied than those who won. Interestingly, in the same study, those who won the game in the competitive reward structure reported feeling no more satisfied than previously. These findings are supported by Gocłowska et al. (2017), who suggested that competition was positively related to improved self-efficacy and self-worth. However, in a meta-analysis conducted by Murayama and Elliot (2012), it was found that in the wide number of research studies investigated, competition against others for higher-order tasks and scenarios, in the absence of cooperative elements, had little to zero impact on performance. This literature review will explore cooperative learning as a method, including how the method has developed over time.

2.4 Cooperative Learning

The previous two sections have covered individualistic and competitive methods. Both methods have potential benefits, including their ability to encourage student learning when all the required features are present. However, they also have limitations, including the potential for individualistic learning to demotivate students and competitive approaches potentially only being useful for those with a chance of winning. Slavin (1995) and Johnson et al. (2000), suggest that cooperative learning, when conducted effectively, can have a much larger impact on student learning than the benefits from the other two methods. This literature review will explore cooperative learning in more detail, including the chosen cooperative learning method, STAD, for this research study.

The term cooperative learning tends to involve students working together in groups, who then achieve a group reward for their efforts in the form of an award or recognition (Slavin, 1985). Coleman (2006) suggests that students value the strong performance of their peers in sports rather than in classrooms, due to sports often giving something to the community and 'group' rather than just benefitting the individual. Cooperative learning offers an alternative viewpoint to the competitive approach outlined earlier. Slavin (1984, p. 54) goes as far as to say that competitive structures and the peer pressure they create are often anti-achievement and make 'striving to do well a sucker's game'. Cooperative learning, however, through group rewards/goals and individual accountability, can promote an environment that favours achievement rather than against it.

There has been a wide range of cooperative learning methods used within schools with thinkers in this area including Aronson (1978), Johnson (2014) and Slavin (1995). The following section gives an overview of the most substantially researched classroom-based cooperative learning methods and explores their

uses and impact on student outcomes. The concepts of individual accountability and group goals are also explored, along with the specific method of Stratified Team Achievement Divisions (STAD) (Slavin, 1985).

Before exploring the different cooperative learning methods, it is useful to outline the main elements of cooperative learning that exist. Cooperative learning methods differ in their approach and can be categorised using six characteristics outlined by(Slavin, 1985). Slavin's characteristics have been summarised in Table 2 below and linked with the cooperative methods that use each element.

Characteristic /Element	Description	Cooperative Method
Group Goals	For cooperative methods where group goals are used, these can come in the form of group recognition, awards or grades awarded to the group.	STAD, Jigsaw II, Group Investigation, Learning Together
Individual Accountability	This can come from the individual assessment that might occur with the cooperative learning method or from the task specialisation that each student may be assigned.	STAD, Jigsaw
Equal Opportunities for Success	This can be created through assessment that considers all student starting points or by adapting tasks to fit individual student performance levels.	STAD, Complex Instruction
Team Competition	Some cooperative methods, such as STAD, use competition between groups to motivate students to cooperate. This can also contribute to the group goal.	STAD

Task Specialisation	This can be seen in methods such as Jigsaw, which involves students specialising in a set of unique tasks or topics.	Jigsaw
Adaptation to Individual Needs	Some methods can focus on ensuring tasks fit the group as a whole or adapt to each student.	Complex Instruction, Group Investigation, Learning Together

Table 2: Overview

2.4.1 Jigsaw

The Jigsaw learning method was designed by Aronson in 1971 in Austin, Texas. It was in response to a desegregated school system that had put young people from diverse backgrounds together in a classroom for the very first time (Aronson, 2002). Following breakouts of violence and group fighting in schools based in the US, Jigsaw was created in response to the toxic competition that was present between different ethnic groups of students. The method was found to have a positive impact on student learning and, more importantly, on student relationships with each other and student confidence when working together as a group.

Similar to a traditional jigsaw, the method requires all students to play an active part for it to be successful. In jigsaw learning, students are placed into groups and given a task to complete. The task is then split into various sections, with each section of the work assigned to individual students to learn about. Once each member has completed their research and work in their assigned area, they are then given time to work with students from other groups who have been assigned the same topic area. It is then up to them to present their findings to the rest of the group, which is then followed by an individual topic test. The idea behind this method is that it requires the group to work together for the individuals to be successful.

Suwartono and Romdona (2024) found that the jigsaw method also promoted other skills, such as active listening, student enthusiasm, and participation.

Jigsaw's core elements were summarised by (Slavin, 1985) as:

- Subject materials and resources that are well-designed with the required knowledge and information needed.
- Guidance and training for students so they can effectively present their findings to peers.
- Identified students who can act as strong group leaders and organise the group.
- Test/assessment at the end of the process, which is taken individually.

You will see from the elements above that Jigsaw strongly emphasises individual accountability through the testing at the end of the group process. However, there is no a focus on any group rewards or recognition, which contrasts with alternative views that will be explored from Slavin (1985) and Johnson and Johnson (1994).

The benefits that can come from Jigsaw include an impact on student behaviour in lessons. Students have also shown to have better attendance at school and improved self-confidence. Assessment data from examples such as Aronson (2002) also show a significant improvement in objective scores compared to control groups from traditional classroom settings. However, in a wider meta-analysis by Moskowitz et al. (1985), where research was conducted into the impact Aronson's Jigsaw Learning had on achievement for over 300 students in the USA. Findings suggested no positive impact on student achievement or on motivation or relationships with peers, with the study summarising that 'jigsaw failed to influence students' perceptions of classroom climate, attitude toward peers or school, locus of control, school attendance or reading achievement' (Moskowitz et al., 1985, p. 10)It went on to suggest that the focus

on individual achievement might be a limiting factor and recommended adding group rewards to the method moving forward.

2.4.2 Jigsaw II

In this method, Slavin (1978) developed the traditional Jigsaw method created by Aronson (1978) to include more of a focus on group rewards. Firstly, instead of reading or studying only one part/section of a topic area, students are provided with the entire text, for example, a whole chapter in a book to read. They are then given an area or topic within the text and asked to become experts in this area with others from different groups. They then return to their groups to teach the others what they have mastered. The other development in Jigsaw II is the addition of team scores, which are collated using individual testing. The teams that achieve the group's expected standard receive recognition through certificates, for example. This is similar to the STAD system, which is detailed later in this chapter, where groups compete and are awarded recognition.

2.4.3 Complex Instruction

Complex Instruction is a cooperative learning method that focuses on creating 'equal status relationships within groups, where all students can learn' (Cohen et al., 1999). The method involves teachers assigning independent tasks and organising classrooms in a way that maximises student interaction. In complex instruction, teachers pay careful attention to how the groups interact, employing strategies where needed if there are instances of unfair or unequal practices. One example of this was a study conducted by Cohen et al. (1999), where a teacher who identified a student not taking part interjected with questions such as, 'you clearly understood the question, what do you think the song should be about?'. The teacher went on to explore the student's own experience of the topic and encouraged them to then get involved with the task at hand. At the end of the process, groups complete group essays, followed by individual testing. Again, this method has been seen to promote higher-order thinking but less so on knowledge

retention. Results were also variable where teacher instruction was inconsistent or where behaviour issues may have impeded the method (Cohen et al., 1999).

2.4.4 Group Investigation

The Group Investigation method was first conceptualised as part of a study completed by Sharan and Sharon (1989), which provided a practical guide for teachers on the method and how it could be used. When providing a broader overview of the perspectives of Group Investigation, Sharan (2014) explains that Group Investigation involves students being placed into diverse mixed groups, organised by topics where there is a shared interest. This differs from methods such as Jigsaw (Aronson, 1978), where the topic areas given are assigned once groups are formed. In each group, students are encouraged to raise questions and find out information through their own inquiries. The students then split the work amongst themselves as part of the democratic process, and then, at the end, bring the information together and present their findings to their peers (Sharan & Sharon, 1989). The key difference with Group Investigation is that the students play a more involved role in decisions regarding what topics they study and how they will carry out their work. The aim is that students should engage more with the material, as they are initially already interested in it.

The six main stages proposed by the initial guide created by Sharan and Sharon (1989) were:

1. Exploring – students are launched to a broad topic, usually from a topic in the curriculum being studied. The topic is usually phrased as a question, such as, 'What can we learn from X? ' Students are encouraged to identify subtopics they may like to learn more about. This can be in the format of putting up hands or working in small groups to discuss potential subtopics. Once these subtopics have been organised and categorised, they are presented as options to the class. Students can then select to work in the group they are the most interested in.

2. Planning – students are given the freedom to plan how they will learn about the selected subtopics. They are advised to spend time planning member roles and confirming what resources they will need. Teachers can support and guide where needed.
3. Carrying out the Investigation: Students in groups complete the planned work. Reminders are given, and groups are encouraged to recap their current progress in each lesson.
4. Preparing the Final Report: Groups start to organise their findings and decide how their report will look. The class meets to discuss ideas, ensure the teacher is happy with the plan, and ensure groups have the materials they require for the presentation.
5. Presenting the Final Report – students present in an agreed schedule, and peers can react and ask questions from each group.
6. Evaluation – this can be completed by the teacher in several ways. The teacher should have gathered evidence from the student's performance during the work phase and as part of the final report.

Group Investigation Stages Summary (Sharan & Sharon, 1989)

In the initial study by Sharan and Sharon (1989), the Group Investigation method was claimed to have a positive impact, including an increase in academic achievement of higher-level learning over whole-class teaching methods. It was noted that on occasion, students did equally well when assessed on the acquisition of new information. However, the most significant impact appeared to be within social interactions and language development. There is also the issue of fairness when it comes to students selecting topics they are interested in, as students will not always be interested in the topics they are required to learn. This is supported by the reflection provided by Zingaro (2008), who agrees that interest groups may be friendship groups in disguise and that the method might be limited due to students not learning about the other areas of the topic comprehensively enough.

2.4.5 Learning Together

The Learning Together cooperative method (Johnson & Johnson, 2002) focuses on five basic elements of cooperation: positive Interdependence, individual accountability, face to face interaction, social skills and group processing. The method can be used in three distinct scenarios:

- Formal Cooperative Learning – occurs when groups work together over several weeks to complete a series of shared goals. The teacher agrees on the groups and the aims of the learning that should take place. They also explain the task and monitor student learning, intervening where needed. Group performance is then evaluated and shared with the students.
- Informal Cooperative Learning – takes place over a short period, for example, one discussion or lesson. This can be useful when teaching new concepts and involves students working together to process new information. An example would be students having time to discuss their thoughts on a topic for several meetings before moving on to the next topic. Students should have a clear question to consider and be encouraged to listen to each other and build on each other's thoughts.
- Base Groups – these are longer term, established groups that may last for an entire academic year or more. The main goal is for groups to provide long term encouragement and support to make strong progress. Suggested benefits from this type of grouping include improved attendance and a personalisation of the school experience for students.

2.4.6 Student Team-Achievement Divisions (STAD)

The STAD cooperative method is a development of a previous cooperative learning method, Teams Games Tournament (TGT), which is a cooperative method that first attempted to connect group work and intergroup competition. In TGT (DeVries & Edwards, 1974), students meet in mixed ability groups to complete worksheets on a set topic. Students from each team then take turns each lesson to compete in academic games and quizzes, with the group members taking part, managed by the teacher to ensure

students compete with students of matching ability. Groups are then acknowledged through weekly rewards and grades assigned based on individual performance.

STAD (Slavin, 1985) developed the TGT framework further by replacing the academic games with regular academic quizzes. The intergroup competition and rewards are then calculated through students' improvement each cycle on their own average quiz scores instead of competitive group games used in TGT. The core elements of STAD can be summarised as:

- Class presentations – the teacher presents the chosen topic to the class including the topic and method of covering the required material.
- Groups—composed of 4/5 students, including a cross-section of the class in terms of gender, ethnicity, and ability levels. The teams work together each session on the materials provided.
- Quizzes—regular quizzes are held, testing knowledge of the specific topic covered. Students are individually assessed, and percentage scores are recorded and tracked.
- Individual Improvement Scores – are then used to calculate student progress. Each student contributes points to their group's total based on the extent to which their performance is higher than their own running average.
- Team Recognition – the winning group in each cycle is recognised through rewards such as certificates and acknowledgement on school notice boards and assemblies.

2.4.7 Impact of Cooperative Learning Methods

The impact of cooperative learning methods was investigated in a meta-analysis conducted by (Johnson et al., 2000), which looked at the impact of eight different cooperative learning methods over 900 different studies, including Jigsaw (Aronson, 1978) and STAD (Slavin, 1989). The meta-analysis provides clear evidence in support of cooperative learning methods, with the authors of the study stating that

'there may be no other instructional strategy that simultaneously achieves such diverse outcomes' (Johnson et al., 2000, p. 3). It is, however, important to acknowledge that this range in outcomes could be influenced by the suggestion that only papers with significant results may have reached publication. The authors are also clear that readers should be wary of studies where researchers may have an 'invested interest in that particular method of cooperation' (Johnson et al., 2000, p. 11). In contrast, a less recent meta-analysis conducted by Moskowitz et al. (1985) found that the Jigsaw method also had almost zero impact on student learning.

2.4.8 Other Benefits of Cooperative Learning

Cooperative learning methods have also been found to potentially promote positive on-task behaviours from students. There have been instances recorded of students challenging poor behaviours of their peers within groups, sometimes promoting a group's ability to self-manage the behaviour of its members who might 'obstruct the group' goals (Johnson et al., 1985, p. 117). This was supported by this researcher's previous research project, where students taking part in a STAD-based cooperative learning project were observed telling each other off for negative behaviour and borrowing each other's equipment, so the group were able to succeed (Forth, 2014). In addition to promoting positive behaviour, studies such as Casey et al. (2009) found that cooperative learning can improve engagement and peer relationships. Researchers such as Johnson et al. (2000) support this, commenting that cooperative methods are essential for promoting healthy social development.

2.4.9 Limitations of Cooperative Learning

One limitation of cooperative learning can be the initial attitudes and personalities of the students taking part (Slavin, 1987). This was supported by the Physical Education study from Casey et al. (2009), which found that despite finding positive results, commented on the limitations caused by immature attitudes and behaviours of some students, particularly the males involved.

The attitude and approach of the teaching professional involved in the cooperative learning methods can also impact the effectiveness of the approach. With most cooperative learning methods requiring essentially less input and time from the teacher involved, some teachers have found it difficult to let go. One example was Casey et al. (2009, p. 415) who found it hard to 'keep a distance but still be approachable' and felt a 'twinge of hurt' when being told he was not needed by a student in an activity. This researcher in a previous cooperative learning study found themselves in a similar scenario, at times feeling unneeded by the class. However, this did give them more time within lessons to talk and improve their working relationship with the students involved (Forth, 2014). How much to be involved in the cooperative project and how to use this possible saved time is up to the teaching professional. As Johnson and Johnson (1994, p. 17) state, teachers will need to choose between being 'a sage on the stage' or 'a guide on the side'.

2.4.10 Preparing for Cooperative Learning

When choosing a cooperative learning method, it is important to realise that the methods outlined above are not mutually exclusive. Each method changes the way the material is learnt rather than changing the material itself. Teachers should look for the one most suitable for the particular learning goal. Increasing students' confidence with cooperative learning can improve their confidence and the chances of successful implementation (Sharan, 2014).

When setting the stage for cooperative learning, there are recommended actions for developing the most suitable environment for cooperative activity. When preparing Sharan (2014) suggests to:

- Ask questions, invite questions, and listen—building a classroom environment where students are encouraged to ask questions, listen, and respect each other's views can aid in creating a

cooperative environment. Examples include building a culture where students are trained and confident in explicit questioning methods so they can use these in their cooperative efforts.

- Modify your centrality – involves teachers being aware that with cooperative learning, often the teacher will no longer be the traditional centre of attention. The 'know it all' of the classroom. Instead, teachers need to modify their contract with their students and modify their role to more of a facilitator than a teacher. The now common activity of 'think, pair share' is an example of how the teacher's role can be modified, and the students' learning together becomes more central.
- Incorporate student answers into the lesson – making a conscious effort to include and encourage all students to answer within a lesson can encourage participation and promote acceptance into the group.
- Establish basic rules – rules should be established before practising cooperative learning and should be agreed upon by the group. These could include listening to each other's ideas and waiting to talk for example.
- Conduct periodic reflection—at regular intervals, groups should be encouraged to reflect through questioning on their progress to date and plan for future activities. Teacher reflection is also an important element that allows them to make improvements moving forward as practitioners to further benefit the students' learning.

The final point on student reflection is agreed upon by Johnson and Johnson (1994) who suggest that, as well as reflection, students should assess the quality of their group's work and set future group goals. They also believe that teachers should consciously plan how they will monitor student groups when cooperative learning occurs. This includes preparing for observations, including the method and schedule. The observation itself should then be used to assess the quality of the group learning taking place, which

should then allow the teacher to intervene where needed, for example, the approach taken by Sharan (2014) of asking the right questions and adjusting the teacher's approach centrally.

In summary, there have been several different methods of cooperative learning that have been shown to improve student learning. Each method explored differs from the others. For example, STAD has regular quizzes that are taken individually, whereas Jigsaw has a group presentation graded at the end of the project. Jigsaw also groups students before asking them to specialise, whereas Group Investigation allows students to join topic groups that they have the most interest in. There are also many similarities between the methods, the most common being that of group goals and individual accountability.

As STAD is also a group cooperative learning method that was trialled outside of the classroom, how well the students interacted together was an important element to consider. Theories, therefore, of social dynamics will be explored later in this literature review, and how these may impact the success of the STAD intervention. Motivational theories will also need to be considered and explored, as with this study, the group meetings took place independently of the teacher, so the groups' motivation to succeed was an important factor in how well each group performed.

2.6 Student Motivation

The model below in Figure 2 (Slavin, 2015) suggests that the group goals created by the STAD method can lead to improved social cohesion. This social cohesion, along with the group goals created, should then lead to increased motivation for students to want to learn and to help their groupmates learn. This should, therefore, result in a range of learning activities, which should enhance student learning.

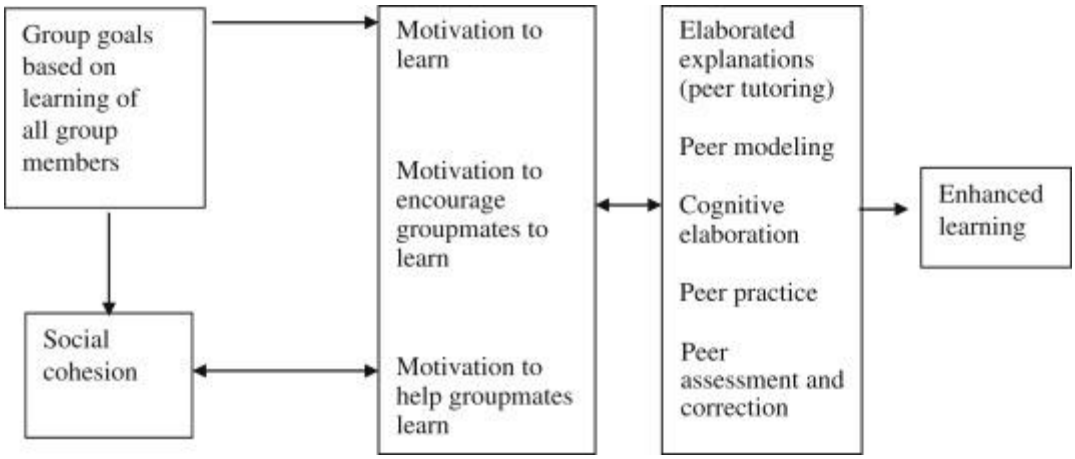


Figure 3: Theoretical perspectives on cooperative learning effects on learning (Slavin, 2015)

Student motivation, however, can be impacted by other factors in addition to the group goals present in cooperative learning methods. Social cohesion and how students work with those around them are also dependent on these factors. The following two sections in this chapter will explore these factors.

In addition to the assessment method used, cooperative learning methods can be directly impacted by the level of motivation the students have when completing the cooperative learning activities together as a group. How students are motivated to learn can be explored through several theories and perspectives. This review will focus on two main theories: Self Determination Theory (SDT) and Social Cognitive Theory (SCT). These theories of student motivation are summarised below in the context of cooperative learning.

2.6.1 Self-Determination Theory

Self Determination Theory (SDT) suggests that student motivation can be influenced by three basic needs: autonomy, competence, and relatedness. It suggests that when these needs are satisfied, students can improve their motivation and be more inclined to be motivated on tasks and activities in school (Deci & Ryan, 2000). For autonomy, in cooperative learning, teachers providing choices and acknowledging students' perspectives and opinions can enhance their autonomy, leading potentially to increased engagement (Assor et al., 2002). Research by Jang et al. (2010) suggests that students' having the freedom to choose within cooperative tasks can contribute to satisfying the basic psychological needs suggested by SDT. Ryan and Powelson (1991) also highlight the role of autonomy for teachers in promoting motivation. When teachers facilitate student choice, encourage collaboration, and provide a meaningful rationale for cooperative activities, students are more likely to appreciate the value of the tasks and exhibit sustained effort (Ntoumanis, 2005).

SDT suggests that individuals also seek challenges to develop their competence. In cooperative learning, the structure of tasks influences students' competence. The study by Johnson and Johnson (1994) demonstrated that appropriately structured cooperative tasks can contribute to a positive sense of competence. This highlights the importance of considering the structure and difficulty of the tasks set within cooperative learning setups. Cooperative learning, in its nature, involves group dynamics, aligning with SDT's emphasis on relatedness and a student's ability to connect and relate to others around them. A student's sense of relatedness and their ability to belong to a specific group can influence their motivation and their ability to complete tasks within a cooperative setting (Gillies, 2014).

The areas of autonomy, competence and relatedness that encompass SDT are important factors to consider when exploring how student motivation can be increased, especially when using a cooperative

learning model. One example of this was a study completed by Deci et al. (1991), who suggested that environments supporting a student's autonomy can lead to improved levels of motivation. The study by Reeve and Jang (2006) looked into how autonomy can be built, emphasising that teachers can encourage autonomy and motivation through the building of high-quality interpersonal relationships between the teacher and students.

2.6.2 Social Cognitive Theory

The motivational theory, Social Cognitive Theory (SCT), can offer an alternative view on the role of observational learning when motivating students. SCT suggests that students can be motivated to learn through observing their peers and their ability to develop confidence in their capabilities (Bandura, 1986). The importance of this observation and the modelling by others can be seen in cooperative examples. For example, a study by Johnson and Johnson (1996) found that students who were exposed to positive models of cooperation were also more likely to display collaborative behaviours and stronger problem-solving abilities. SCT suggests that individuals learn not only through direct experiences but also through experiences provided by models. A meta-analysis by Pollock et al. (2002) suggested that when students observe strong modelling by others in cooperative learning situations, they are more likely to develop a positive attitude towards working together. This suggests that observing others can also develop student competence, which is highlighted as a key element in SDT.

SCT includes the concept of reciprocal determinism, which can be described as the connection between personal factors, student behaviour, and the environment. In cooperative learning, regular social interactions can play an important role, as demonstrated in the study by Schunk and Hanson (1985), where student engagement in cooperative learning positively impacted academic progress. SCT also highlights the importance of self-regulation and goal setting in the learning journey. Zimmerman (1989)

suggested that students who engage in cooperative learning can develop self-regulatory skills, including planning and evaluating their own learning. A goal-setting approach within cooperative learning methods can also encourage a sense of purpose and direction for the group, potentially contributing to increased motivation and therefore performance (Johnson, 2014). Group goal setting is a common element of successful cooperative learning methods, including in the STAD model.

This section has provided an overview of two main theories of motivation: SDT and SCT. Both theories suggest different elements of a student's environment within cooperative learning scenarios that can impact motivation. These elements are summarised as a visual model in Figure 3.

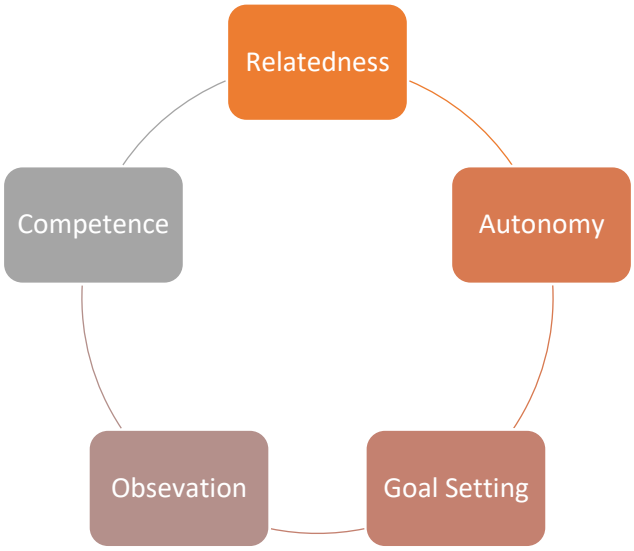


Figure 4: Summary of Motivational Elements from SCT and SDT

2.7 Social Dynamics

Cooperative learning has emerged as a recognised approach that promotes collaborative interactions among students to enhance their learning and social skills. However, the success of cooperative learning depends on the strategies employed and is deeply intertwined with various social dynamics within the learning environment. This literature section will give a broad overview of some of the main theories of social dynamics in education and how they link to cooperative learning methods.

2.7.1 Social Interdependence Theory

The Social Interdependence Theory (SIT) (Deutsch, 1946b) stresses the significance of group dynamics in shaping individual behaviour and the attitudes of students. The core concept of SIT is that of positive and negative interdependence. This refers to how students see their future and outcomes linked to their peers around them. This can be either as a positive linkage, which has beneficial outcomes for all or linked negatively, where students desire opposing things (Deutsch, 1949b). Johnson and Johnson (2015) also note that positive interdependence can foster cooperation amongst group members, whereas negative interdependence may lead to competition and interpersonal conflict (Johnson & Johnson, 2015)With STAD, students are placed into groups and asked to complete learning tasks as a team. It can be argued that as students are also assessed individually, one of the main benefits of the STAD method has been its ability to encourage students within the group to support each other, as every member can contribute to the group's overall score. This is linked to positive interdependence, as each group member will need to perform well for the group to succeed.

Another key element of SIT is the inclusion of cooperative and competitive goals. Deutsch (1949b) proposed that individuals' goals could be categorised as cooperative (achieving mutual benefits) or competitive (pursuing advantages at the expense of others). The perception of these goals can shape individuals' behaviours and strategies within group contexts, thereby influencing the overall group outcomes (Johnson & Johnson, 2015). Additionally, SIT stresses the role of structure in shaping interdependence relationships, highlighting factors such as task complexity, group size, and communication as determinants of cooperative or competitive activities (Deutsch, 1973). This strongly links to the relatedness element proposed in the SDT theory of motivation, which is discussed in section 2.6.1

2.7.2 Social Identity Theory

Social Identity Theory (SIDT) (Tajfel, 1978) was proposed by Henri Tajfel and John Turner in the 1970s (Tajfel, 1978) as a framework for understanding intergroup relations. SIDT suggests that individuals develop their self-concepts from their membership in social groups. Central to SIT are three key processes: social categorisation, social identification, and social comparison.

Social categorisation involves identifying yourself and others as members of a distinct social group, based on shared characteristics such as gender or ethnicity (Tajfel, 1982). Through this, individuals can develop a sense of togetherness, resulting in group togetherness and an approach of not liking the other groups. Social identification involves adopting the norms and behaviours associated with the group to which they belong. Social comparison refers to behaviour to that of other groups. (Tajfel & Turner, 2004). By comparing their group to others in such a way, students can develop their identity and self-esteem by linking themselves with a high performing group or keeping their distance from groups who might be lower in 'status'. When looking at SIT in the context of cooperative learning, it can provide useful insight into how group membership and social categorisation can influence students' behaviours and interactions. In summary, cooperative learning such as STAD can potentially enhance student motivation and academic performance by fostering a sense of belonging and shared identity within the groups.

2.8 Chapter Summary

This literature review aims to give an overview of how students can learn, specifically through individual competitive and cooperative methods. Individualistic learning can be an effective method of learning for students, provided they have the appropriate support around them, which includes teacher support, learning materials and an evaluation system so they can assess their progress against set goals (Gocłowska et al., 2017). However, classroom disruption, the desire to compete against peers and the potential lack

of social skills development can be seen as drawbacks to the individual method of learning. Working against others in a competitive environment can also provide incentives for students to learn. Competitive methods can be either destructive (one member wins at the peril of the others), or constructive (losers can learn from the winners). Potential benefits from this learning method include motivation to succeed, particularly for those who can reach the top and win the competition. However, this method can be demotivating for those who are unlikely to succeed and can also damage a student's self-worth (Ames et al., 1977). The final method, cooperative learning, demonstrates a high level of impact on student learning. This includes increases in school attendance, motivation, and academic learning scores. This has been demonstrated by several different cooperative learning methods, including Jigsaw and Group Investigation. When investigating the different cooperative learning methods, it appears that to be successful, cooperative learning methods need to have a select set of features, particularly group goals and individual accountability. One cooperative learning method with these two features at the heart of its philosophy is Stratified Teams Achievement Divisions (STAD). This cooperative learning method attempts to bridge the gap between competition and cooperation with students working in groups (group goals) but assessed individually (individual accountability).

The STAD method involves students working on materials as a group but being assessed individually through regular quizzing. Teams then compete, with recognition awarded to the winning team. The most attractive thing about the method to the teacher-researcher was the fact that groups competed using points calculated by how well each member improved on their own individual performance. This was an important element to the participant group in this study due to the wide range of abilities in the group. This meant that any of the groups in the study could win each week. As the study was also looking at cooperative learning methods and their impact outside of the traditional classroom, the potential for the

STAD to encourage students to be able to manage their group, including behaviour, suited the study focus well.

STAD is also heavily influenced by other forces that can enhance or limit the method. Firstly, along with the method, how the students are assessed individually can influence how well students do over the method. A student's motivation to want to do well in the group study was also an integral facet to explore. One theory of motivation, SDT, summarises that students require autonomy (freedom to complete tasks how they wish), competence (ability to complete the tasks set) and relatedness (ability to connect to others around them) to be motivated in academic tasks. These elements were considered when choosing STAD as the cooperative learning method. This is because in STAD, students are given autonomy in their group, especially in this study that took place outside of the classroom.

Lastly, student dynamics, particularly around how students work together, were clearly an influential part of this cooperative study. One theory of social dynamics is the Social Interdependence Theory (SIT), which highlights the importance of how well students work together, in mutually beneficial or conflicting ways. Due to each group requiring all to improve on their own averages, STAD is designed to promote positive independence within each group. The structure of each group is also highlighted in SIT, focusing on group size and task design.

In summary, the STAD cooperative learning method was selected in an attempt to improve student attainment outside of the traditional classroom setting. As well as planning the STAD method, consideration was also taken of the assessment methods used. It was also important to consider theories of motivation and social dynamics, as these are closely linked to the method and its chances of success. Because of this, the research questions centred around STAD and its ability to impact academic

attainment, but also focused on student motivation when involved in STAD, and the benefits and limitations of using STAD in this way had on the students involved. The next chapter will detail the research questions and explore the methodology used, including the research paradigm, data collection methods and collection schedule.

3.0 Methodology

When reviewing the three main approaches to learning methods, individualistic, competitive, and cooperative, for this study, cooperative learning was the chosen preference. This was due to the method having a history of positive impact on not only student progress but also other elements of student development, such as relationships and self-esteem. As this study took place in an independent study room, it was practical and logical to focus on the cooperative learning method, as alternative methods, such as individualistic, would have been difficult to monitor without the teacher present.

When considering what cooperative learning method to trial for this study, STAD emerged due to several factors. Groups involved in the STAD method could meet without the teacher present, with some studies into STAD showing that teachers involved in the intervention felt unneeded. This suited the intervention well, as the groups were to meet in their own study time, away from usual lessons with their teacher. However, the groups were still able to communicate and gain support from the teacher in their usual lessons. These consistent lessons also suited STAD well, as they allowed for the weekly quiz assessments to take place in lessons with the teacher present to administer the assessment. Finally, due to the students in the study having independent study lessons at different times within a timetabled block, the cooperative learning method chosen needed to suit groups with mixed abilities, as groups would be random. STAD suited this requirement, as STAD encourages groups of varying abilities, and the assessment system used is based on how well students perform against their own averages rather than

against each other. It is for these reasons that the STAD method was the chosen intervention to improve student progress within Sixth Form Supervised Study.

This study aimed to answer the following research questions:

- To what extent is the STAD cooperative learning method effective within Supervised Study for improving student attainment?
- In what ways can STAD improve student motivation to achieve in an academic subject?
- What are the further challenges and benefits of the STAD cooperative learning method on student and Sixth Form practice?

This chapter explores in detail the methodological approaches used in this research study, providing an overview of how the research questions were investigated. It will begin with exploring the theoretical frameworks adopted for this study, including an interpretivist approach, and the use of action research as a method and lens to view the research findings. This will include the chosen methodological methods, including both focus groups and observations of the groups. The chapter concludes by detailing the planned data collection schedule, along with considering the ethical issues involved in the study and how these were planned for and mitigated.

3.1 Research Paradigms

Research paradigms are concerned with the way in which we look at the world and how we understand the world around us. An individual's world view can therefore affect how they think about a problem or issue (Cohen et al., 2017)The research paradigms of positivism and interpretivism have been the driving force in research discussion for many years. This section outlines the two approaches in more detail and presents a rationale for the choice of an interpretive study for this research project.

3.1.1 Positivism

It is understood that humans have two types of reasoning, deductive and inductive. Deductive reasoning is logical thinking using simplistic mathematics and logic to calculate an outcome. For example, 'the sun is hot, do not stay in the sun' is a deduction using simple logic. The other method of reasoning, 'inductive', uses multiple events and cases to make an overall supported decision. The blend of these types of reasoning began the scientific/positivist approach to research, using deduction to create a hypothesis and testing this hypothesis through an inductive means of research (Cohen et al., 2017). Positivism has since become one of the most used research viewpoints of the past 100 years (Grix, 2004). One of the leading thinkers in positivism was Augusto Comte, who favoured knowledge acquisition through control, observation and testing (Cohen et al., 2017). Most positivists assume there is no connection between what we see and how things really are, and that the world is real and neither mediated by our senses nor socially constructed. Positivists attempt to establish relationships to construct 'explanatory and indeed predictive models' (Marsh & Stoker, 2002, p. 180). This approach can be summarised as 'events have causes, and science can eventually uncover and understand these causes' (Cohen et al., 2017, p. 10). When having this approach, researchers come in as objective researchers, studying phenomena that exist outside of their influence (Abdul Rehman & Alharthi, 2016).

Positivism has, however, faced criticism over time. Much of this has been directed at the suggestion that this approach of scientific objective experiment is not appropriate for the study of the social world. As Abdul Rehman and Alharthi (2016) suggest, this approach falls short when used to study individuals and social phenomena. Reasons for this include the suggestion by Cohen et al., (2017) that this approach can exclude the human aspect of things, like freedom of choice and individuality, and it is argued that positivism in social studies cannot ignore the subjective nature of the researcher.

Positivist approaches can explain many things and provide us with valuable information and insight, although some believe they are not designed to explore human behaviour in a complicated social world (Richards, 2003). It is suggested that positivism lacks a detailed explanation of the causes and processes of a research phenomenon, and their case studies can be difficult to generalise, as they are often restricted to a single unit of analysis. This research project had a core focus on exploring the social impacts of cooperative learning through an action research approach. Therefore, the teacher/researcher was a core participant who could influence or be influenced by the social intervention. For these reasons, a positivist approach was not taken for this study.

3.1.2 Interpretivism

Fulbrook (1978) suggested that one of the main thinkers of the interpretivist age was Max Weber, who argued that to understand the social world, we must investigate the social actions of those who shape that world. This developed into the term 'interpretivism', which is seen to be the 'science of persons', with the view that people are deliberate and there are multiple interpretations of single events. Black (2006, p. 319) states that the strength of the interpretivist approach lies in its 'ability to address the complexity and meaning of situations'. This suggests that no researcher can be objective, as the researcher also lives in the social world and will have their own perceptions of reality as a 'social construct'.

However, critics suggest that interpretivist approaches alone have gone 'too far in abandoning scientific verification, resulting in potentially misleading results that can be biased by the researcher's own beliefs' (Cohen et al., 2017, p. 19). This suggests that interpretivist approaches fail to consider the importance of verifying and testing research accounts to gain a greater understanding of the general population. Another criticism focuses on the sometimes 'messy' explanation that comes from interpretivist enquiry,

which can at times be open-ended, rather than complete (Grix, 2004). It is indeed true that some interpretive research cannot answer a generalised question; however, this may never have been the intended purpose.

For this project, an interpretivist approach will be taken due to the social nature of the research questions, exploring student motivation at school and the impact cooperative learning can have on their learning outside of the classroom. However, careful consideration has been given to the practical research methods used, and the use of a mixed methods approach, including quantitative measures such as attainment data, should allow for a balanced, verifiable, complete picture. It is also common for researchers to use multiple theoretical perspectives depending on the nature of the research questions. In summary, an interpretivist perspective has been used as it fits with the social nature of the questions, exploring the attainment and motivation of students within the social context of a school. However, it is important to acknowledge that the broad, complex nature of school gives rise to the possibility of various influencing components that can contribute to the findings that emerge. This was the reason for the chosen approach of action research.

3.2 Action Research Introduction

Elliott (1991, p. 49) stated the core objective of action research is to 'improve practice, rather than to produce knowledge'. It is a process by which the teacher becomes the researcher, with a focus on improving their own practice. The process, in its simplest form, often involves a teacher identifying a problem in their lessons through observation, solution, action, reflection, and modification (McNiff, 1992). The traditional approach to teacher education is often that of exploration of theory, which is then put into practice. Action research is much more than that, with the teacher researcher flipping the traditional approach, promoting the idea of practice driving the identification of theory, which in turn can

create reformed practice and then reformed theory. As suggested by McNiff (1992), it is not sufficient for teachers to just speak about different experiences; they need to experience them for themselves.

3.3 Origins of Action Research

The origins of the term 'action research' can be traced back to the 1940s, in a paper from Lewin (1946), analysing group relations with workers in the American state of Connecticut. Within the study, Lewin explores the importance of action research, giving an insightful example of World War Two, whereby a bombing of Germany would have followed a careful process of reconnaissance (fact-finding), identifying the target (plan), giving the attack order (execute), and then evaluating to assess the new situation.

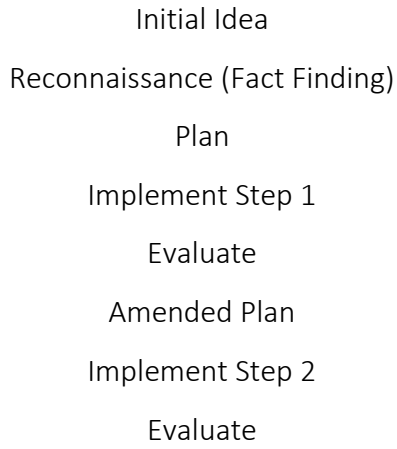


Figure 5: Interpretation of Lewin's Action Research Model (Kemmis, 1980)

This spiral of steps highlighted by Kemmis (1980) in Figure 4 is the bedrock of the action research design. However, it is argued by Elliott (1991) that this initial model of action research was limited due to its linear focus. It is suggested that the initial idea should be allowed to shift as information is identified. It is also thought that the reconnaissance fact-finding stage of the process should recur as the spiral of activities evolves, rather than just at the beginning. This has resulted in more developed models of the action research process, which have an increased focus on a cyclical process that is reflected and analysed as the process develops.

3.4 Action Research Cycle

One such model can be seen in Figure 5. In this suggested model, Koshy (2005) builds on the work by Elliott (1991), putting forward an action research model that is more cyclical in nature.

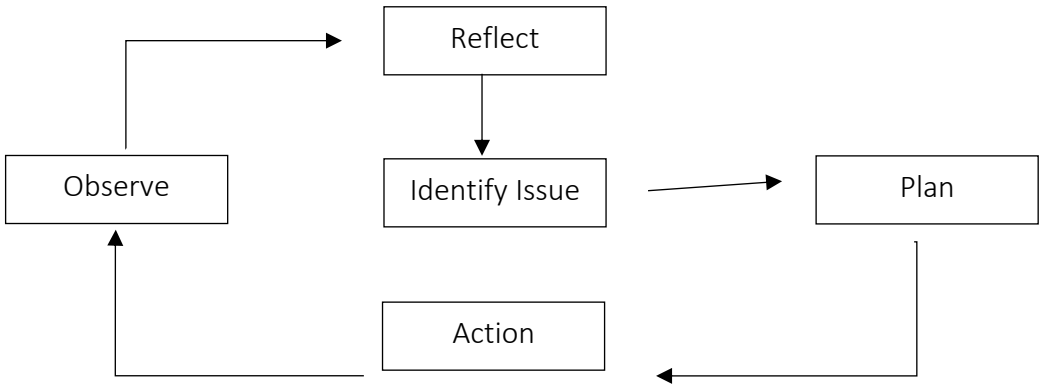


Figure 6: The Action Research Cycle (Newby, 2014)

These models provide a useful overview of how action research could be interpreted and planned for within educational research. However, researchers such as Koshy (2005) warn that even though these models provide useful structure, it is important that those adopting action research as a research approach do not be rigidly bound by the structures offered. Instead, they should ensure flexibility not to miss unique opportunities that may emerge as a result of the action research conducted, as 'in reality, the process is likely to be much more 'fluid and responsive' (Koshy, 2005, p. 21).

In Figure 6, the Koshy model of action research has been applied to this study to give an overview of how the model of action research will be applied. When planning action research studies, McNiff and Whitehead (2005, p. 45) also recommend considering the following initial questions:

- What is my concern?
- Why am I concerned?
- What kind of evidence do I produce to show the situation as is?
- What can I do about the situation?

- What will I do?
- What kind of evidence do I produce to show the situation as it unfolds?
- How do I show that the conclusions I come to are fair and accurate?
- How do I modify my practice in light of my evaluation?

These questions provide a useful basis for action research projects and were considered carefully before the research methods were selected and planned for in this study.

3.5 Reflexivity in Action Research

Reflexivity in action research refers to researchers developing their self-awareness of how they influence the research process and how the study might influence them (Anderson & Sankofa, 2025). As the researcher is often an insider in the research situation, practitioners of action research must ask themselves important questions about their attitudes and approaches, and be aware of their potential impact, especially when attempting to claim any 'new knowledge as truth' (McNiff, 2014, p. 24). As the researcher in this action research, the researcher had several dual roles: researcher and participant's subject teacher, pastoral lead, and school leadership team member. Therefore, a reflective approach to the research was essential, and consideration was given to how these roles and past experiences might shape and influence the researcher's perception and interpretation of the research findings. Strategies were adopted to support this reflexive approach, including keeping a reflective diary (Appendix H) and using critical friends such as the supervisor team and head teacher of the school to discuss the researchers' position and reflect on its influence (Kemmis et al., 2014). From an ethical standpoint, it was also essential to promote transparency and ensure participants were clear on the voluntary nature of the study and its impact. For example, the researcher being the pastoral lead for the Sixth Form could have influenced participants' honesty and willingness to participate in the study. Section 3.16 develops this

area further, including clarifying the researcher's positionality and referring to the broader influences a researcher can bring from their values, background, and experiences.

3.6 Politics of Action Research

It is argued by Hill (2024) that action research is political by its very nature. This view is agreed upon by Yip (2024) who outlines how a researcher's dual status is not static and must be negotiated across different institutional boundaries. It can never be studied independently; instead, there will always be influences, whether through a power imbalance caused by the researcher's position (3.5/ 3.6) or other political influences such as the school and broader educational landscape and context. This section will outline these political aspects and how it is essential to consider these influences when conducting school-based action research.

3.6.1 Power Dynamics

In this research, there were power dynamics present that could have influenced the study outcomes. These dynamics manifested in several ways over this research study. The researcher was the student's subject teacher, so had power regarding their academic progress, including reporting progress to parents. As their pastoral lead, they also influenced their everyday well-being, including monitoring and reporting on their general behaviour. They also had the power to contact parents and sanction students for breaking the school rules where appropriate.

This power imbalance between the researcher and participants could have impacted the validity of participants' responses, particularly in the observations and focus groups conducted. Participants may not have responded truthfully due to the researcher's position of power within the school, potentially from a 'fear of being judged' (Mercer, 2007, p. 7). The relationship between the teacher and participants had to continue after the research had concluded, so participants may have wanted to temper the truth

to maintain a good relationship with their teacher in the future. This was why consistently promoting ethical transparency was so crucial for this study, which included regular briefings and reminders of the voluntary nature of the study to the participants and reassurances at various points that the research would not impact the teacher's perception of the students' academic progress.

3.6.2 Institutional Policies

The study school's policies and guidelines influenced the success of the action research project. The school's open approach to research-based approaches allowed for the research to be undertaken. Their policy setup in areas such as IRIS video recording for teacher professional development also allowed this video recording software to be used in the focus groups, enhancing the quality of the data collected. The school's mandatory attendance policy and supervised supervision in the Sixth Form also provided the situation for this problem to be identified. It also helped frame the research question as the school aimed to capitalise on mandatory attendance to ensure student progress and productivity improvements. However, the institutional policies may also have been restrictive. The compulsory attendance policy, for example, may have skewed the participants' perception of the value of this provision, which may have impacted their feedback and attendance at the intervention.

3.6.3 Socio-Political Context

As outlined in Chapter 1, this action research study was completed under the influence of a neoliberal backdrop, which can impact the Sixth Form in areas such as exam developments and funding cuts. These pressures justified the need to address the issue identified in supervised study. For example, the school was under pressure within the local area to retain students and improve outcomes. This increased level of competition influenced the school’s desire to make more effective use of the supervised study resource for promoting student progress. Funding cuts have also put pressure on school finances, and with supervised study having a substantial cost in terms of staffing and physical resources, the teacher

researcher-school leader was keen to maximise the value and outcomes the provision produced for it to remain a viable feature of the Sixth Form provision moving forwards. Finally, the increased demand for knowledge retention following public exam changes has increased the importance of supervised study, which should ideally support students. The introduction of STAD with supervised study was a response to these pressures to improve students' ability to work effectively in a group setting without teachers' presence, potentially improving their progress and ability to work together. In summary, this study was influenced by a complex host of power relations, institutional school frameworks, and wider educational policy pressures. The researcher maintained awareness of these influences for ethical purposes and to ensure the research study remained as transparent as possible.

3.7 Action Research Rationale

Action research was the methodology used in this study to explore an issue present in the researcher's teaching practice. The identified issue stemmed from the lack of independent work completed by students from an A Level Business Studies class in their scheduled supervised study lessons. A planned STAD cooperative learning strategy was implemented with the cohort within these scheduled lessons in an attempt to improve student motivation and attainment, which were a concern of the teaching professional. This aligns with the action research model, as it was very much a 'personal attempt at understanding whilst engaged in a process of improvement and reform' (Hopkins, 2014, p. 58). Through this attempt to solve the practical issue identified, it was hoped that the problem could be faced head-on, so something could be done about it (Lewin, 1946). Consideration was also made of the dangers that action research provided, including the potential issues around insider research and the positionality that could impact the research data's validity. However, the benefits of this method of research (section XX), including the researchers' knowledge and experience with the school and research participants, were worth the potential issues, which have been mitigated through the reflexive stance taken.

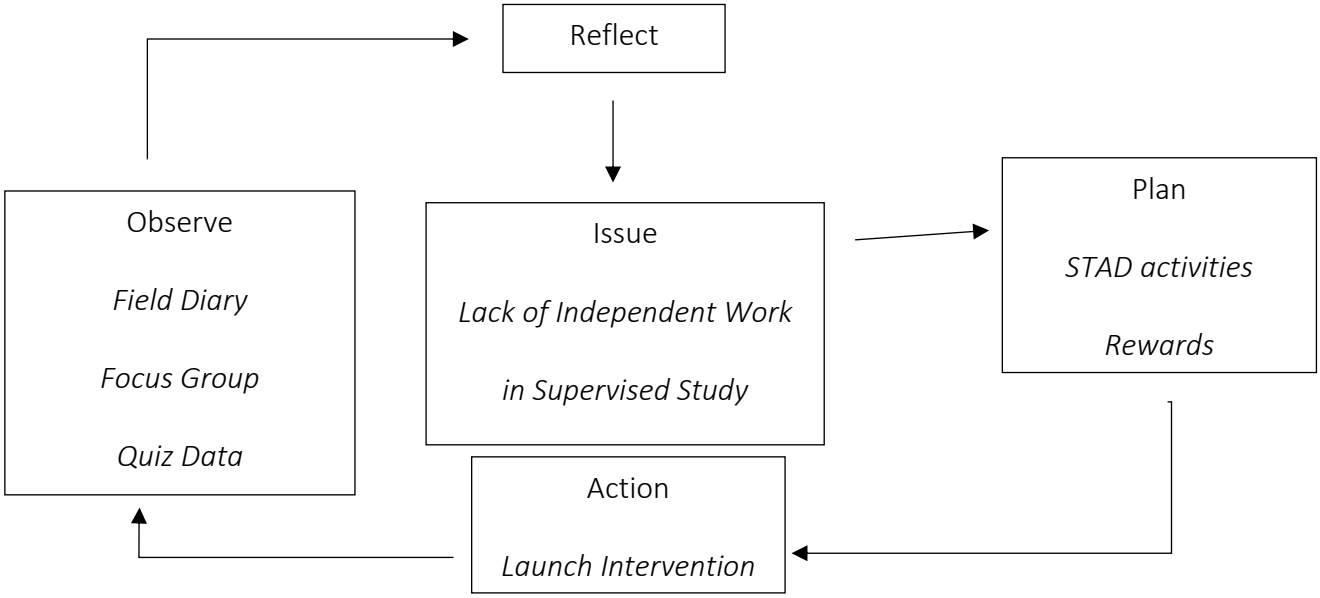


Figure 7: Proposed Action Research Cycle

Figure 6 includes the initial proposed stages of how the action research process was planned for, following the proposed model by Newby (2014) in Figure 5. The cycle includes the actions implemented over the study period and the methodology used to observe them. This chapter explores these methods in more detail in sections 3.10 – 3.12.

3.8 Limitations of Action Research

One limitation of action research suggested by authors such Newby (2014) is the potential lack of rigour due to the research practitioner led element of the action research design. It is argued that the fluid theme of action research and how its focus can alter and develop as variables such as moods and circumstances change creates a lack of formality offered by alternative research methods. It is argued by the researcher, however, that it is this flexibility that action research provides that is one of its main strengths, as it can encourage situations and findings to emerge and be considered rather than disregarding them due to not being the initial focus or fitting any rigid research questions.

The potential for bias is also suggested, potentially raising questions around the credibility of the research findings. Newby (2014, p. 66) asks the question 'how critical can one be of their own past actions?' suggesting that the personal element involved in action research may impact the honesty of the researcher. A potential way to address this would be to attempt to create a supportive environment within the school, as suggested by Elliott (1991) through the researcher informing other professionals in the school about what they are doing and why. Another potential limitation to the action research model is the uneven power relationships that might present themselves. As the researcher in action research studies is likely to also be the teacher, this dynamic could affect the results. Newby (2014) suggests ensuring everyone in the study has a voice, and a professional critical friend can assist with this. Later in this chapter, we explore how participants and colleagues were given a voice to assist with the risks in this study.

The actual action research model used in this study may also impact the researcher's interpretation of action research and its stages. Section 3.4 of this chapter explored some of the models and interpretations of action research. Hopkins (2014) suggests that following tight structures may trap teachers, inhibiting their independent action and leading to overreliance on the model used. These structures can also be confusing for some, who may have different interpretations of the models. This is why it was important that those engaged in action research are clear about the model they are using and have the confidence and clarity to allow themes to emerge as the research takes place.

The final limitation covered in this section is its potential to promote negative connotations of action research and the process of practitioner-based enquiry. Hopkins (2014) notes that the potential overuse of negative terms such as 'issues' and 'problems' that can be coined in the planning of action research improvement can distract from the positive impact action research is often attempting to promote. This

study was mindful of this point and attempted to limit the use of negative terms such as 'problems' and use language that is more neutral in tone, such as 'situations' instead. Instead, where possible, it identified potential opportunities from the action research. These will be highlighted, including any unexpected successes that resulted from the intervention.

3.9 Case Study Group

As previously detailed in the Introduction section, the case study school was a large comprehensive secondary academy with over 1,200 students, located in the South of the UK. The school had over 250 students in the Sixth Form (Key Stage 5), with students studying a range of academic and vocational subjects. For the previous five years, in addition to subject lessons, the school had provided students with scheduled supervised support. This was provided in the form of five hours of Supervised Study lessons per week for each student. Within these Supervised Study lessons, a member of staff was present, and students had access to study facilities, including computers and working areas. The intended purpose of this provision was to provide a suitable, conducive learning environment that encouraged students to complete work and make academic progress.

The Supervised Study provision had recently been identified as an area of the Sixth Form that appeared not to have the intended impact for some students. A small number of students had reported that they found the provision unsuitable for effective study and often found themselves lacking the resources and guidance to make the best use of this time. Behaviour reports also indicated instances of student disruption and apathy, such as using the time to watch television or play games rather than work on academic studies.

The chosen cohort for this study was 20 Year 13 students who were studying A-level Business Studies at the time. This group was chosen as the researcher was also the teacher of this group, so lesson content

could be linked to the study effectively. The Year 13 Business Studies group was preferred over the Year 12 group as they had already experienced a full academic year with the traditional supervised study lesson structure. It was hoped this would ensure the group was comfortable in their current supervised study lessons and that they would have had enough time in those lessons to reflect on how the STAD groupings differed from their usual study lessons. The group was shared between two teachers who had shared the class since the start of the programme. The cohort studied the subject for over a year and built a good relationship with both teachers.

3.10 Participants

This cohort of students was selected primarily due to their subject choice. As the STAD intervention included group meetings outside of subject lessons and assessments within lessons, the participants needed to be part of the researcher's own teaching subject. They had also built up a strong relationship with the teacher-researcher, so it was hoped that this encouraged honesty from the group and willingness to attempt the intervention implemented.

3.11 Data Collection

The data collection methods used in this study followed a mixed method approach of both quantitative and qualitative methods. This is in line with the pragmatic action research view that if the method works and gives the required information, it should be used (Newby, 2014).

There were four main collection methods used, defined as:

- Observations – used within the Supervised Study lessons to collect data on the initial environment and over the intervention period.
- Field Diary – used to capture information, primarily when completing observations.

- Focus Groups—These were intended to collect participants' perceptions of the intervention's impact on their attainment and motivation. They were recorded using the IRIS lesson observation software.
- Low Stakes Quizzes – to analyse the impact on attainment from the group at regular points over the intervention period.

These four data collection methods will be discussed in more detail from section 3.12.

3.12 Observations

Lankshear and Knobel (2004) outline three phases of direct observation that should be considered:

- Descriptive Observation takes place initially and tends to be generic. In this phase, the observer tends to remain broad in their approach and starts to set the scene, including the setting, people, and objects involved in the observation activity.
- Focussed Observation – the observer can start to identify key areas of focus following reflections from the first initial phase and start to concentrate on the ways things might be related and structured.
- Selective Observation – where the observer can now begin to draw on aspects that have caught their attention. This could involve following up on patterns that may have emerged.

3.12.1 Observation Structure

When exploring how observations might be structured, this can be analysed using two elements: structure and participation. Table 4 below from Lankshear and Knobel (2004) outlines the four approaches to observations that can be taken when considering these two aspects.

		Structure	
		High	Low
Participation	High	*Structured Participant*	*Un-Structured Participant*
	Low	*Structured non-participant*	*Un-Structured Non-Participant*

Table 3: Interpretation of observation 'continua' by (Lankshear & Knobel, 2004).

3.12.2 Structure of Observations

Observations can vary, as outlined by Lankshear and Knobel (2004) in Table 4, on the level of structure and planning conducted before the observation takes place. Structured observations can require tight planning, with clearly identified areas that were looked at during each observation. This can include pre-prepared observation schedules that may detail the aspects that will be recorded in the observation. Alternately, unstructured observations can allow the researcher to see what happens and involve limited planning in what the observation might include. Usually, there would need to be many observations to take place using this approach before themes can emerge and be acknowledged (Lankshear & Knobel, 2004)With the study only covering five weeks and a relatively short number of observations, it was important to have some level of structure and planning regarding what the group observations would focus on.

3.12.3 Level of Participation

The most hands-off approach would be the full non-participant observational approach. This involves the researcher attempting to completely remove themselves from the activity they observe. An example of this would be an observation of children playing through a double mirror. In a full participant observation, however, the observer is very much involved and immersed in the activity observed. An example might

be a teacher-researcher observing their own lesson in its natural setting and environment. Lankshear and Knobel (2004) identify three levels of participant observations:

- Complete anonymous emersion – when the researcher is part of the activity and observing at the same time without awareness of this from the group.
- Full and Explicit Observation – the groups are aware of the research taking place and the researcher is observing and taking part in the activity.
- Peripheral Observation – can be a mix of full or partial participation depending on the activities being observed.

Spradley (1980) takes the continua of participation further, adding more depth to the levels of participation observations can operate within, particularly between the realms of anonymous non-participation and explicit participant observation. These include passive participation, where the observer is present at the scene of activity but does not interact or get involved with the activities to any great extent, but is instead more of a spectator or onlooker. Another is moderate participation, where the observer may take a passive role but at times may get involved with the activity at some level.

3.12.4 Selected Observation Approach

For the data collection in this study, the researcher adopted a structured participant approach to observations. Structure was provided in the form of three focus areas rather than formal, detailed observation schedules. In these three focus areas, a series of contrast questions recommended by Spradley (1980) were considered, which focused on identifying how behaviour and observations may identify similarities and differences in participant behaviour. Typical questions considered in advance were:

- How is communication similar between students?
- What is the difference between the body language of Student C and D?

- How many tasks has Student A completed compared with Student B?
- In what ways is communication different between Group 1 and Group 2?

Student	Body Language	Communication	Tasks Completed

Table 4: Sample observation sheet with questions to consider.

Table 5 outlines the planning undertaken for the observations, creating a specific area for notes on each of the three observation focus areas. This was useful for structuring the observation feedback notes and reminded the observer of the focus areas when conducting each observation. As the researcher was also the subject teacher of the participants involved, it was impossible to avoid having an involved observational approach to the groups observed, as noted by Newby (2014). The observer adopted a passive participation approach, as defined in section 3.12.3. In practice, this meant that the observer did not take part in the activities, but the students knew them and knew they were making observations.

3.12.5 Method of Recording Observation Data

The primary method for recording data from the group observations was through a field diary. As Check and Schutt (2012) noted, it was important not to become too distracted whilst observing by writing lengthy, comprehensive notes. Instead, it was advised that brief jottings are taken at the time of the observation period, which are then written up into detailed field notes later. This is usually within 24 hours of the observation, so that the researcher can remember the events in detail with the assistance of the jottings. When writing up field notes, the following guidance was followed:

- Set the overall scene – each field note should include the date, time, place, and event.
- Leave space – on each page so you can expand/ develop your notes where needed.

- Takes strategic notes – rather than try to capture every quote and event in detail at the time, instead write down key words or phrases that trigger your recall of the event.
- Use shorthand – as the notes will be written up in a short time, shorthand can be used to save time when observing. It does not matter if you are the only one who can interpret this shorthand.
- Include a range of observations – include a range of observation data including language used, body language, moods and attitudes that may be relevant.

Adapted from Mack et al. (2005, p. 24)

The observations took place over a five-week period and initially aimed to include each of the five groups involved in the study (Table 7). The observations were completed by the researcher of groups completing the group stimulus. Care was taken in the conduct of the observations, and consequently, worthwhile data was collected (Newby, 2014). One element of importance was to ensure the observations took place in a natural setting. The setting chosen was an environment that the participants were used to and part of their usual day to day working. The supervised study room in the school provided an ideal setting, as students work in this room for five hours each week across their school timetables. However, this was not possible, so the room next door was used instead.

3.13 Focus Groups

Kamberelis and Dimitriadis (2013) outline that group interview-based focus groups were first conducted in the 1940s to study the medium of radio initially, and then to study the use of propaganda. It was seen as an effective method to get relevant, specific information from large numbers of people quickly. Focus groups can assist in explaining how and why people behave and can provide the means to probe people's reactions to issues. They are best used when conducting exploratory research and can be used with a range of other methods to bring an improved understanding (Vaughn et al., 1996). They can provide the opportunity to interview more people and encourage interaction between interviewees, potentially

releasing more useful data (Newby, 2014). This method can also be time-efficient, allowing the researcher to gain substantial information from participants in a relatively short time window (Vaughn et al., 1996).

A focus group can be dynamic. Although every focus group should be planned for, its flexible nature can encourage discussion, which may cause other themes to emerge. Respondents may feel more confident sharing their thoughts and feelings when their opinions are valued in a group setting. Kamberelis and Dimitriadis (2013) go as far as to suggest that unpredictability and contradiction should be celebrated and expected. This links well to action research, as it supports the view that in complex systems, non-linear results can appear that are hard to predict, and we may not know what might happen until the trends emerge in the moment.

The structure of a focus group can take three forms (Newby, 2014):

- Group interview: questions given, and responses noted. Little interaction between respondents
- Group discussion: starting question posed and leads to a discussion.
- Exploration of individual views in a group context: can be useful to understanding people's viewpoints.

It is important to note that it is not unusual to find a focus group formed by a blend of these above forms. A strong focus group should not be bound by any rigid structure and should allow for flexibility. In this study, the participants' responses varied from offering their own individual views to discussing the answers as a group and building on each other's comments.

3.13.1 Focus Group Preparation

The focus groups for this study were prepared using the guide provided by Vaughn et al. (1996) who outlined some valuable steps to follow. The first step is to write and agree on a general-purpose statement

that identifies the purpose of the focus group and the scope. The confirmed general-purpose statement for the focus groups conducted in this study was:

'The purpose of these focus groups is to explore students' perceptions of the STAD intervention and the impact it is having on their academic progress in Business Studies. I am particularly interested in how motivated students are to work together outside of the classroom. I am also interested in how their relationships within the working groups have developed over the intervention time and whether they have become stronger together as a group when working on the academic materials'.

Following this general-purpose statement, it is then advised that the researcher sets the goals of the focus group. The first goal should be how the information from the focus group will be used and the second is to set specific outcomes sought from the focus group. The agreed goals for this project were:

- Goal One – To understand how the relationship between students in the group has developed over time.
- Goal Two – to find out the impact the project is having on students' motivation to achieve in Business Studies.

Finally, before conducting the focus group it is advised by Vaughn et al. (1996), that a moderator's guide should be written that outlines the structure of the focus group format. This includes a written introduction at the start of the focus group to provide an overview of the purpose and establish guidelines for the participants. Following the guidance, the following introductions were used at the start of the first focus group meeting:

'Welcome to you all, and thank you for agreeing to this focus group. Each of you has been invited because your point of view is important to me. I know you are very busy with your school studies, and I appreciate your contribution to this study. This is not a test, and there are no right or wrong answers. I would like to find out how you feel about the current group project you are undertaking. This includes your thoughts and feelings about how well the group is working and the resources you have been provided with. There are a few guidelines I would like to explain. Firstly, there is no order in which to speak, if you would like to say something, feel free to speak at any time. Secondly, please do not speak whilst someone else is speaking, give people space to finish their comments. Thirdly, try to avoid any negative comments about others, and be constructive. Lastly, I am very interested in what you all have to say, but sometimes, in the interests of time and ensuring everyone has the opportunity to speak, I may occasionally need to stop you in order to move on.'.

A warmup session was also conducted before the first session to allow any questions to be answered and clarify any terms. Following the focus group sessions, it was also recommended a wrap up takes place where the researcher can summarise the key points from the session and recognise any points that were not able to be explored further. This wrap up was conducted and allowed an opportunity to remind participants of the confidentiality agreements and thank those involved for their assistance.

3.13.2 Focus Group Practicalities

The following practicalities were considered when preparing for the focus groups:

- Focus Group Number: It can be difficult to confirm how many focus groups will take place until it is possible to see the success of the first one. It also depends on the themes that emerge and how the study overall develops (Vaughn et al., 1996). This study was initially planned for four focus groups with the same group, although it had to be flexible as this did not happen as planned. Only two focus groups were possible due to time restrictions and unexpected adjustments to the

school's mock exam timetable. The focus groups also varied in members, as different participants attended each time, despite all agreeing to attend initially. However, some respondents did attend all focus groups, creating some consistency.

- Number of Participants: advised to be between 6-12 to ensure valuable dialogue. This study planned for a minimum of six in each focus group session, although again this was not always possible due to issues with participant attendance.
- Time and Location: Should usually be no longer than one hour each, and it is important that the time is communicated with the participants in advance. The location should also be a place where everyone feels comfortable and not somewhere that advantages one person over another. Participants should face each other to promote communication (Newby, 2014)The study's focus groups were held in the Business Studies classroom, which the students were familiar with and comfortable in. Students sat across from each other on one table, and each focus group lasted no more than 30 minutes.

When recording the data from a focus group, Newby (2014) suggests that a reliable method should be used, whether that is through a recording device or an additional moderator who takes notes. Video recording is useful when capturing nonverbal communication. This study used the lesson video recording software IRIS to record the focus groups. The package included several microphones and iPads stationed around the room. The software then recorded the video from multiple angles, and the microphones allowed sound to be recorded. The recordings were then uploaded to a secure cloud where they could be played back and analysed. This recording package had been used previously on several occasions with the students involved in the study to record Business Studies lessons as part of the school's professional development programme, so students were comfortable with the equipment being used.

3.13.3 Focus Group Data Analysis

It is suggested by Vaughn et al. (1996) that where possible, the focus group data should be transcribed by the researcher, including as much detail as possible. Once this is completed and the data is ready to analyse, Krueger and Casey (2015) state that it is important to consider the following approaches when analysing focus group data:

- Find the big ideas - these can come from what people are saying or their body language.
- Consider the choice and meaning of words.
- Consider the context – how were the comments made and in what context – for example, were they in response to another comment made? Would they have given the information without this prompt?
- Consider the consistency of responses – are participants consistent in their opinion? Do certain factors make them change their mind/approach?

3.13.4 Transcribing Focus Group Data

The focus group transcripts were analysed using a constant comparative framework (Krueger & Casey, 2015). This had the objective of identifying patterns or ideas in the focus groups by grouping similar topics that emerged and then arranging these trends in relation to each other. The themes were identified and organised through a process of emergent coding. The objective of coding is to reorganise data in a way that allows information to be extracted from it (Newby, 2014). Using an emergent approach allowed themes to emerge from the focus groups as they progressed, rather than having any set models or expectations from the focus group sessions.

The transcript for Focus Group 2 (Appendix F) provides an example of the coding process used. Example themes included the value of the resources, group contributions, and group dynamics. As these themes

emerged, colours were used to code extracts from the transcript, which were then used in the findings and data analysis.

Some of the possible limitations of coding this way include the time burden and often the significant amount of data available to analyse. To make the process more efficient, the researcher used a computer-based media player to slow down the audio and video when transcribing the video files and coded the themes. This approach allowed for efficiency and increased accuracy compared to a more traditional cutting and sticking coding method (Krueger & Casey, 2015).

3.13.5 Focus Group Limitations

The conducting of focus groups can have limitations. One criticism is that a focus group often only covers participant opinions at a surface level, getting answers to the 'what' questions but often failing to confirm 'why' they feel that way (Kamberelis & Dimitriadis, 2013). This was considered when prompting the group and planning the questions posed in the focus group sessions. 'Why' and 'how' follow up questions were posed to the participants. In Focus Group 2, for example, one respondent was asked how they felt when the other group won. As the students had worked with each other and with the teacher-researcher for a significant period of time within lessons, it was hoped that respondents in the focus group would be comfortable extending their answers to give sufficient depth and reasoning to their opinions and beliefs. The participants attended the focus groups voluntarily on their own time. This should have meant that they were confident to expand on any points made in sufficient detail. The observations also helped triangulate the data and provide potentially additional insights into why certain things took place.

There is also the risk of interviewer bias. All interviewers have their own perspectives and biases. These can be influenced by things such as the interviewer's background, their understanding of the topic studied

and behavioural factors such as how they respond or phrase certain questions. It is impossible to remove bias entirely, although it can be limited through careful planning (Powney & Watts, 1987). Advice given includes listening actively, phrasing questions in a clear, coherent manner, avoiding giving one's own opinions and eliminating cues that will lead participants to respond in a certain way. These points were considered when planning each focus group session, with the researcher attempting to ensure active listening and a clear structure to the questions posed to the participants. For example, the researcher kept eye contact with those responding and verbally acknowledged their responses. The use of the IRIS video recording software to capture the focus groups assisted in removing potential interviewer bias. This is because the focus group sessions were recorded live and then transcribed, rather than the interviewer taking their own notes in the session, for example.

Conflict and disagreements can arise from focus groups (Cohen et al., 2017) due to their group nature. Dominant members may also take over and cause others to limit their responses. How well this is managed comes from the ability and planning of the focus group moderator. It was important to be clear on the ground rules in the opening statement to the group outlined above, specifically referring to giving people a chance to speak. As the participants' teacher, the researcher was also aware of the personalities within each focus group, which provided them with the knowledge of when to encourage and challenge any dominance from single participants.

The analysis of the focus group data can also come with limitations. These include spontaneous or inconsistent comments from the respondents, which can make the interpretation of the session difficult. People may change their minds as the focus groups progress, altering the meaning or significance of the responses. This was important to be aware of and at times resulted in follow-up questions in the sessions so clarity could be sought where required (Krueger & Casey, 2015). For example, in Focus Group 2, when

a respondent stated that some of the resources were not useful, the researcher followed up with the question, 'Can you give some examples?', to seek clarification on what resources were not seen to be used by the participant.

3.14 Quizzes

In this research study, regular quizzes were used as a method of formative assessment. Students were assessed every week in the form of a low-stakes knowledge quiz. Each week, the quiz answers were worked through as a class, so student groups were aware of their mistakes and corrected any errors. However, this could also be seen more as an assessment as learning, as students were then asked to meet in groups the following week to continue work on the topic. Assessment questions were also interleaved, with some of the same questions appearing on multiple quizzes.

According to Yang et al. (2021), there is a large body of research that suggests that classroom quizzing can aid with the retention of topics for students. One example includes the study completed by Roediger and Karpicke (2006), where it was found that testing promoted more long-term retention effects than just simply restudying a topic. Regular quizzing/testing has also been shown to impact student motivation. In the Yang et al. (2021) meta-analysis on testing studies, examples of motivation including the ability of testing to give students actual feedback on their knowledge and can also encourage students to focus more in lessons on content if they are aware that testing will take place on the topic learned.

Regular quizzing was chosen as one data collection method for this study, primarily due to it being a key component in the structure of the STAD cooperative research method trialled. It is the main vehicle in the method of promoting group goals, but individual accountability (Slavin, 1989). Regular quizzing was also useful in complementing the qualitative methods of focus groups and observation to attempt to triangulate the impact of STAD's cooperative learning method on student motivation and attainment.

3.14.1 Quiz Design

Following the STAD (Slavin, 1989) quizzing structure, five weekly topic quizzes were designed and completed, with a baseline quiz taken at the start of the research period. The topic areas were chosen from the Business Studies specification (Edexcel, 2015) and selected by the teacher researcher previous assessments indicating a relatively low student understanding in these areas, . Students historically also found these specific topics difficult. The topic areas chosen were:

- Quiz 1: Motivation and Leadership (Theme 1.4)
- Quiz 2: Financial Planning (Theme 2.2)
- Quiz 3: Accounting and Ratio Analysis (Theme 2.3)
- Quiz 4: External Influences (Theme 2.5)
- Quiz 5: Decision Trees and Critical Path Analysis (Theme 3.3)

Each topic quiz followed a revision lesson, and students were given a comprehensive revision pack to use in their independent STAD group meeting, which took place outside the traditional lesson. The revision topics provided in each resource pack were used to create each quiz, and the quizzes included a range of knowledge retention questions and some higher-level conceptual questions, such as 'explain one advantage of the current ratio'. It was suggested by Yang et al. (2021) that the level of questions used in quizzing does not impact its ability to improve student retention, although a variety of question difficulties were chosen due to the content being from an A-level subject.

The student participants from this study were experienced and comfortable with this approach. It was common practice in their lessons for regular quizzes to take place, and the quiz design used for this study was similar in nature to the regular quizzes the students were used to in standard lessons. For example, the same quiz template and style were used throughout. The quiz was also low-stakes in nature, and it was explained to the students that the results of the quizzes each week would not be used for any end-

of-term reporting or to identify academic concerns. The level of stake used has been shown in other studies to have a limited effect on the impact (Yang et al., 2021), although it was hoped that in this study, the quiz scores of low-stakes quizzes would allow students to feel more relaxed.

3.14.2 Quiz Data Analysis

Over the five weeks, the percentage scores on the topic quizzes were recorded using a Microsoft Excel tracking spreadsheet. A sample tracking record can be found in Table 6. Each column refers to the following:

- Week 0 Base Percentage - this is the percentage score the students achieved on the baseline quiz at the beginning of the research study. This initial quiz included knowledge-based questions on the five revision topics.
- Week Percentage - this is the percentage score each student achieved on each weekly quiz. As each quiz varied in raw points available, a percentage was used to standardise the scores each week.
- Points – this is the number of positive points each student put forward for the group each week. It is calculated by subtracting the percentage score for the week from the student's average percentage score.
- Average Score – updated each week and was the average percentage score each student achieved. The Week Two average, for example, was the average of the baseline, week one and week two percentage scores.

Following the STAD approach, students each week needed to improve on their average percentage score calculated from their average performance in previous assessments. For example, Student A in Table 6, in Week One, achieved 90%, 46% points above their benchmark result. Due to this result for that week, they contributed 46 points to the group's total score for that week. For Week One, that group, therefore,

gained a total of 57 points. It was the group with the most positive points that then received the recognition for that week. The average scores were then updated and in preparation or the week ahead. There were not any negative point deductions, meaning if a student does not score above their average percentage, they will contribute 0 to the group's total for that week.

Group	Students	Week 0 Base %	Quiz 1			Quiz 2		
			Week 1%	Points	Average	Week 2 %	Points	Average
1	A	44	90	46	67	66	0	67

Table 5: Sample Quiz Data Record

3.15 Data Collection Schedule

Table 7 provides an overview of the intended data collection schedule. The collection took place over the spring term, with most of the data collection taking place between April and May in half term four. Half term three was used to practice the collection methods, including a warmup use of the IRIS video software in a lesson and a preliminary quiz covering topics learnt that term. Half term four included observations of each group while working on their group materials outside of lessons. They were also a focus group every other week, and a weekly quiz testing student knowledge on the topics highlighted in the final column.

Term	Phase	Observations	Focus Group	Testing	Topic of Tasks / Scheme of Learning
Christmas Break					
HT3	Data Collection Prep	Observations of the Supervised Study lessons, practising using a field diary and coding			Global Competitiveness
					International Marketing
			IRIS Practice in Lesson		Social and Cultural Factors
				Practice Lesson Quiz	Impact of MNCs
					Ethics
					Controlling NMCs
Feb Half Term					
HT4	Phase 1 Study	G1		Base Line	Revision/ Base Line Test
		G2+3	Focus Group 1	Q1	Motivation and Leadership
		G4		Q2	Financial Planning
		G5	Focus Group 2	Q3	Accounting and Ratio Analysis

		G1		Q4	External Influences - Economic and Legislation
		G4	Focus Group 3	Q5	Decision Trees and Critical Paths
Easter					

Table 6: Planned Data Collection Schedule

3.15.1 Data Analysis

As this study was a mixed-methods research approach, differing approaches to data analysis were adopted. The quantitative quizzing method was analysed using the spreadsheet record outlined in the previous section. The statistics that came from this analysis were descriptive in nature (Cohen et al., 2017) and included analysing the average scores of each participant group each week, and how their performance at the end of the five-week cycle compared to their starting points. Other quantitative data was also introduced to assist in identifying the impact, including:

- Positive Points – are calculated individually and by group, comparing students' performance on the quizzes and their running averages.
- Attitude to Learning Scores – these were recorded by teachers twice every academic year and include four possible scores from 1 -4. identifying a student's general attitude to their learning in that subject. 1 = excellent, 4 = unacceptable. These were used to help understand any changes in a student's attitude in lessons because of the STAD intervention.
- Predicted Grades – recorded by teachers in each subject and calculated using mock assessments and in class tests.
- Final Business Studies A Level result – the final grades achieved in the summer by the students in the final public examinations.

- Attendance to Group Sessions – how many group sessions were attended.
- Attendance to Lesson Quizzes – how many lesson quizzes were attended.

For the observations and focus groups, the analysis and identification of emerging themes came through the coding of the focus groups and observation field diary. An example of this coding process can be found in Appendix F. These methods were then analysed together to collect themes to contribute to the research findings. For example, the findings from the focus groups were triangulated with the testing and quiz results to identify links and emerging themes.

3.15.2 Reliability and Validity

Validity can be described as the extent to which data has accurately measured what it was intended to measure and how accurately it can represent what it was designed to explain. Reliability, however, is concerned with how much we can depend on the data collected and whether we are confident that there would be similar results if the method of research were to be conducted again in similar conditions (Cohen et al., 2017).

To attempt a high level of reliability and validity in the project, it was important to consider the potential factors that might impact the integrity of each research method and formulate steps to mitigate these. When observing the groups, to limit the impact their presence had, the researcher attempted to appear and act as naturally as possible and not interfere with the group meetings. This included completing other work in the corner of the room and avoiding unnecessary eye contact or engagement with the group. It was hoped that this encouraged the groups to continue their meeting as normal.

The focus groups were voluntary, and students were provided with an information sheet before agreeing to be involved. In the information provided and at the start of each focus group meeting, participants

were reminded of the anonymity they had and that nothing said in the focus group would be used in any way to reflect the opinions of students or influence any predictions/ reporting of grades in the subject. The weekly quizzes were also very similar in nature and design to the common quiz approaches taken in lessons each term. It was hoped that this, along with the low-stakes nature of the quiz, would encourage students to complete each quiz without attempting to cheat. Students were also used to self-regulating any attempted collusion within lessons and are generally not averse to challenging attempts at dishonest behaviour between peers.

However, it is important to acknowledge the general difficulties of providing high levels of reliability and validity in action research such as this study. As (Burton et al., 2014) outline, when it comes to small-scale practitioner-based research in one's own setting, guaranteeing the validity and reliability of the data can be difficult due to the specific context of the research, which often involves conditions that are hard to control. Bassey (1999) instead recommends that validity and reliability are 'not vital concepts' of case study research. He instead suggests that those engaging with this type of qualitative research consider the level of trustworthiness of the data they have collected. As part of this suggestion, Bassey (1999, p. 76) recommends practitioner researchers consider some questions when reflecting on the level of trustworthiness their data analysis provides. Some of these suggested questions are explored below in relation to this study. By considering this point, the researcher was confident that the findings and corresponding analysis had an acceptable level of trustworthiness.

- Has there been prolonged engagement with the data sources?

The teaching researcher was heavily involved with the study and school, which suggests that they were well-engaged with the data and the student participants involved. This should have allowed the researcher to have a strong awareness of the students and their responses and behaviour in the focus

groups and observations. As an experienced subject expert, for example, the quiz assessments were marked accurately.

- Has there been a persistent observation of emerging issues?

This question refers to the suggested requirement to consider whether all emerging areas from the data collection have been sufficiently focused and either ignored or analysed. This action research was very much an advocate for noticing and welcoming unexpected outcomes. Due to this, a range of themes emerged through the data analysis process that were not ignored but considered and commented on where relevant.

- Has the raw data been checked with their sources?

The researcher conducted the observations and focus groups, avoiding the need to check with additional data collectors. The focus groups were also recorded using the IRIS software, allowing the researcher to rewind and check any data analysed.

- Has there been sufficient triangulation leading to analytical statements?

This study used a range of mixed-methods collection methods to strengthen the trustworthiness of the data. These included focus groups, observations of the groups, and the quiz scores completed in lessons. This allowed the data to be compared and linked as part of a broader analysis.

3.16 Positionality

Positionality is concerned with how a researcher's past experiences and values might impact their approach to the research project. As Thomas (2024, p. 24) states, research conducted through participatory methods, such as action research, does not escape the fact that the researcher can 'never be seen as neutral'. This statement attempts to highlight the fact that when a researcher is completing insider based researcher, such action research, this can be influenced by what they bring with them in terms of their values and beliefs, which will have been shaped by influences such as their own religion, gender, sexuality, historical location, race, social class and abilities (Holmes, 2020). These influences can

pose a potential danger to the validity of research findings, as they may result in skewed results or biased approaches (Ryan & Golden, 2006).

In response to this, Thomas (2024) argues that it can be essential for researchers to turn their lens inward to examine their influences and reflect on how they might affect the research conducted. This can be conducted in the form of self-reflection, and a reflexive approach to allow researchers to identify, articulate and critique their position within their research project (Holmes, 2020). Through this process of self-reflection and continuous fluidity, researchers can then hopefully mitigate their potential influence, improving transparency and validity as a result (Ryan & Golden, 2006). Understanding how your position can influence the work completed can also improve and enhance a researcher's engagement with their research study (Czerniawski & Thomason, 2025).

As a teacher-researcher in this study, this process of reflection on positionality was necessary, as a range of factors may have influenced the researcher's approach to both the methodology and the interpretation of the findings. This included the study been conducted in the researcher's school of employment, in a pastoral area they were responsible for, with students they teach and are directly accountable for their results and welfare. The researcher also brought their schooling experiences, not only as an educator but also, like many student participants, from a disadvantaged background. These personal and professional dimensions moulded their design and reflection on the research process. Zembylas (2025) argue that positionality statements should reflect on past experiences and anticipate how the researcher's identity might evolve during the research process. This stance aligns with the reflexive journal used in this study, which captured alterations in assumptions and relationships with participants over time. In the following sections of this chapter, we will explore some of the benefits and challenges of this position, along with the strategies adopted to mitigate the impact and maintain a reflexive stance throughout the study.

3.16.1 Potential Positive Impact

One of the main potential impacts of the researcher's position as a teacher-researcher is that the participants knew them well. As their subject teacher and key stage lead, they had built a strong relationship through significant lesson time and within the Sixth Form centre, including in corridors, break times, and year group assemblies. This should have assisted with trust and openness (Mercer, 2007), encouraging students to participate in the study and honesty when contributing to the data collection activities, such as the observations and focus groups. It was likely that the participants were also relaxed when the teacher-researcher conducted observations, as they had a strong relationship and were used to the teacher-researcher being present in study environments due to their role as subject teacher. The teacher-researcher's disadvantaged background may have positively influenced this relationship. The teacher-researcher would often talk about their struggles and situation whilst growing up, when discussing progress with students in meetings and assemblies. This might have resulted in the students involved in the study seeing the researcher as an inspiring role model, resulting in them potentially wanting to impress them and perform well in the intervention and subject overall.

Being a teacher in the school also allowed for enhanced access. This included not just the students in terms of the lesson quiz, but also arranging the student room to be used and the collection methods. One example was when arranging the focus groups. As a senior leader in the school, booking rooms and the IRIS technology were relatively straightforward, assisting with the efficiency of the data collection.

As someone who knew the student cohort well, including their strengths and areas for development, the teacher-researcher had excellent insider knowledge (Holmes, 2020) on the issues faced in supervised study. This allowed the teacher-researcher to understand what might positively impact this provision. This arguably assisted in selecting the STAD cooperative learning method, potentially improving the positive effect on student progress. Being a teacher and leader in the school also assisted with the action

research process and its cycle of observing, planning, reflecting and adapting (McNiff, 2014). This allowed the researcher to adjust where needed in real time as they completed the research as part of their everyday job in the school. For example, they were able to make adjustments to the recognition process, moving to a parental email instead of a year group assembly award, thus improving the intervention cycle in real time.

Finally, the researcher was not at the school to collect data as an external partner, but rather a permanent staff member who will continue to work with the school and the students after the research has concluded. This permanence and relatability should allow the teacher-researcher to move forward to improve the longevity and impact of this study intervention in the school in the long term.

3.16.2 Possible Risks

In addition to the potential positive impacts of the teacher-researcher positionality on the study, there are also several risks to consider and mitigate. As Mercer (2007, p. 7) states, one's position in action research can often be a 'double-edged sword'. While it offers enhanced access and insight, it can also be plagued by several risks, including the potential for bias and distortion through assumptions. This section will outline some principal risks of the teacher-researcher positionality within this study.

3.16.3 Interpretation and Bias

There was a risk of confirmation bias from the teacher-researcher when analysing the data collected. As the researcher was also the teacher, there was a risk that they purposefully looked for positive data to support the intervention of STAD, and omitted data that could have suggested it was ineffective. This was further impacted by the researcher's past research experience, where they had implemented STAD successfully in a previous study (Forth, 2014). This might have resulted in a skewed data interpretation in the findings, presenting a more favourable view of STAD in supervised study than was warranted.

3.16.4 Power and Authority

Being the student's teacher and pastoral lead could have caused an unfair power dynamic, negatively affecting the study. For example, when participating in the focus groups, students may have given answers they felt the teacher-researcher wanted to hear. This pressure to please the teacher-researcher may have impacted the honesty of the responses, potentially impacting the validity of the research findings. The observation data may have been affected in a similar way. As the teacher-researcher conducted them, students may have behaved differently, as opposed to a natural, usual group meeting. This is a common consequence of observations, initially found in research into factory worker behaviour by Elton Mayo (Smith, 1987).

This power dynamic may have also posed ethical issues regarding student volunteering. Students may have agreed to the study due to the teacher-researcher's power and influence as their teacher and key stage lead, responsible for their welfare and academic success. They may have felt, for example, obliged to take part for fear of repercussions or becoming out of favour with the researcher.

3.16.5 Assumptions and Conflicting Roles

As the researcher was from a similar disadvantaged background to that of the student participants, there was the potential for them to make unfounded assumptions within the data collection, potentially adding meaning to something that is not there. For example, the researcher may have viewed student behaviour through the lens of their own past, making connections to why students behave in such a way. This could also come from the researcher's gender and experience working with students. They might have approached the data with a prejudiced view of why males do not like group work and prefer to be outside, potentially failing to appreciate other potential causes or approaches. These assumptions can make separating the teaching profession and the research difficult, highlighting the importance of reflexivity in practitioner-led research.

3.16.6 Strategies to Mitigate the Impact of Position

As outlined, there were some potential risks of the researcher's position within the research that could negatively impact the interpretation of the data in the study. It was therefore important, when reflecting on this, that how these risks could be mitigated should be carefully considered. This section will provide an overview of the main strategies implemented to enhance transparency, support critical reflection and safeguard students.

3.16.7 Reflective Journal

One of the most effective ways to reflect on your positionality as a researcher is to complete a reflective journal, which can allow a researcher to remain aware of their progress and their thinking (Kemmis et al., 2014). A reflective journal allows the researcher to write their reflections regularly over the research period. In this study, the researcher wrote in their reflective journal each week. The writing was intended to be an open reflection where the researcher could note their thoughts and reflections from the week's activities. The example journal extract in Appendix H demonstrates this process, with comments from the researcher including 'being their teacher who knows them has been useful, but it is hard not to let my opinion of some of the students from past lessons impact the way I put meaning to things. I need to let the data drive the analysis as much as possible' (Appendix H). This reflective approach made the researcher aware of their position when reflecting over the research period, resulting in clearer decisions and an improved awareness of their position's impact on their interpretation of the data. As was found by Atweh et al. (1998) at first, the journal was a collection of isolated incidents and reflections; however, over time, it became a sound source of reflection and the basis for discussions with critical friends.

3.16.8 Critical Friend

Advice states that when choosing a critical friend in research, they should be someone who is constructively critical and can give confidential advice (Kemmis et al., 2014). It is recommended that this academic critical friend has an established, strong relationship with the researcher and a record of

working well with schools. For this study, the headteacher of the school fit these requirements well. Over the research period in this study, the researcher could discuss their research at length in weekly meetings with the school's headteacher. The headteacher acted as a critical friend, and allowed the researcher to reflect on their positionality and discuss this with a trusted colleague. This provided a welcome challenge at times, which enabled the researcher to gain an insight into any assumptions or confirmation bias, improving the data analysis as a result.

A critical friend was also found in the role of the research supervisor. It is not the supervisors role to try and prevent or inhibit a student's interest or passion for a specific area of research in their own school however, it is their role to try and ensure that their research students have explored and reflected on how their assumptions might impact the research data and to try to make sure that they do not miss in, a research sense, 'what is in front of their noses' (Kamler & Thomson, 2014, p. 75). Supervisors can encourage a flexible approach by asking critical questions during meetings. These questions included, for example, how do you ensure the students know it's voluntary?

3.16.9 Planning for Data Collection

The data collection methods were planned in advance. This included the focus groups, where the initial questions were planned, giving the researcher a structure for each session, reducing the risk of posing leading questions. At the start of each focus group, a verbal statement reminded students of confidentiality, that the focus groups were voluntary, and that they could withdraw without repercussions. The observations were also non-participant in nature, with the researcher working in the room quietly, as they had done previously in the usual school setting. As opposed to a more explicit, participatory observation style, this hand-off approach should have had less influence on how students behaved in the group meeting with the researcher present.

3.16.10 Video Recording

The use of the IRIS lesson recording software also assisted in reflecting on the researcher's position and reflexive stance. The use of this software is explored in the methodology in section 3.13.2. The video recording software was used to capture student reactions and body language primarily, and an additional level of analysis was added to the data when analysing student perceptions of the intervention. However, this facility also provided the researcher with the opportunity to review their own approach to the focus groups, including the tone in which questions were asked and whether there was any behaviour the researcher or participants demonstrated that might have indicated that participants were, for example, under any increased pressure or uncomfortable. After reviewing the footage through this lens, the researcher was satisfied that the focus groups were appropriate, and students were relaxed while participating.

3.16.11 Providing Ethical Clarity

Much of the identified risks highlight the potential power dynamics between the researcher and the students involved, due to the researcher's role as teacher, researcher and pastoral leader. Part of this risk was the potential for students to feel obliged to participate in the research and to give responses they believed the researcher wanted to hear. To mitigate this, the researcher implemented several reminders and prompts over the research cycle to ensure students were aware of their options and the research project's purpose. One example was when reviewing the permission forms at the start of the project, the researcher reviewed these documents in person with students in lesson, providing extra clarity where needed and encouraging students to ask questions about the research and their role. At the start of each focus group, there was also a clear verbal reminder about consent, outlining to students that they can withdraw without repercussion. Some students who initially signed up for the focus groups did not attend, which was not an issue and was not followed up on in any formal way. This should have resulted in those who did take part being aware of the voluntary nature and encouraged to give honest responses.

3.16.12 Reflexive Stance

As highlighted above, it was crucial that in action research such as this one, where the researcher was also heavily involved as a teacher and school leader, the researcher had a reflexive stance and was able to use the strategies identified to be responsive and encourage a consistent awareness of their dual role and positioning in the research.

The strategies adopted were essential in this process, particularly the critical friends and reflective journal. For example, in Appendix H, the following statement was made: 'Again, I need to be careful not to let this student's experience in the lesson drive conclusions too much. She has agreed to the focus groups, so I hope she attends the next one so I can learn more about her reflections on the STAD meetings (Appendix H). This demonstrates how valuable this reflection was for the researcher, who was reflecting on their position and was aware of their potential biased approach. This example was then discussed at a later date with the headteacher as a critical friend, where assurances were given to the researcher and plans made to refocus on the data provided rather than past opinions. Developing the ethics process, including the additional information and reminders supplied to the students, should have also improved their understanding of the research project and assisted with their approach to the intervention.

3.17 Ethical Considerations

When completing an action research process such as this that involves the learning of others, McNiff and Whitehead (2005) state that ethical considerations fall into three categories: negotiating access, protecting your participants and assuring good faith.

Negotiating access is gaining permission from those involved and the establishment's leaders where the study will occur. This included a comprehensive information sheet that was provided to both the head teacher at the school and the participants involved (Appendix A and C). These information sheets detailed

the purpose of the study and how the data was to be processed. They also outlined the contact information of the researcher and the supervisor, along with the steps participants could take if they wanted to withdraw from the study. It was also made clear that if the student participants did not consent to be involved in the study, this would not impact their grades or the teacher-researcher's opinion of them in any way.

The information sheet was verbally discussed with the whole group in a lesson as an additional step. This allowed participants the chance to ask any initial questions and allowed the researcher the opportunity to clarify any points detailed on the information sheet. The head teacher and participants were also asked to give their permission using a clear consent form (Appendix B and D). Part of the consent form included a section where participants could indicate whether they would like to be involved in the focus groups throughout the study. Copies of both the information sheet and the consent forms were provided to the head teacher and the participants. This is in line with recommendations made by Bera (BERA, 2024) on responsibilities to participants, who highlight the requirement to ensure participants are as fully informed as possible.

Protecting participants involves ensuring that the welfare of the students involved in the study is put above everything else. Part of this is securing the anonymity of all of those involved. In all transcripts and data, student names were replaced with letters in order of the alphabet (e.g., student A). The school's name and identifying details were also omitted from any study analysis. Security of sensitive data is of the utmost importance (Burton et al., 2014). All files involved in the study were kept on a password-protected school IT account at all times. Video files from the focus groups were also protected using the IRIS software cloud service, with all downloading facilities removed. Participants also had the right to withdraw from the study at any time, and their information would be destroyed. Contact details and the

process followed were detailed in the information sheet provided. This level of security and anonymity is also recommended by BERA (2024), who suggest the protective means adopted in this study.

Assuring good faith is also an important step in ethical considerations, as this can 'let people know you are trusted' (McNiff & Whitehead, 2005, p. 34). This can include acting with integrity and consistently demonstrating respect. As the teacher of the participants, the researcher built a strong working relationship with the participants over the last year. The researcher always attempted to be respectful to the participants throughout the study, and at various points, the participants were praised and thanked for their involvement. It was also important to regularly remind the participants in person of the ethical considerations made, including how their data was to be used and their rights to withdraw at any time without repercussion. This level of open and honest transparency is welcomed and encouraged in the ethical guidance provided by (BERA, 2024).

Other ethical considerations involved the collection methods directly. One consideration was the content of the focus groups and what might be disclosed within them. For example, there was the potential for a student to confidently state something in the focus group that is then shared by other students outside of the room with others not involved. To avoid this, there was a clear agreement at the start of each focus group that reminded students of the confidential nature of each meeting. This included an explicit instruction that the information discussed in the focus group was not to be shared anywhere else. An example was also given as a small role play to put the reminder in context for the participants.

There was also the possibility that in the focus group, something was disclosed that may highlight a safeguarding risk. In the BERA (2024, p. 25) managing disclosures section, the guidance includes that if the researcher deems that information shared by participants is likely to be harmful to the participants,

they may decide that disclosing student details is necessary and report to the relevant organisation and authorities. It also recommends that researchers consult with their supervisors in these cases, which the researcher was able to do if required. As a teacher within the school, the researcher was also experienced and well-trained in safeguarding matters and was prepared to follow the school's safeguarding policy if such a situation presented. This included reporting any concerns to the school's Designated Safeguarding Lead and taking advice from the school safeguarding team if needed. In addition to the above steps, it was also important to gain ethical approval from the university through the ethical approval process. This process involved completing the university's ethical approval application (Appendix H), where the ethical issues were identified and addressed in detail.

3.18 Research Limitations

With action research as a method of research, one limitation is that it encourages the crossing of formal boundaries (Cohen et al., 2017). Schools, in their nature, tend to operate in a formal hierarchical way, whereas action research promotes an informal, open, and collaborative approach. This formality, specifically the fact that the researcher was the participants' daily teacher and researcher, may have impacted the validity of the results findings. For example, in the focus groups, the participants may not have been truthful as they may not have wanted to tell their teacher everything they were thinking about the project. Observations of the groups may have also been impacted, as the student participants may have behaved differently with their teacher present in the room. As (Newby, 2014, p. 387) neatly states, 'we cannot get away from the fact that by just being there, even if we are not actively involved, we can affect what happens'. As well as their teacher, the researcher was also the students' head of year, responsible for their academic development, pastoral care, and behaviour. It is hoped that the trust and relationship the researcher had built with the students over their time in lessons mitigated this limitation.

With the primary quantitative method in the study a low stake, informal quiz, there was also the opportunity for scores to be invalid, as participants could have shared answers and potentially colluded as a group. The quiz took place in the classroom, with each question read out one by one by the teacher-researcher. Students were seated apart from each other as much as possible within the room. It is hoped that the culture of honesty built from previous quizzing in the classroom, along with the close monitoring of the lesson of students completed the quiz, maintained the integrity of the student data. If collusion was suspected, the researcher would have had a discussion with the students involved in order to investigate and decide on appropriate next steps/ sanctions. However, collusion was not suspected throughout the quiz cycle.

The research methods also relied on positive cooperation from the case study group. Students might not have agreed to be part of the research data set. There was also the potential for students to withdraw partway through the study, or simply fail, or forget to turn up to the group sessions or focus groups. Absence was followed up with students to ensure they were comfortable to continue, and any withdrawal requests would have to be honoured using the agreed procedures. Finally, it was important in the study to carefully consider the weight of impact given to the intervention. It was suspected that the cooperative group work and low-stakes quizzing that form the STAD intervention would have a positive effect on student attainment and motivation in the subject; however, there may have been other variables involved. One example might have been the level of individual revision students completed independently while being involved in the research study and the group intervention. This was explored further in the focus group sessions.

3.19 Collaboration with Others

As well as the teacher-researcher, other professionals within the school assisted with the research study. The other business studies teacher, who teaches the other half of the specification with the group, supported the study by discussing the project in lessons at various points and made explicit links to the group work taking place. As the group sessions took place in the Sixth Form area of the school, it was also logical to explain and gain support for the study from the Sixth Form pastoral team. This included informing the team in advance of when and where the group interventions were taking place, so they were aware and could remind students where needed. The weekly rewards were to be shared during the Sixth Form assembly time, so permission was required for this to take place. It was also prudent to share the findings of this study with the wider Sixth Form team, along with school leaders, so that suggestions can be considered further to improve the study provision for this key stage.

3.20 Chapter Conclusion

This study took place in a large secondary school, looking at the impact STAD might have on student motivation and progress. For this reason, an interpretivist approach was taken as the researcher-teacher was involved personally, and the study involved a social setting. As the study looked to address a specific issue the teacher-researcher faced in their everyday teaching practice, the study also fitted an action research approach well, particularly the trialling and cyclical approach of evaluating the impact, reflecting, and then adjusting the intervention.

The action research project used a mixed-methods approach to collect the data. These included observations of the group meetings and several focus groups held with several group participants, to gain an insight into how the groups worked together. The observations took a structured, passive participant approach, with the teacher researcher being present in the group meetings, with their presence known

to the group, observing student behaviour, including body language, tasks completed and communication. Observation data was recorded using a field diary in order not to be distracted, with contemporaneous jottings that were then written up shortly after each event.

Two focus groups were also held over the cycle with different representatives from the student groups. Focus groups were chosen as a data collection method due to their potential to explain why respondents behaved in a certain way and allow probing responses and reactions to gain further insight into how the group responded to the STAD intervention. These focus groups were planned in advance, with the clear goals of trying to understand the relationship between the group members over time and the impact the project had on the students' motivation to do well in the subject. The focus groups also started with a clear introductory statement to clarify the purpose and guidelines for the participants involved. The data from the focus groups was captured using the lesson video recording software IRIS, due to its security features and ability to capture words, but also facial expressions and reactions. The researcher themselves transcribed this data, identifying common themes and categorising them as they emerged using a constant comparative framework.

The third data collection method was the STAD weekly topic quizzes, in which students sat within standard lessons individually. These low stakes quizzes were designed to include a range of questions focusing on knowledge-based questions. Some of the questions were also interleaved and appeared in each subsequent quiz. These quizzes were common practice for the students who had used a similar style in previous lessons. The quiz performance data was then tracked on a spreadsheet that recorded student percentage scores, student averages and positive points. Positive points were calculated from the improvement students made on the quiz compared to the previous average score. Each week, these were recorded and totalled to calculate the winning group and performance summaries at the end of the cycle.

Other quantitative data collected included student Attitude to Learning Scores and attendance data for the group meetings and the quiz lessons. This supplementary data was used to gain a more in-depth picture of student progress and motivation and identify any links.

Reliability and validity of the data collected were also considered before the data collection schedule took place. Actions included the researcher attempting to work quietly in the room and not disrupt the groups in the observation. The focus groups were also well planned and voluntary, with clear guidance provided at the start for students around the guidelines to follow, including references to honesty. The quizzes were also held in the classroom, with the teacher-researcher having a clear overall view of the students completing the assessment to lower the risk of student collusion. Student groups were also seated apart from each other.

Care and consideration were taken regarding ethical issues, and actions regarding this focused on the three main ethical considerations for action research: negotiating access, protecting your participants, and assuring good faith. Access was negotiated and agreed upon through a comprehensive information sheet provided to both the participants and the headteacher of the school. This information guidance included a clear statement that the school or participant could withdraw at any time, without recourse to their grading or relationship with the teacher-researcher. This information was also verbally explained to the students involved to ensure they were clear about the research aims and to answer any questions they may have had.

Protecting the participants was also a crucial focus over the research study period. All names involved were removed and not included in the data analyses; instead, they were replaced with letters such as Student A. This included collection methods such as the field diary jottings. All data, including video files of the focus groups, were temporarily stored on the secure, password-protected school network and

were permanently deleted after being transcribed. Finally, assuring good faith from all of those involved was also important. This was encouraged through consistent professional behaviour from the researcher and an open support approach to the participants. For example, students were regularly reminded of their rights to withdraw, and the teacher-researcher often expressed their gratitude to the group for their involvement in the study. In the next chapter, the findings from the data collection are discussed in relation to each specific research question. Data from each method is analysed, and themes are identified and discussed.

4.0 Findings

In this chapter, the results from the data collection over the action research study will be reviewed, organised around the three research questions posed:

- To what extent is the STAD cooperative learning method effective within Supervised Study for improving student attainment?
- In what ways can STAD improve student motivation to achieve in an academic subject?
- What are the further challenges and benefits of the STAD cooperative learning method on student and Sixth Form practice?

The data will be analysed for each research question, with the main emerging themes identified. The data was collected from a range of quantitative data, including weekly quiz scores, attitude to learning scores, attendance, and student ability at the start of the intervention. Other data was sourced from the range of qualitative research methods used, including three group observations and two focus groups held with representatives from the student groups.

4.1 Research Question One: To what extent is the STAD cooperative learning method effective within Supervised Study for improving student attainment?

The groups consisted of a mix of genders and prior attainment levels, as shown in the student overview table below, Table 12. Six females made up 30% of the class population. At least one female was in each group except Group 4, which, due to timetables, was exclusively male. The potential impact this may have had on the group is considered further in this chapter.

Regarding student prior attainment levels, GCSE average point scores (APS) were used to assess the ability of each group at the start of the programme. The APS is calculated by taking an average of each student's GCSE 9-1 grades achieved in Year 11. The class average point score was 5.31, which in previous A*-E grades would equate to approximately a B/C grade at GCSE. Groups 1,3, and 4 were broadly in line with the class average prior attainment (5.35, 5.35, 5.33); however, Group 2 were significantly below average, with an average APS of 4.93, and Group 5 was above average with a score of 5.6. The STAD intervention adopted in this study focused on students' performance compared to their own individual average scores on previous assessments within the cycle. Because of this, students' ability should not have substantially impacted the progress measures used. However, the APS averages of each group were explored to assess whether there was a link between student ability levels and the improvement made in academic performance over the research period

In addition, it is important to note that the APS scores at GCSE level in 2020 were likely impacted by the national adjustments made in response to the impact of COVID-19 on school attendance and student learning (OfQual, 2020). As a result, in 2020, when the students in the study sat their GCSE examinations, the teacher-assessed grading system replaced formal public examinations that year with teacher-predicted grades. This resulted in grade inflation that year, for example between 2019 and 2021, the

percentage of grades 7-9 increased by 12%, following teacher predicted grades (BBC, 2021), which may have resulted in the inflation of APS and target grades for this group.

The most recent teacher predicted grades were also used as a comparative measure. This allowed comparisons between teacher predictions before the intervention and the predictions made after the project was completed. Predicted grades within the case study school at Year 13 involved subject teachers working in collaboration to approximate a predicted grade at the end of the programme using what is referred to as a 'basket of evidence', building on the work completed over the teacher prediction process of the Covid-19 response to review evidence such as mock exams, classroom and homework completion by each student to assign a predicted grade (Qualifications, 2021).

Group	Student Code	Gender	Group Av APS	Predicted Grade Nov	Attitude to Learning Score Nov	ATL Group Av
1	1A	M	5.35	D	3	3
	1B	F		D	3	
	1C	F		D	3	
	1D	F		C	3	
2	2A	M	4.93	C	3	2.75
	2B	F		D	2	
	2C	F		C	3	
	2D	M		D	3	
3	3A	F	5.35	D	3	3
	3B	M		C	4	

	3C	M		D	4	
	3D	M		A	1	
4	4A	M	5.33	D	3	2.75
	4B	M		B	2	
	4C	M		C	3	
	4D	M		C	3	
5	5A	M	5.6	C	3	2.75
	5B	M		C	3	
	5C	F		C	2	
	5D	M		D	3	

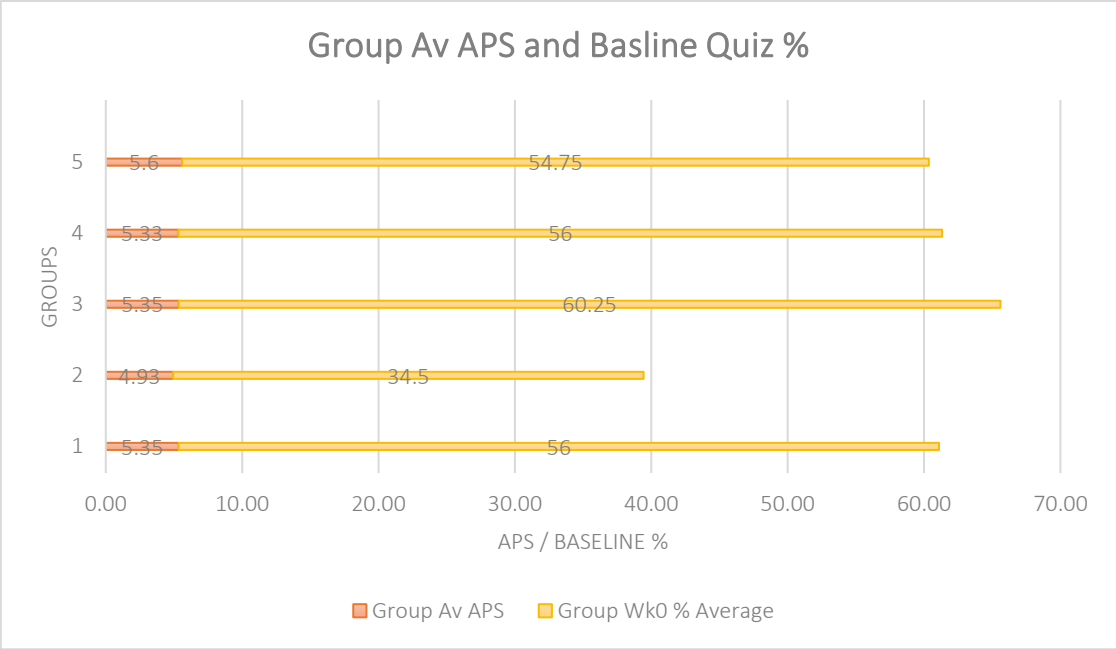
Table 7: Group Overview

The final benchmarking measure used was the Attitude to Learning Score, which was assigned before the intervention and then averaged per group. Attitude to Learning Scores were assigned by teachers in the school twice a year and, along with predicted grades, communicated to students and parents/carers through progress reports. The attitude to learning comes in the form of a 1-4 scoring scale, with 1=excellent and 4=unacceptable. Factors considered include student engagement, completed work quality, homework completion and willingness to help others in class. The class average ATL score following the intervention was 2.85, with most groups within 0.10 of the average, apart from groups 1 and 3 with a lower-than-average result of 3 (-0.25).

4.1.1 Quiz Score Baseline

At the start of the intervention, students were placed into the five convenience groups and sat the first initial baseline quiz. The quiz had 24 questions (50 marks) in total, covering the five pre-agreed topics from the A Level Business Studies Specification, which had been previously covered in the last academic year: Motivation, Financial Planning, Accounting and Ratios, External Influences and Decision Trees. This

baseline quiz was designed to collect a benchmark score for each student and group on their current level of overall subject knowledge. The class average for the initial quiz was 60.25%. It also suggested that Group 3 had the strongest level of background knowledge, with Group 2 having the lowest average of 34.5%.



Graph 1: Average Group % Score Week 0 Baseline vs Group APS

When comparing the group's average performance in the baseline knowledge quiz to their GCSE APS levels, Group 2, which achieved the lowest baseline score (34.5%), also had the lowest APS on entry of 4.93. This suggests that their ability may have impacted the lowest ability group's initial working subject knowledge. However, the baseline data suggests that this is not the case for the highest APS ability group, who were ranked third within the groups (Group 5: APS 5.35).

4.1.2 STAD Weekly Data

One of the fundamental elements of the STAD (Slavin, 1988) method is for students to work together but be assessed on learnt content individually and held to account individually. When following this ethos, the five-week quiz programme involved the following weekly steps:

1. Students completed learning materials as a group outside of lesson time in an agreed-upon meeting.
2. Students sat a knowledge-based quiz individually in the lesson at the end of each week. Each quiz was knowledge-based, assessing knowledge of the topic worked on that week in the group meetings.
3. Quizzes were marked, and students were awarded an individual % score.
4. Each student's % score was compared to the average score in the previous quizzes. If the student had performed better than their average, they contributed the difference to the group's positive points score for that week.
5. Group positive points were then totalled and ranked, with the winning group having the highest number of positive points.

As seen in Table 8, students were compared to their current average score and given positive points each time they improved on their average score. For example, in Week 4, student 1B performed 24% better than their average score taken across week zero (benchmark), one, two and three.

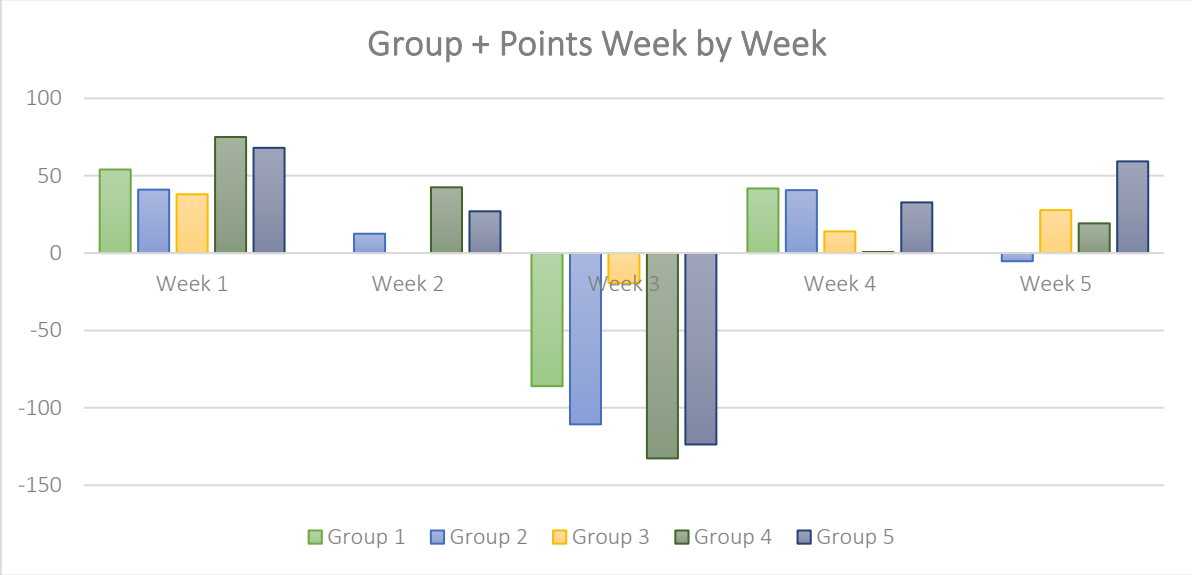
Group	Students	Quiz 4		
		Week 4 %	Points	Average
1	1A	-	0	53
	1B	60	24	41
	1C	55	8	49
	1D	55	10	48

Table 8: Sample Group Record from Week 4.

The score for Week 4 is then included in the running average compared to Week 5 the following week. It is also helpful at this point to note that not all students were in attendance for lessons when the quizzes were taken. These students did not receive a score for that week, so they could not record any positive points for their group over that period. This is explored further in the attendance section of this chapter.

4.1.3 Group Positive Points

Graph 2 shows the weekly positive points awarded by the groups each week. In Week 3, none of the groups contributed any positive points. This week covered the topic of 'Accounting and Ratios' and included mostly numeracy-based questions. The results of this specific quiz, including the resources and questions posed, will be explored later in this chapter. Week 3 posed an issue, as the positive totals method was not possible, so it was not possible to award a winning group for that week. However, as Group 3 scored a total of 20% less than their running average score in week 3, Group 3 won the recognition for week 3 as an alternative method to positive points totals. This week, then, did not contribute to the end-of-cycle totals, as no positive points were scored by any of the groups.



Graph 2: Group Positive Points – Week by Week

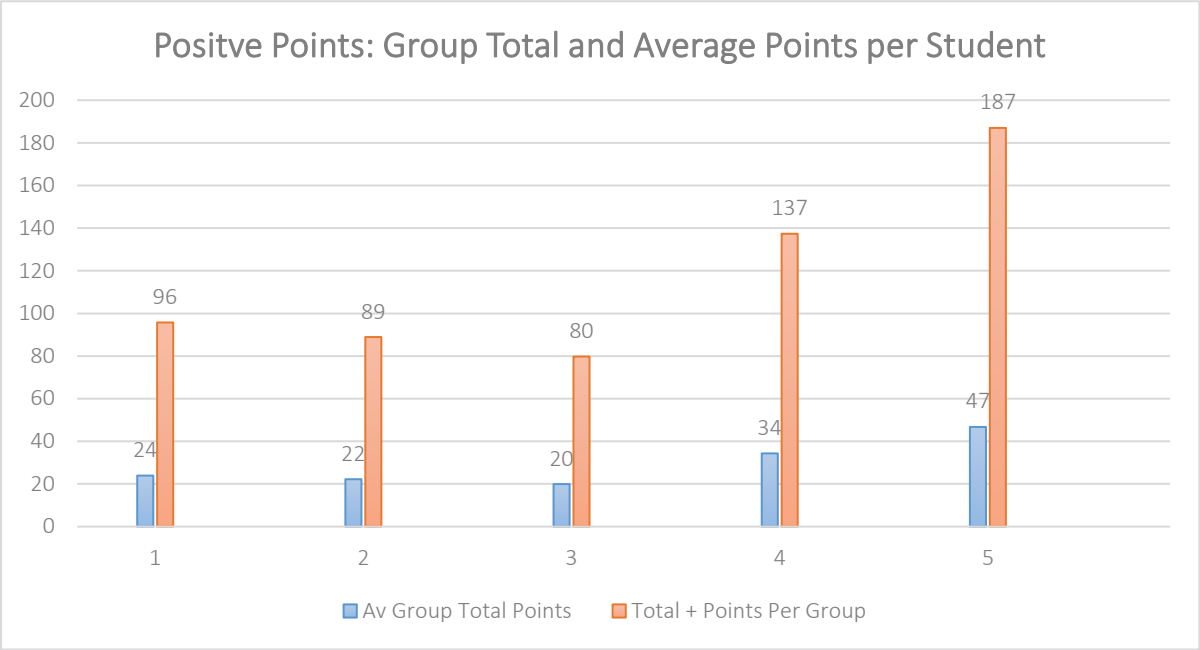
The groups over the weekly cycle successfully won an award, apart from Group 2. This can be seen in Table 10 below, which summarises the total group positive points each week, with the winning group highlighted in green. However, the progress data over the five weeks shows variable results for each group.

Group	Week 1	Week 2	Week 3*	Week 4	Week 5	Total Points
Group 1	54	0	-86	42	0	96
Group 2	41	12.5	-111	41	-5	89
Group 3	38	0	-20	14	28	80
Group 4	75	42.5	-133	1	19	137
Group 5	68	27	-124	33	59	187

**(alternative method used)*

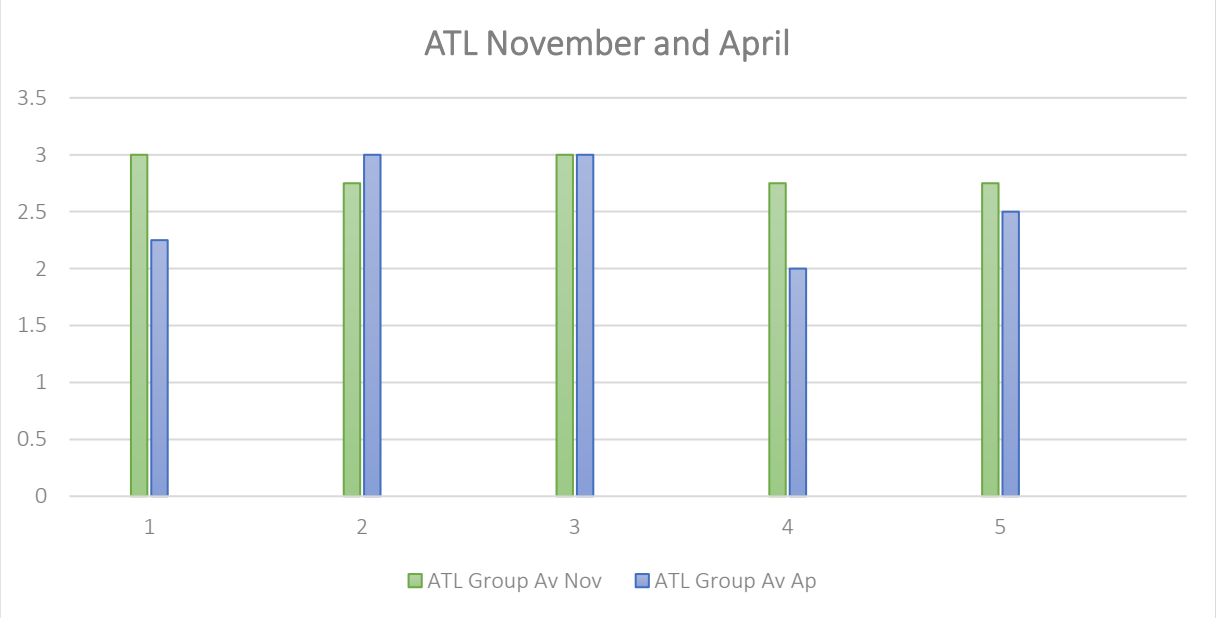
Table 9: Group Leaderboard

When reviewing the total number of positive points at the end of the five weeks, Group 5 was the group that made the most progress over the period (187 points), followed closely by Group 4 (137 points). Group 3 achieved the least number of positive points (80 points), with Group 4 achieving a similar score (89 points). This grouping appears to be a consistent trend across a range of data sets that will be explored throughout this chapter, as to why this difference existed.



Graph 3: Group Positive Points – End of Project

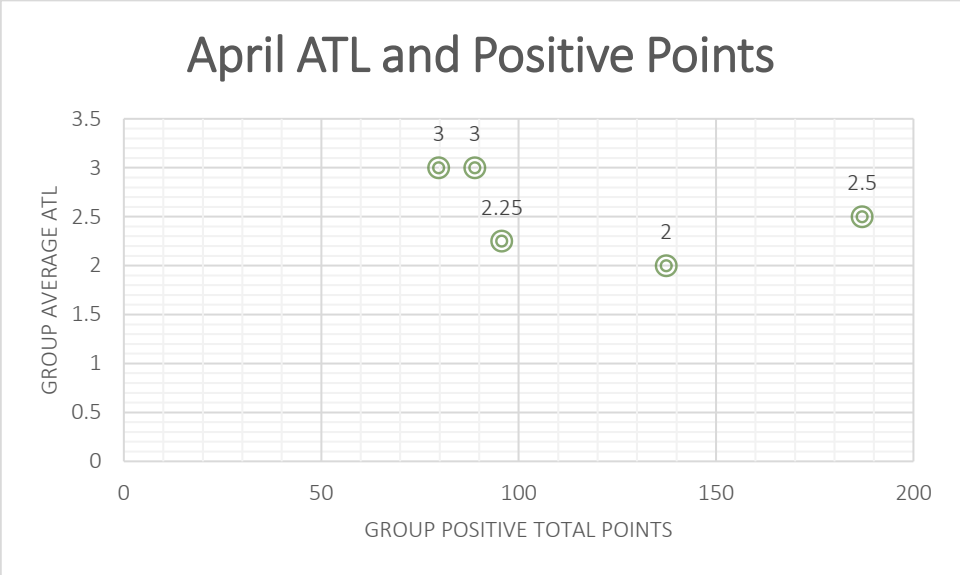
4.1.4 Attitude to Learning



Graph 4: ATL Comparison – November and April

When exploring the changes in teacher attitude to learning scores in November before the intervention, compared to April following the cycle, there appears to be a slight impact on the attitude to learning average score for each group compared to their starting points. Graph 4 displays that Group 3 remained at an average score of 3 ('compliant'). Groups 1, 4 and 5 had a lower score in April, with only Group 2

improving their overall average score. This is interesting as it appears to have a slight negative correlation compared to the positive points achieved per group. This suggests that the more progress each group made on the quizzes, the more their ATL decreased in score compared to their starting points. However, this is inconclusive as a possible trend, as it is important to consider that the ATL measure is explicitly calculated from students' attitudes, mostly in subject lessons. This comes with the possible teacher bias, and it is difficult from the data to draw any strong links regarding the intervention and its impact on teachers' views on students' learning in lessons.

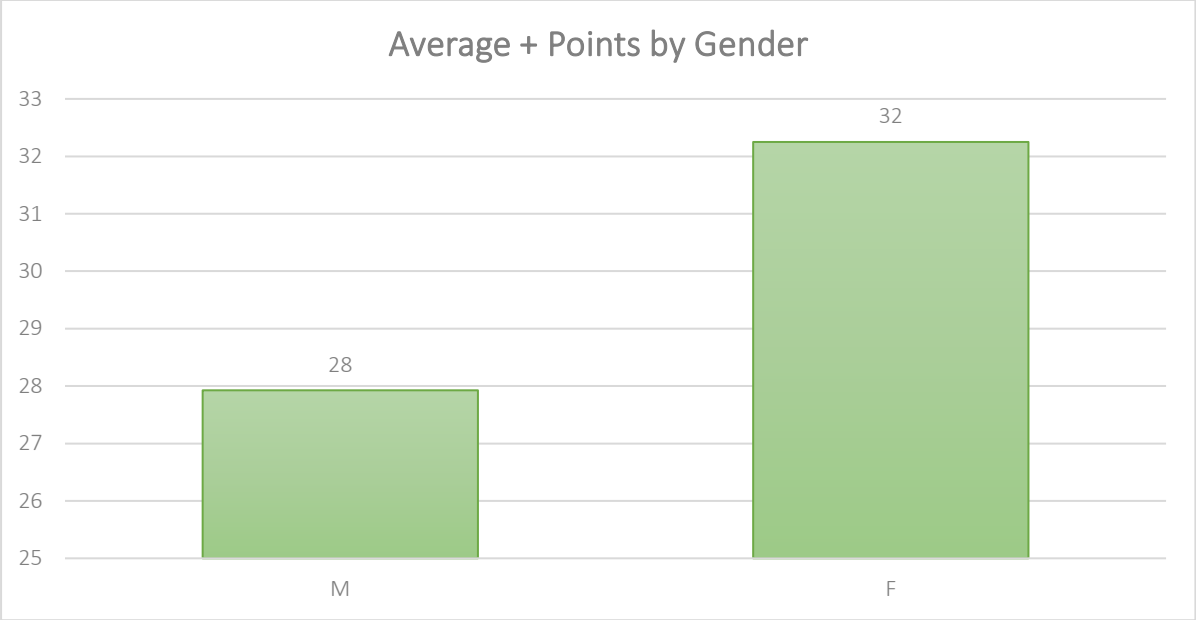


Graph 5: April ATL and Positive Points

However, when comparing just the April ATL score to the positive points accumulated by each group, the data presented in Graph 5 suggests that there is a correlation between the group's positive points over the cycle and the ATL scores the teacher awarded them after the intervention. Again, Groups 2 and 3, along with the lowest positive points, also achieved an average ATL score of 3 (inconsistent), with Groups 1 (2.25), 4 (2.0) and 5 (2.5) achieving a score close to 2.0 (good). It is, however, important to note that, as explained earlier in the chapter, the ATL score is subjective and comes from a range of considerations the teacher makes, such as engagement in lessons, homework completion and willingness to help others.

4.1.5 Gender

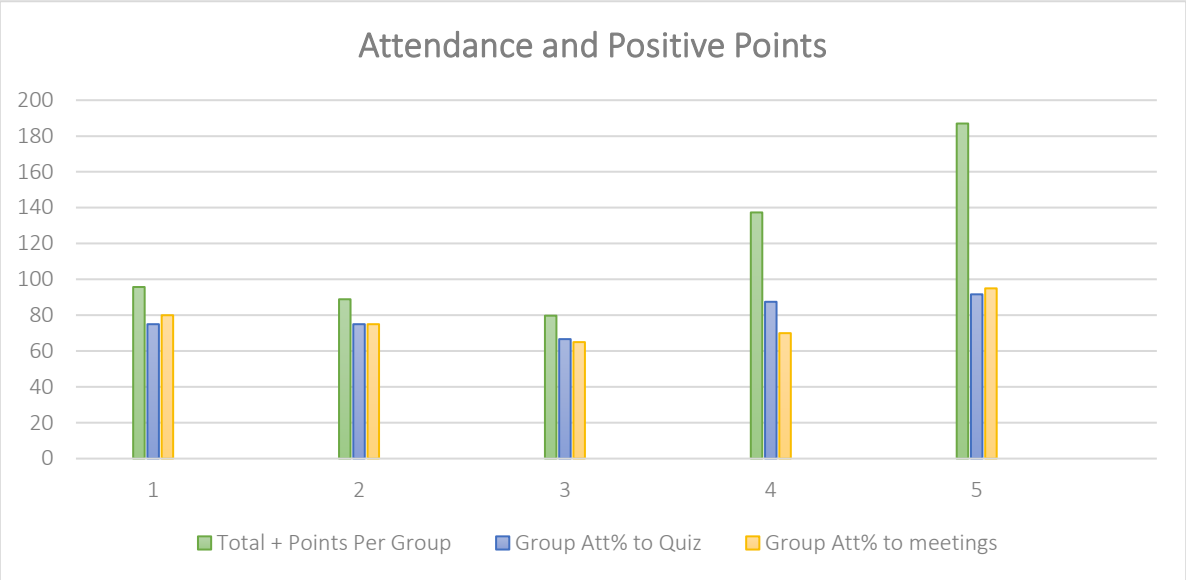
When comparing total positive points achieved over the cycle, the females within the groups made, on average, more progress on the quiz results (32) than the males (28). With the female students placed disproportionately within the groups, the impact on their motivation within the group will be explored further in this chapter.



Graph 6: Positive Quiz Points: Average Male and Female Scores

4.1.6 Attendance

There was a direct correlation between the total number of positive progress points made and the attendance at the group meetings and the quizzes at the end of each week. Graph 7 clearly shows that where there was low attendance, this equated to low overall points scored. Group 3, for example, had the lowest attendance and the lowest total points (80). Attendance at the quizzes appears to have impacted the students' ability to score in a particular week, preventing them from achieving any positive points. Attendance at the group meetings is where the impact appears to be the largest. For example, Group 5 had the highest overall group attendance at the meetings (95%) and the highest total positive points score in the quiz cycle.

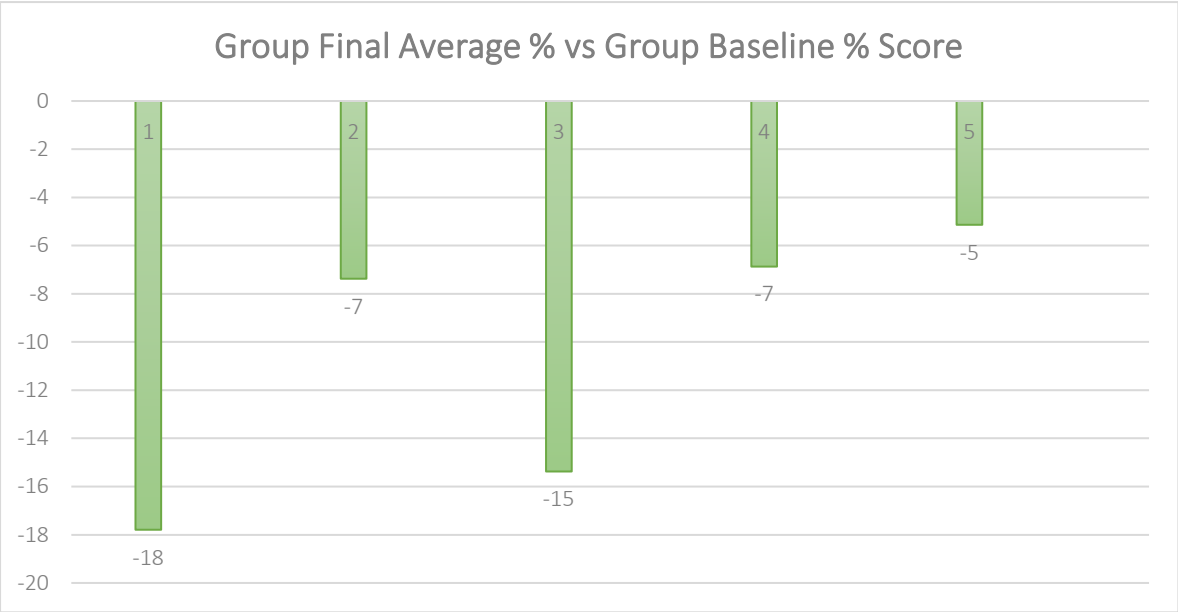


Graph 7: Attendance and Positive Points

Group 4's attendance also suggests the importance of attending the quiz lesson each week. Despite their attendance to meetings being lower than the other groups (70%) due to their quiz lesson attendance of 87.5%, they collected a higher number of positive points than other groups who attended fewer quiz lessons.

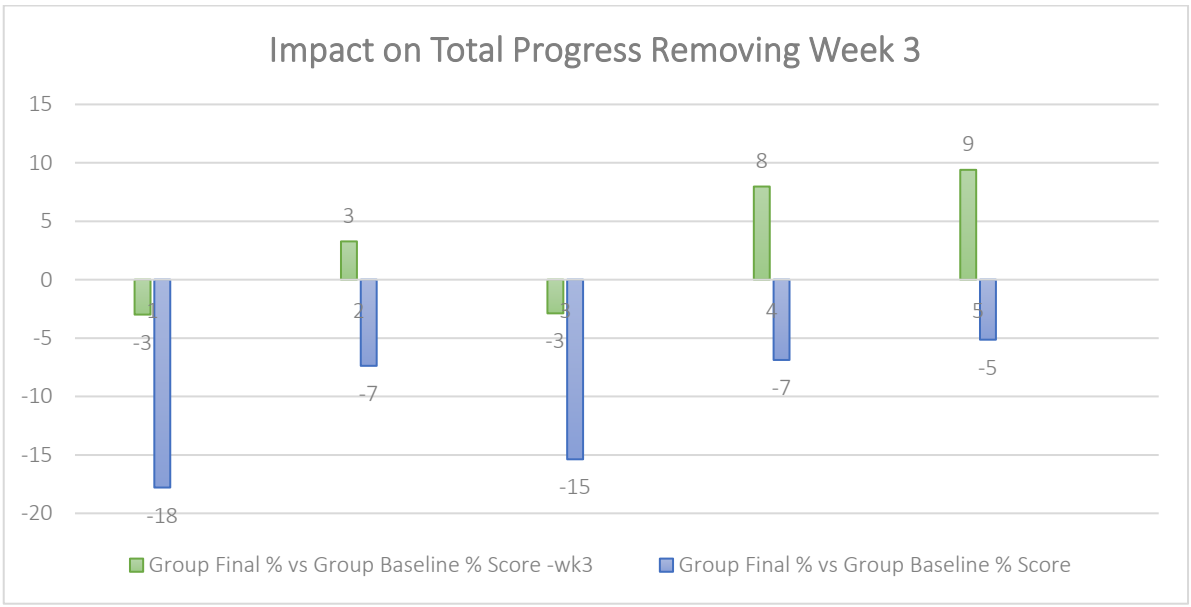
4.1.7 Overall Progress

When comparing the average quiz scores for each group at the end of the five-week cycle and at the start of the cycle on the baseline assessment, it initially appears that all five groups at the end of the process achieved a lower average score than when they started. This can be seen below in Graph 8.



Graph 8: Group Final % scores compared to Group Baseline %

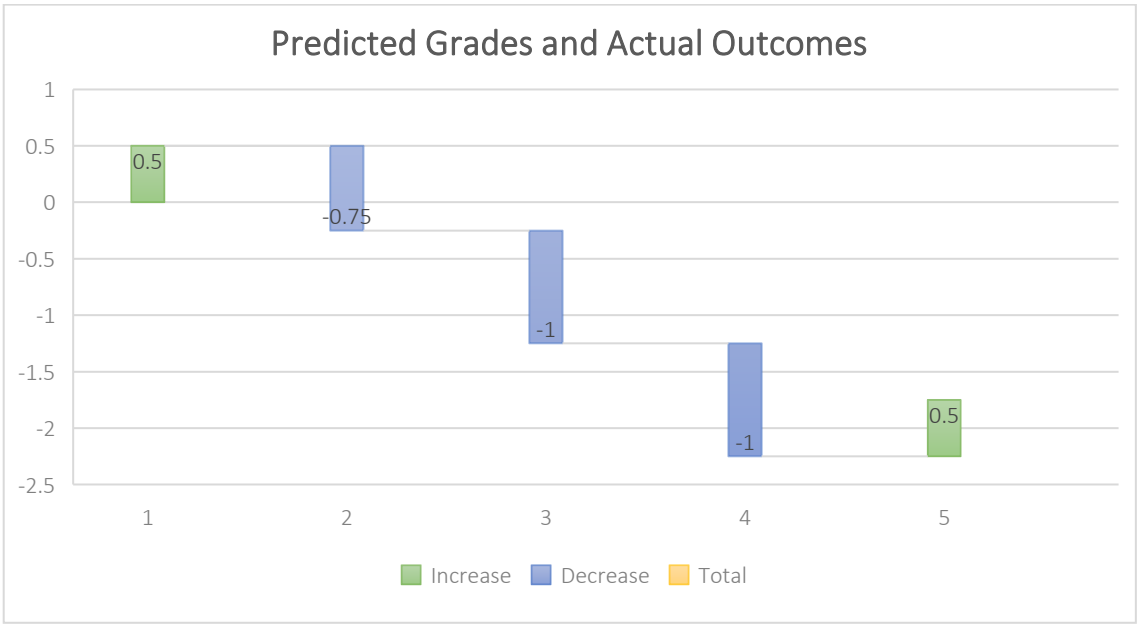
However, the cohort's relatively poor performance on Quiz 3: Accounting and Ratios significantly impacted these negative averages. When the average score for this week is discounted, Graph 9 shows that the groups made stronger progress overall, with three of the groups improving their average percentage scores at the end compared to the baseline quiz and the start of the cycle. The impact of Week 3 will be discussed further in this chapter.



Graph 9: Impact on Progress Removing Week 3

4.1.8 Wider Impact on A Level Outcomes

When comparing teacher predicted grades from the start of the project to the A Level outcomes in the summer, Graph 10 shows that results vary for each group. Groups 2, 3 and 4 performed on average one grade worse than predictions. However, Groups 1 and 5 performed on average 0.5 grades better than the initial teacher predictions in November. This provides a mixed response when compared to the positive progress points made by each group. However, Group 5, the highest achievers on positive points, improved their grade predictions and the lowest group on positive points, Group 3, did one grade worse than initially predicted by the teacher. This shows a possible connection between quiz progress and the grades achieved in the summer examinations. However, it is important to acknowledge that group intervention alone cannot be attributed directly to the difference between outcomes and predictions.



Graph 10: Predicted Grades and Actual Outcomes

4.1.9 Data Trends

Following the primary quiz information analysis and corresponding data, trends appeared that required further analysis and discussion. The findings from the focus groups will also be analysed to make any relevant connections to help explain the causes and meanings of the trends identified in this first section. The trends identified from the data analysis include:

- Week Three Anomaly – from the data analysis the quiz used for Week 3: Accounting and Finance, resulted in a marked underachievement of all groups and members. The possible reasons for these scores and their impact are explored later in this chapter.
- Group Performance Variability—Groups 3 and 4 made the most progress on the overall positive point measure (187/137). In contrast, Groups 2 and 3 achieved the lowest (89/80). Connections can be made between these scores and other variables such as initial subject knowledge (baseline score), group attendance to meetings/lessons, and the summer outcomes for each group. This will be explored further, using the focus groups and observations to identify possible additional causes of this trend.
- Gender Difference – female students achieved a higher number of positive points (12.5% higher on average) than male students at the end of the quiz cycle (32 Female, 28 Male). The next chapter will explore potential causes of this and how the inequality of female to male students within groups may have impacted the progress scores achieved.

4.1.10 Week Three Anomaly

The week three quiz was identified from the data analysis as an anomaly. The sole quiz score over the five weeks differed substantially from the other progress scores. The average class % score on Quiz 3 alone was 28%, compared to the average attainment % over the cycle of 42% (14% below the average). In week 3, zero positive points were attained by any of the 20 students within the class, demonstrating that none of the students could beat their previous average score. This is in comparison to the 42 average weekly class positive points over the cycle. The first thing to explore regarding Week 3 is the learning materials issued for students to complete in the group meetings, along with the structure of the quiz in comparison to others in the cycle. The quiz in week one had the highest average positive points across the five groups (18.4 average positive points), so it is used as a comparison.

4.1.11 Topic and Skill Level

The topic for week one was motivational theories (A Level Business Studies Theme 1). The work pack provided to each group required students to read and memorise features of the main motivational theories used in Business Studies. One example was an article covering Fredrick Herzberg's Two Factor Theory, a key motivational theory students need to be aware of for the A-level Specification. The article explores the theory with examples and diagrams, followed by the task: 'create your own diagram depicting Herzberg's Two Factor Theory'. Overall, the worksheets in the pack for Week One were similar in style and included reading, followed by a task requiring students to summarise an article or theory. This level of task would be classed as Assessment Objective A01 for the A Level Business programme, as it requires students to demonstrate knowledge of relevant concepts or theories, outlined below in Figure 7 (Pearson Edexcel, 2014 p. 4)

Students must:		**% in GCE**
AO1	Demonstrate knowledge of terms, concepts, theories, methods and models to show an understanding of how individuals and organisations are affected by and respond to business issues	20-22
AO2	Apply knowledge and understanding to various business contexts to show how individuals and organisations are affected by and respond to issues	22-24
AO3	Analyse issues within business, showing an understanding of the impact on individuals and organisations of external and internal influences	28-30
AO4	Evaluate qualitative and quantitative evidence to make informed judgements and propose evidence-based solutions to business issues	26-28
	Total	**100%**

Figure 8: Assessment Weightings, Edexcel A Level Business (Pearson Edexcel, 2014 p. 4)

In contrast to week one, week three's resources were notably more mathematical in nature. These skills are summarised as 'opportunities for students to develop these skills, and students are required to apply

these skills to relevant business contexts' (Edexcel Business Specification, Appendix 3). The complete list of the quantitative skills required for the A Level in Business Studies can be found above in Figure 7. One example of the resources used was in week three, where students were required to complete a financial balance sheet for the business 'Billy's Kebabs'. The difference between this task and the tasks common to the other weeks in the cycle is the requirement to learn a numerical skill/ formula and then apply it to a business context.

This suggests that the groups may have struggled with this level of numerical application when working in their group settings. This is supported by notes made from Observation Three, where the following notes were made:

They appear to not know how to start.

They look confused.

4B is working on their own, 4A is trying – does not know how to start. Keeps looking over at me nervously.

They are checking their answers which is good – but they all have a different answer...

The observation notes above suggest that the group observed that they found the tasks provided difficult to complete. Not only were the group attempting the tasks independently, but when they came together, they had a range of answers, potentially adding to their confusion regarding the topic. The group's approach to the meetings and their reflections on their ability to work together will be explored further in the chapter.

The corresponding quiz style used to assess the knowledge of the accounting topic from week 3 differed in its approach and design. Quiz One asked knowledge based A01 level questions, outlined in Figure 8 (Pearson Edexcel, 2014 p. 14) . Examples include Question 2: 'What was Taylor's first name? and Question 7: 'List the three Hertzberg's; finance factors'. Quiz Three did include some similar A01 level questions, such as 'define the current ratio', although approximately. 50% of the questions centred around the ability to apply learning to a given context (AO2). Examples include Q6: 'calculate the working capital for Biz' and Q17: 'calculate the return on capital employed for both years'.

Quantitative skill number	Quantitative skill
QS 1	calculate, use and understand ratios, averages and fractions
QS 2	calculate, use and understand percentages and percentage changes
QS 3	construct and interpret a range of standard graphical forms
QS 4	interpret index numbers
QS 5	calculate cost, revenue, profit and break-even
QS 6	calculate investment appraisal outcomes and interpret results
QS 7	interpret values of price and income elasticity of demand
QS 8	use and interpret quantitative and non-quantitative information in order to make decisions
QS 9	interpret, apply and analyse information in written, graphical and numerical forms

Figure 9: Quantitative Skills Summary – A Level Business Specification (Pearson Edexcel, 2014 p. 51)

Data from the focus groups supports the suggestion that the quiz questions in week 3 impacted the group's ability to perform. In Focus Group Two, the following conversation was recorded:

Mod: 'has there been any other benefits or limitations to the group work? Does anyone want to comment of last week's finance quiz for example?'

5B: 'I think it's just a hard topic in general to be honest. I don't think it's anything to do with the group work. I just think it's a hard topic, in general'.

3A: 'Erm, I made mistakes it mine in the equations and formulas and stuff. Like current assets and current liabilities, I got it all wrong'.

4B: 'I didn't do too bad on the quiz myself. But I think the structure of the balance sheet might have confused some people. I took for example the overdraft as a long-term liability, so included it as a non-current liability. So, I think that might have confused people. People added it as the wrong thing, I think. It was also quite a long time since we have done that topic in class, not since year 12'.

When discussing the Week 3 Accounting and Finance quiz, the students believed it was a topic they generally found difficult. Student 5B stated that the topic was just a 'hard topic in general', with student 3A perceiving that they 'got it all wrong'. Student 4B, on the other hand, identified the structure of the case study used in the quiz as a potential source of confusion. They also alluded to the time since the topic was covered as a class in general subject-based lessons.

4.1.12 Group and Individual Differences

From the initial data analysis of the weekly quiz results, it was identified that there were distinct differences in quiz positive points within the groups. This section explores some of the background information from the groups and how this might be associated as a potential reason for the differences in group progress made. To do this, Group 5 and Group 3 will be discussed at length. These two groups will form part of the further analysis because they are the groups with the highest and lowest positive points over the intervention period.

Group	Student Code	Gender	Total + Points Total	Av Group Total Points	Total + Points Per Group
3	3A	F	60	20	80
	3B	M	6		
	3C	M	0		
	3D	M	14		
5	5A	M	41	47	187
	5B	M	37		
	5C	F	72		
	5D	M	37		

Table 10: Summary Positive Points: Group 3 and 5

As shown in Table 10, Group 5 outperformed Group 4 significantly in the main progress measures. This includes total positive points (187 vs 80) and average points per student (47 vs 20). Part of this may be due to Group 5 having a slightly lower baseline average, which could have resulted in them making more progress from a lower starting point. Group 5 also came onto the Business Studies programme with a slightly higher APS score of 5.6 compared to the APS score of 5.35 in Group 3. There was also an interestingly similar gender makeup in each group, one female student and three males (Table 11).

Group	Student Code	Gender	GCSE APS	Group Av APS
3	3A	F	4.2	5.35
	3B	M	4.6	
	3C	M	4.3	
	3D	M	8.3	
5	5A	M	5.6	5.6
	5B	M	5.5	
	5C	F	5.4	
	5D	M	5.9	

Table 11: Gender and APS: Group 3 and 5

Group 3 also had the most variability in individual APS scores, with Student 3D having a distinctly higher than average ability on entry of 8.3 and Student 3A with the lowest at 4.2. This is discussed further in this chapter.

4.1.13 Attendance

Group	Student Code	Gender	Total + Points Per Group	Att to quiz %	Group Att% to Quiz	Att % to meets	Group Att% to meetings
3	3A	F	80	83.3	66.7	80.0	65.0
	3B	M		50.0		40.0	
	3C	M		50.0		40.0	
	3D	M		83.3		100.0	
5	5A	M	187	83.3	91.7	80.0	95.0
	5B	M		83.3		100.0	
	5C	F		100.0		100.0	
	5D	M		100.0		100.0	

Table 12: Attendance Summary Groups 3 and 4

Attendance at both the quiz lessons and the group meetings appears to have directly impacted the progress made by each group. For example, Group 3 only attended 66.7% of the quiz lessons compared to 91.7% attendance for Group 5 (Table 12). Students had to be present in the lesson to be able to take the quiz and contribute any positive points to their group. Attendance at the group meetings also appears to have been a contributing factor, with Group 3 having an overall 30% lower attendance at group meetings when compared to the attendance in Group 5 (65% vs 95%). This is the most significant attendance difference identified across the dataset. Attendance for Group 3 after the week 1 quiz decreased over time. In quiz one, 75% of the group attended the quiz lesson, but zero positive points were achieved. Attendance is referred to by a member of Group 3 in Focus Group Two. When asked how the group work is going, Student 3B makes the following comment:

'No one wants to sort the meeting out. I see them in the study room, but no one bothers. But I'm happy to just do my work with someone else you know.'

The group meeting attendance for Group 3 was affected the most by students 3B and 3C (40% attendance each to the five meetings). In Observation Two, the following notes were recorded on members of the group:

Only 3A and 3D present this week – why?

Students 3B and 3C seen outside shouting and kicking the football – why are they not in here?

3A and D don't look shocked – look at me, smile for a moment, and carry on talking.

In contrast, Observation Three with Group 5 witnessed 100% attendance of group members. This supports the group's overall high attendance, with three out of the four attending 100% of all group meetings. The motivations of these students will be explored further in this chapter.

4.1.14 Student Attitude and Approach

The way students approached the meetings varied between the groups, particularly Group 3 and Group 5. From the observations and focus groups conducted, the data suggests that the approach impacted the overall progress made by each group. For Group 3, responses from student 3D in Focus Group One included:

'I still feel like we just sort of get on with our own thing, and just like, in that first session, I was trying to like be cooperative and help out where I could, but like the second one it was just like getting on with your own thing and trying to do the work.'

'With the group at the minute, I feel like I would make the same progress alone than I would being in the group so. It does still give me the focussed time to work on Business.'

'It's always the same sort of thing. I try to help where I can, but erm… like… it feels like it's just like me giving answers.'

These reflections from 3D were interesting as they suggest that the student initially attempted to work with the group. However, it appeared that as the meetings progressed, student 3D felt like it was just them 'giving answers' to the others and felt like they would have made just the same amount of progress

working independently. This was supported in Observation One, where the observer witnessed Student 3D attempting to help their group peers by sharing their own answers to one of the worksheets.

Student 3D entered the process in Group 3 with an average GCSE point score of 8.3, compared to an overall group average of 5.35, placing them significantly above average compared to the ability level of their group. This may have been one reason they felt like they were often helping the others in the group. In contrast, student 3A within the group had a lower-than-average APS score of 4.2. When it came to reflecting on their ability to progress and understand the resources within the group meetings, they made the following comments:

'I mean some of the resources are useful, it's like recapping but, erm. Like for what we need to revise but some of it is just not helpful, and I don't understand it.'

Student 3A also had thoughts about the group dynamic in Group 3 and, in the same focus group commented:

'No one seems bothered in my group. So recently I went to Group 1 to work with 1B, going through the workbook with her and I am in the same study room as her – her group also try and meet'.

3A's response suggests that as the project progressed, the members of Group 3 began to lose initiative, so much so that 3A decided to informally join Group 1. It is also interesting that the single female from Group 3 joined another group to work specifically with the female from Group 1. Overall, the responses suggest that those who attended the meetings had contrasting approaches and reflections on the group work in general. Student 3D came in with a higher attainment level, understood the resources provided, and found that they ended up giving answers to their group, which they felt did not assist them with their learning. Despite this, they contributed 14 points over the cycle to their team's total.

In contrast, 3D appeared to find the resources difficult to understand and came into the programme with a lower-than-average APS. Despite this over the period, they contributed the most positive points towards their group's total score (60 points). The difference in motivation between student groups will be explored further in this chapter. Group 5, in comparison, had a more positive and consistent approach to working as a group. This can be suggested from student 5B's response in Focus Group 2 to how well they think the group work is going:

'I think in the group meetings, everyone can bring in their own contributions, so they can bring in their own revising techniques, and erm their own knowledge to the table.'

5B's response appears to suggest that Group 5 was able to contribute their own knowledge and contribute to the meetings. This suggestion was also supported in Observation Two, where Group 5 were seen working well together in one of the meetings:

'Good working'

'5C taking the lead, asking each student to read a section each.'

'Working in silence – 7 mins.'

'Sharing learning with each other, agreeing and correcting answers.'

However, when in the focus group, student 5B reflected on the usefulness and time available in one of the meetings. For example, in focus group 2, they comment:

'So, like the first week we erm, we took it in turns and read one paragraph each, so we did that, but I don't think it was efficient enough in the time we had to erm really revise all the topics.'

This suggests that despite Group 5 actively participating in the group meetings, at times, the ways they planned the meetings and the time available may have been limited factors.

4.1.15 Gender Differences

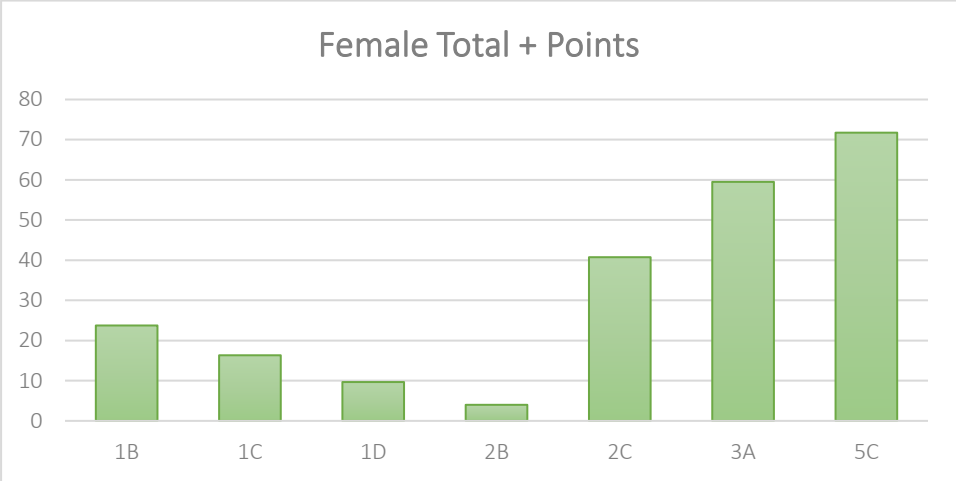
	No.	Av APS on entry	Av total + Points	Av Final % Score	Att. % to Meets	Att. % to Quiz	ATL Apr
Male	13	5.48	28	47.70	73.85	79.49	2.46
Female	7	4.92	32	30.68	82.86	78.57	2.71

Table 13 Gender Data Summary

Earlier in this chapter, it was identified that females outperformed male students in progress made over the cycle, with a total average of 32 positive points achieved, compared to 28 points by the males. When looking at the range of data sets for gender (Table 13), this notable improvement in progress appears to correspond to the attendance to group meetings, which was 9.01% higher for the female cohort (82.66% / 73.85%), which follows a similar overall pattern when looking at attendance links to positive points. The female students entered the programme with an APS score of 4.92 and achieved a lower attainment % score at the end of the cycle. This suggests that their improved progress scores were possibly not attributed to their higher ability or attaining higher scores than their male counterparts. Their attitude to learning score averages from April were also lower than that of the male students, and their attendance at the quiz lessons was similar. This suggests that there was no particular influence of this result from the statistical benchmarks used in this study, apart from potentially the attendance at the group meetings by the female students.

However, when looking at the individual scores of the female students along with the focus groups and observations, a pattern does appear to emerge. As Graph 11 below displays, there was a wide range of positive score totals at the student level in the female cohort, with the lowest being 4 and the highest 72. The two highest scoring female students, 5C (72) and 3A (60), made the most progress in positive points across the whole cohort, with the third-place male student, 4B, achieving 59 points. It appears that this is the primary reason why the small female cohorts' average positive points over the cycle are slightly higher than those of the males. At this level, it is also clear to see that within the female students as a group, there were distinctively low positive points achieved over the period by some female students. This

includes student 2B (4 points), which will be explored further in the context of student motivation further on in section 4.2.



Graph 11: Female + Points Student Level

4.1.16 Summary

In this chapter, the data collected from the quiz cycle is displayed, with connections made to other data sets such as attendance and gender, with emerging themes then identified and discussed where relevant. Before the cycle began, students came into the intervention with a mixed level of ability when looking at their prior GCSE APS scores, and students also performed variably on the benchmark assessment. Several links were made, such as the link between the least positive scores and teachers' attitude to learning scores, showing a correlation to classroom attitude and progress points achieved. Broadly speaking, students who also performed well on the intervention progress points also went on to improve their grades in the public exams in the summer.

Overall, all groups improved their quiz performance compared to the benchmark quiz at the start of the process. However, the accounting topic focus and corresponding quiz design used in Week 3 appear to have resulted in a significant underperformance of the cohort compared to the other topics and assessments used in the intervention. The numerical focus and increase in application questions in Week

3 appear to be a potential cause for the underperformance, along with students finding that particular topic within the specification a difficult one.

Attendance also appears to have directly impacted student progress, both in the group meeting and the quiz lessons. For example, when comparing the highest and lowest groups in terms of positive progress points achieved, their attendance is correlated. The data suggests that the more group meetings and lessons attended by the groups, the better progress they made on the quiz performance each week.

There were also differences in performance compared to gender. The female cohort overall performed better than the males, with an average positive score of total group score of 32 compared to 28 for the males. However, the female cohort was much smaller (7) compared to the males (13). At a student level, there was also a large range of performance, with two females making up most of the positive scores, and one female student significantly underperforming compared to the rest of the cohort (4 points). This suggests that even though it appears gender had an impact, there are influences at a student level that may be the cause of this difference in performance.

These individual differences are explored further in this chapter as we start to look at students' motivation within each group. Attendance to the meetings for example and how the group meetings were approached requires an exploration into some of the potential causes of why students attended when they did and why students behaved in particular ways in the group meetings. To do this the next chapter focuses on student motivation at a student level and attempts to add meaning to the data collected.

4.2 Research Question Two: In what ways can STAD improve student motivation to achieve in an academic subject?

In the last chapter, the data regarding progress was analysed, with several trends identified, including the link to attendance of meetings and lessons. In this chapter, individual student examples are explored in the context of student motivation and how the levels of motivation and approach of students may have impacted the progress made in the quantitative measures, including positive progress points and average attainment on the weekly knowledge-based quizzes.

4.2.1 Approach to Group Meetings

As was explored earlier in the first research question chapter, the data suggests a clear link between student attainment and progress in the weekly knowledge-based quizzes and their attendance at group meetings and quiz lessons. This could potentially be influenced by the student's motivation to achieve over the intervention. For example, Student 5B, who attended every group meeting and 100% of the quizzes over the cycle, commented in Focus Group Two:

5B: 'I have gone to every one of them coz I want to do well in the exams for uni'.

Group 5 had the highest positive progress points over the cycle, which suggests that this initial desire and motivation to do well and achieve a strong grade in the subject may have influenced the effort put in by Student 5B and the group achieving the highest overall score.

4.2.2 Positive Approach

Another way to explore the potential motivation levels of the participants within this study was to review their approach to the intervention and the group meetings that formed the central part of the STAD cooperative method. From the data collected, it appears that the participants' individual approach to the group meetings impacted the progress they made in the quiz results over the cycle. For example, in Observation One, the following notes were made in relation to Student 3D:

'3D is trying to take the lead and is talking the questions through with 3A'.

'3D is now just working well in silence on the worksheet. Looks to be working hard with head down'.

Student 3D achieved a 62% final average percentage, which was the second highest in the cohort. This suggests that the participant attempted to work well in the group meetings, which included putting in effort and trying to help others in the group setting. This suggests that the participant was motivated to do well over the period demonstrated by their hard work in the sessions. Some of the students also appear to have prepared for the meetings as a group in advance, with Student 5B making the following Focus Group comment:

5B:' I looked at the resources in House Tutor before the main meeting because we have independent prep time once a week in that time'.

Preparing for the session by looking at the resources for the meeting in advance may have demonstrated a high level of initial motivation from some students, contributing to their success.

4.2.3 Negative Approach

On the other hand, some students across the cohort had a different approach regarding attendance and concentration in the group meetings. From the data collection, the information gathered from Students 3B and 3C was particularly interesting. These students firstly had a marked issue with attendance at both quiz lessons and group meetings. compared to their group averages (Table 14), both students attended 16.7% fewer quiz lessons and 25% fewer group meetings. It is useful to note that the two students attended the same lessons and meetings, which may have some explanation in their previous relationship as peers before the intervention began.

	Attendance % to Quiz	Attendance % to Meetings
3A	83.3	80.0
3B	50.0	40.0
3C	50.0	40.0
3D	83.3	100.0
Group Av	66.7	65

Table 14: Attendance Summary

In addition to attendance, these two case study students also appeared to struggle with punctuality when it came to remaining in the group meetings for the entirety of the sessions. For example, in Observation One of Group 3, the following side note was made by the researcher:

'Approx 5 minutes after I leave to the staff office, I see 3C and 3B walk past the window, they have left the group meeting after 20 minutes.'

In addition to this, when observing the same group, the following week in Observation Two, the two students did not attend at all, with the following notes made:

'I can see 3B and 3D outside playing football on the grass – why are they not in here?'

From the observations, it can be suggested that these students were not motivated to attend the sessions, as demonstrated by them leaving one meeting early and deciding not to attend the next and playing football together instead. These students' initial motivation level can also be explored from their actions when attending the group sessions.

'3B attempting to appear professional – 'ok guys, I'm going to take the lead on this', everyone laughs.'

'3C on his phone, not sure what he is doing but does not look to be doing the answers.'

'3C and 3B look bored and stop working – take phones out and start to scroll together.'

From the observation conducted of Group 3, it appeared that Students 3C and 3B did not have the desire to work hard in the meeting. After several minutes, the two students decided to move from the work to using their phones together, whilst 3D attempted to help 3A with the worksheet, whilst all four students were sitting at the same desk. This was despite Student 3B starting the meeting by stating that they would 'take the lead' in the meeting, which was met by laughter from their peers in the group. Students 3B and 3C were in the group (Group 3) that at the end of the cycle achieved the least overall positive progress points, and these students contributed a total of 0 (Student 3B) and 6 (Student 3C).

4.2.4 Perception of Value

As the cycle progressed over the six weeks, students' perceptions and opinions of the value of meeting as a group began to become clearer. Students who suggested they found it useful included students from Group 4, who made the following comments in Focus Group One:

4D: 'So, so far so good sir, errm, the tasks are quite simple and very understandable, and we just get on with it. They are good. And the groups are erm fine as well yeah.'

4B: 'Yeah, I would say that they are pretty much useful. So, like if you don't understand something you can just ask anyone else in the group. We have done this quite a lot already at times.'

4D: 'Its extra revision, some stuff that I may not know the others may know so I just ask them, and they help me so yeah'.

Student 4D appeared to find the tasks straightforward to understand and commented that when they did not understand something, they were able to ask and receive help from others in the group. This is supported by student 4B, who agrees in the focus group and states that asking for help was already something that had been done within the group meetings. This perception of the meetings being of value was also echoed by student 5B in Focus Group Two, commenting:

5B: 'I think in the group meetings it is good, everyone can bring in their own contributions, so they can bring in their own revising techniques, and erm their own knowledge to the table.'

These comments suggest that some students did find the meetings valuable when it came to students supporting each other and helping with misunderstandings. This may have contributed to the groups' success for these students (Group 4 and Group 5), who achieved the top two group positions for overall positive points (187/147).

4.2.5 Helping them, not me.

However, this perception of the value placed on the group meetings was variable across the student cohort, with some demonstrating a lack of perceived value the meetings could have on their progress. One group that appeared to question the value the meetings had on their own progress were those with generally higher than average ability (high Average Points Score). From the focus groups and observations, Students 3D and 4B provide useful insight into the value placed on the meetings with their groups. These students came into the intervention with higher-than-average APS scores (Average: 5.31) of 8.3 (Student 3D) and 6.2 (Student 4B), which were the highest individual APS scores in the cohort. The main issue both students appear to have had around the meetings was their perception that they were helping others in their group rather than themselves due to them helping peers who were struggling. This was gathered from Focus Group One, where the following comments were made by 3D and 4B:

3D: 'It's always the same sort of thing. I try to help where I can, but erm… like… it feels like it's just like me giving answers. So not really helping me.'

4B: 'I'm like 3D, I'm normally the one that helps the others.'

3D: 'I feel like the majority of the group with me I just work through the sheet and then get asked to pass my sheet around with the answers on. So…'

This theme of these students assisting others in the meetings was supported in Observation One and Two where the following observations were made of Student 3D:

3D is trying to take the lead and is talking the questions through with 3A.

3C and 3B ask 3D what he has put, and he is giving the answers to them.

In the observations that took place of Group 3, it was clear that Student 3D was making strong progress on the materials provided and was making active attempts to assist others from the group, especially Student 3A. However, this assistance at times included the sharing of answers, which was also commented on by student 4B in Focus Group One, which as the student commented, might not have been a helpful process for their own learning and progress.

4.2.6 Meeting together, working alone.

There were also several comments and observations made that suggest that some students, even though meeting with their group, used this time for independent work rather than working effectively on the materials together. This is suggested by the comments made by Student 3D:

3D: 'With the groups its sort of, I still feel like we just sort of get on with our own thing, and just like, in that first session, I was trying to like be cooperative and help out where I could, but like the second one it was just like getting on with your own thing and trying to do the work.'

3D: 'For me it's more so the independent study time it gives me. With the group at the minute, I feel like I would make the same progress alone than I would being in the group so.'

From the comments made, it appears that 3D found the meetings useful to complete work independently, rather than benefitting from working together as a group unit. However, from the observations of Group 3, 3D was observed at times, working with and assisting Student 3A in explaining theory and sharing answers.

4.2.7 Confusion

One possible factor that may have impacted student motivation and progress could have been confusion around the structure of the work set. For example, student 3A, who was involved in the focus groups and observations, appeared to be confused at times regarding how to complete the work set and struggled to complete the resources. For example, in Observation One, 3A was observed:

3A looks lost and is clearly struggling. She also now writes the answers from 3D.

As a result of struggling with the content within the first meeting of Group 3, Student 3A then resorted to copying the answers from her peer Student 3D. This confusion continued into Observation Two a week later, however in this meeting there was an attempt from Student 3A to improve their understanding of the topic:

3D attempting to help 3A with the question, she is really struggling.

Think 3C now get working capital – she responded, 'with oh ok I get it now'.

From the observation that took place within the group meeting, 3A appeared to put in more effort in this particular meeting, using the guidance from student 3D to aid her understanding of the finance topic, working capital. However, from the focus group's two conversations, it appears that student 3C overall did not feel confident in their ability to understand the weekly materials. For example, when asked how they feel the meetings are going in Focus Group Two, they responded:

3A: 'I mean some of the resources are useful, it's like recapping but, erm. Like for what we need to revise but some of it is just not helpful, and I don't understand it.'

3A: 'Yeah, I just didn't get some of it.'

3A: 'I think we could do with some more guidance and what to do in the time as a group.'

This lack of understanding could have contributed to the student's initial ability and understanding of the subject in general. For example, they entered the subject with a prior attainment APS of 4.2, which was the lowest in the cohort. They also scored 33% on the baseline quiz, placing them in the lowest 10% of the cohort for initial knowledge of the topics covered. This could have contributed to the student's misunderstanding and confusion around the themes each week. However, what is interesting is the progress over the cycle that student 3A made. Over the cycle, 3A contributed a total of 60 positive points to their group, which was the highest amount by any single student. This suggests that despite feeling confused, the meetings and assistance provided by group member 3D appear to have had a substantial impact on the progress made by the student. It was also interesting that student 3A attributed their misunderstanding to the guidance the groups received on how to approach the content in the meetings. The impact of the group's ability to work and the training received will be explored further in this chapter.

4.2.8 Group Dynamics

Past relationships and the group's ability to communicate also appear to have had an impact on the members' motivation to succeed. The groups were set based on convenience, grouping the members by when they had corresponding available time at school. Due to this, groups varied not only by gender and ability but also in current friendship groups. As a result, some students were placed in groups where it was the first time they had worked with each other. Other groups had more of a history, with some social friends being grouped together due to convenience. In both circumstances, the data suggests that relationships had a negative effect on communication within groups and students' motivation to work together effectively as a group.

4.2.9 Friendship Groups

One example of student friendship groups was the example used previously with Students 3B and 3C. As they were close social friends before the intervention, and this connection was apparent in the data collection over the cycle. For example, both students attended only 40% of the group meetings and only

attended together. Both students were also observed in Observations One and Two, leaving the meeting early and missing another meeting to play football socially outside the meeting. This suggests that the students lacked motivation to attend the group meetings, but also that their friendship had an impact on their attendance at the group meetings. Within the meetings, this relationship was also a contributing factor to their level of concentration. For example, in Focus Group One, Student 3D makes the comment:

3D: 'Sometimes the group don't really listen or take part.'

In Observation One before the students leave the meeting early, the following notes were made:

3C and 3B ask 3D what he has put, and he is giving them the answers.

3C and 3B look bored and stop working.

This lack of effort shown by the two students as a collective appears to suggest that their friendship may have negatively impacted their effort and motivation within the group intervention. In a different context but in the same group, social relationships appear to have also been an issue for Student 3C, who was also included in the analysis above due to their apparent confusion regarding the topics and materials provided for each meeting.

3A: 'No one seems bothered in my group. So recently I went to Group 1 to work with 1B, going through the workbook with her and I am in the same study room as her and they try and meet as a group.'

3A: 'I would just say they can't be arsed is what I would say. No one wants to sort the meeting out. I see them in the study room, but no one bothers. But I'm happy to just do my work with someone else I know you know.'

At some point over the cycle, it appears that Student 3A decided to move groups and work informally with Student 1B. This seems to be due to Group 3 not arranging the meetings or being motivated to complete the work in the meetings. This is supported by Student 3D, who in Focus Group One comments:

3D: 'There is not any issues with like the relationships within the groups, there is no issues that way but maybe like confidence and communication is the biggest thing.'

There also appears to have been an issue with 3A's desire to work with someone they were more familiar with (Student 1B). Again, this suggests that some students' relationships in the past influenced their ability to make substantial progress within the group meetings. The two examples above come from the lowest scoring group, Group 3. However, this was not the case for all groups. The highest performing group, Group 5, did not know each other as friends before the intervention, but did have positive past experiences with each other. This was suggested from the comment made in Focus Group Two by Student 5B:

5B: 'Our group weren't friends, but we have always been friendly with each other in sixth form.'

4.2.10 Desire for Similar Ability

Another factor that appeared within the data analysis was the desire of some students to be grouped with peers of similar levels of academic ability. For example, in Focus Group One, there was the following discussion recorded between Student 4B and 3D:

4B: 'I think one way we could improve this is to if you make the groups next time with like the difficulty levels, like check who's on the same level, and so the groups that way.'

3D: 'Yeah, to build on what 4B said, you can do it based on ability but to make sure like you have said to not have just the highest ability all together, we could probably still mix it up a bit, to have it based of mixed ability, but make sure it's like, some similar levels so they can be like sort of challenges and we can work off each other and help each other sort of thing.'

As explored earlier in the chapter, these two students had the highest ability in the cohort when compared to the GCSE Average Point Scores. It is interesting how they appear to have preferred they be grouped with students of similar ability to themselves so that they can work 'off each other'. This suggests again that the higher ability students may have seen the benefits of working with students of lower ability and knowledge, and feel they may have worked more effectively with peers with similar ability levels.

4.2.11 Recognition

One of the main drivers of student motivation in the STAD cooperative learning method is the regular reward of recognition for the groups making strong progress. Recognition for the groups began at the start of the intervention as a weekly trophy that was awarded to the group that achieved the most positive progress points at the end of each week. This trophy was awarded to the winning group in their weekly key stage assembly in front of the Sixth Form student body and pastoral staff.

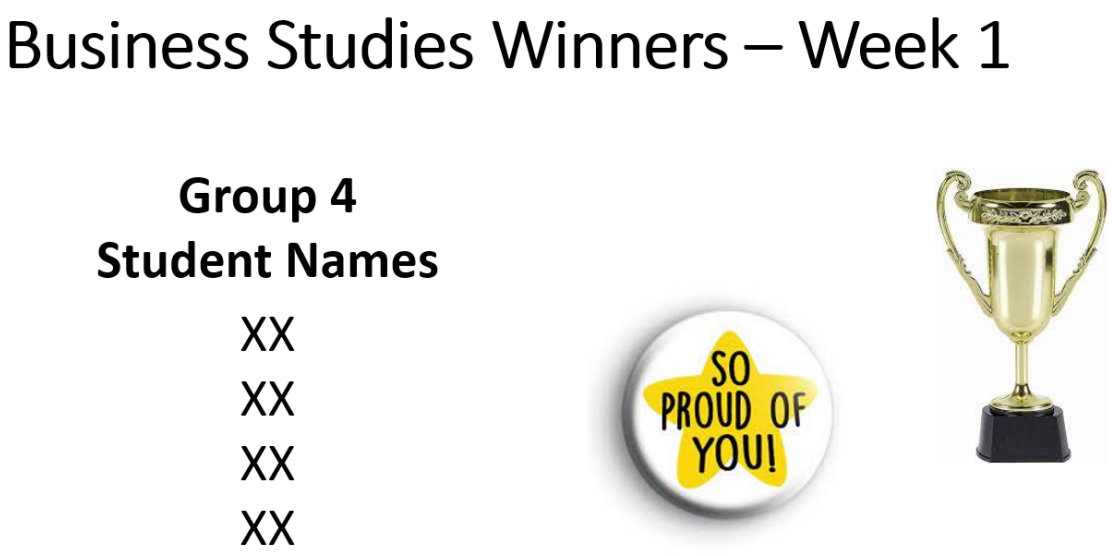


Figure 10: Sample Recognition Slide

A sample of the weekly recognition slide used in the assembly can be found in Figure 9. The group were also awarded a small plastic trophy. When asked in Focus Group One how it felt to win the most recent weekly award, Students 4D and 3D responded:

4D: 'It means we put our time to good use with the sessions so it kinda like gives you a little pat on the back yourself to know that the sessions are working. Made me feel good.'

3D: 'Even on like the smaller scale like when you see the change in score it gives you sort of like gives you a boost that the revision is working and makes you want to work a bit more.'

It appears from the responses that some students enjoyed winning the recognition, which made them 'feel good'. Student 3D developed this further and commented that improving their score motivated them to do more and allowed them to recognise that the revision and work they were completing had paid off. In addition to the initial weekly trophy and assembly notice, students in Focus Group One suggested that they would prefer acknowledgement of their success to be shared with their parents and guardians at home. When asked if the assembly recognition motivated the groups, students responded:

4D: 'I'm not really sure we all like it (smiling). Probably instead like a phone call home or a nice email explaining that you have done well (laughs).'

3D: 'I would like that recognition yeah. Maybe a letter too (laugh together).'

The apparent dislike for the assembly recognition may have been due to the age of the students in the study. Having their names displayed in front of their peers may have damaged their social status in the year group or caused some embarrassment. After reflecting on comments made in Focus Group One, the researcher responded to this feedback, and from Week 3, incorporated a weekly email to parents to acknowledge students when in the winning group for positive points (Figure 10).

Good morning, XXX,

As part of the preparation for the upcoming A Level Business exam, the class are currently working on a group project outside of lessons within their Supervised Study Time. The five-week project involves the students spending one hour per week working on revision materials as a group of four. Each week the students then complete an individual knowledge-based quiz within lessons. The group each week with the largest collective improvement in quiz scores wins the competition for that week.

This email is to let you know that XX and her group were the ***winners for last week (Week 4)***

It is great to see XX working hard outside of the lesson and using the group work to improve her progress.

Please do congratulate them at home.

Figure 11: Sample Recognition Email

Two weeks after the introduction of the email recognition, in Focus Group Two, when asked what the impact had been of the additional recognition email, Student 4B responded:

4B: To some extent because, it shows that the hard work is paying off, so I think yeah it does. When we won it felt good and my parents were happy.

This suggests that the additional email home did help motivate students when it came to the competitive element of the STAD intervention.

4.2.12 Summary

From the data analysis explored in this chapter, some key factors appear to have impacted the motivation of students in this study, and their progress over the group meetings. This included student relationships before the intervention, which appeared to negatively impact student motivation within some groups, including Group 3, which had a student who wanted to work with someone else in a different group and two students who, it appears, were motivated to not make an effort due to their friendship.

Students of a higher ability banding did not feel like the intervention assisted their own learning and progress, which is also supported by the data, which showed these students achieved well over the cycle, but due to maintaining high scores each week, found it difficult to contribute any substantial positive points. This limitation of the intervention will be explored further in the next chapter. However, it appears that the guidance and support these students gave to their struggling lower-ability peers within the groups positively impacted their progress. Despite some confusion from some of these students regarding the topics and content, they were able to make substantial progress over the period. Finally, the recognition given each week, including the addition of the email home to parents, appears to assist with motivation for some students to want to do well in the quizzes and receive positive praise from parents and guardians at home.

Overall, the data suggest that where these factors were positively impacted, students appeared to have an increased level of motivation and made strong progress. Conversely, where these factors were negative, progress was limited. The main benefits and challenges of the intervention are explored in the next chapter.

4.3 Research Question Three: What are the further challenges and benefits of the STAD cooperative learning method on student and Sixth Form practice?

Earlier in the findings section, the impact of the group STAD intervention on the quantitative measures was identified and explored, including looking closely at several variables over time. This included results on quiz scores each week, attendance to quiz lessons and group meetings, attitude to learning scores and final grades on public examinations following the research intervention. The chapter went on to investigate some of the possible driving motivations behind the data, exploring both the observations and focus groups conducted to make linkages to the data and student motivations over the cycle.

This final section of the findings aims to summarise the main benefits identified from the data analysis of the STAD intervention, bringing the previous sections of the chapter together. It also explores some of the potential limitations to the intervention that were identified, along with possible issues when viewing this STAD intervention as a potential method for further use in the Key Stage, as a contributor to potential wider standard practice for Sixth Form supervised study periods.

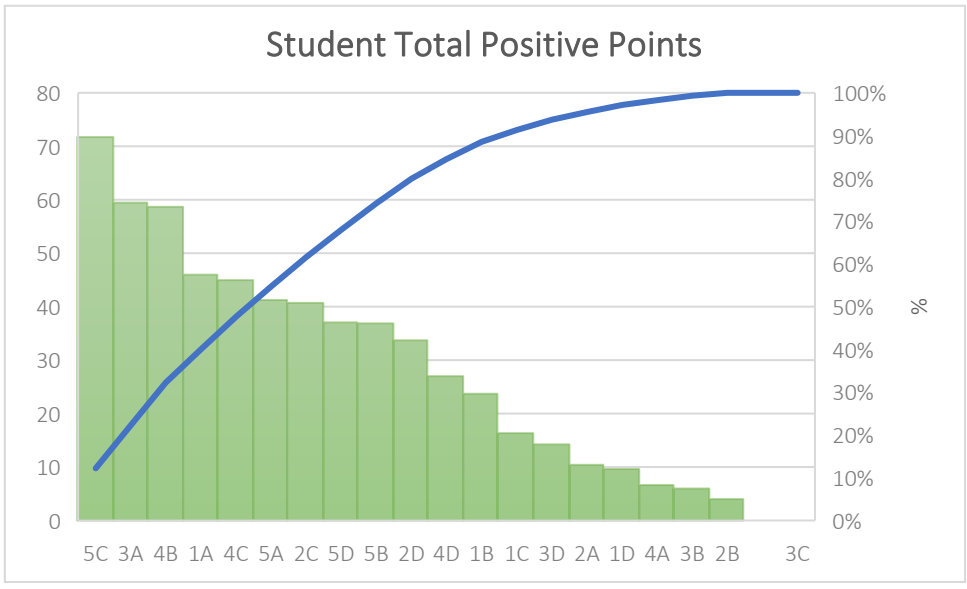
4.3.1 Benefits

From the data collection, the intervention appears to have had a number of benefits for students who took part. This includes an overall increase in progress in knowledge-based quiz assessments, with some students making substantial improvements to their progress and attainment measures over the five-week cycle. This appears to have come somewhat from work completed as a group in each meeting, including

from higher ability students offering guidance and assistance to others. The recognition used each week also appears to have assisted in motivating students to want to do well over the cycle.

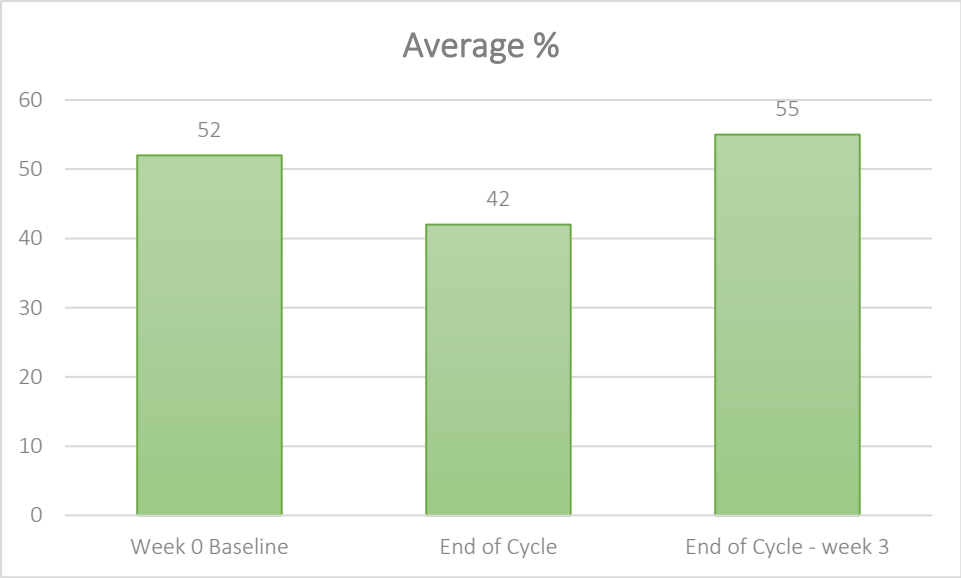
4.3.2 Student Progress, Attitude and Attainment

Progress was measured over the study in positive progress points each week. In a particular week, if a student improved on their own running average % score, they contributed the difference as positive progress points to the group totals each week. For example, in Week 4, Student 1C achieved 55% on the weekly quiz. As their average % score for the previous assessments stood at 47%, the student contributed 8 positive progress points to the group total for that week. For example, In Week 4 Group One achieved a total of 42 positive points, winning the group competition and recognition for that week. Over the five-week cycle, each student scored a total average of 29 positive points, indicating an improvement in progress across the student cohort overall. However, it was wide ranging at a student level. In Graph 12 below, the wide difference in positive points is demonstrated, with the highest student total of 70 points and the lowest 0 points.



Graph 12: Student Positive Points in Order

Collectively the students made a total of 589 positive points over the five-week cycle. Despite the cohort making clear progress each week on their own average scores, actual average attainment scores for the students at the end of the cycle compared the baseline quiz score was lower.



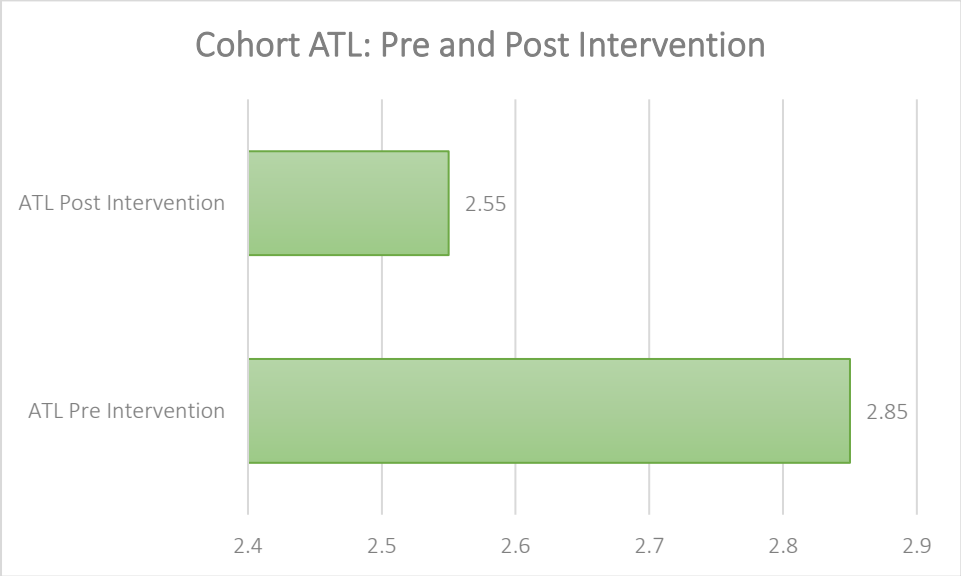
Graph 13: Summary Group Attainment

This can be seen in Graph 13, with the average baseline quiz attainment score at the start of the cycle at 52%, compared to an end of cycle average score of 42% (-10%). However, this could be explained by the carrying level of difficulty of each quiz and the fact that the final score required strong attainment on a total of six quiz assessments, possibly making it harder for students to improve on their single initial baseline score. There was also the issue of the Week 3 finance content, where all students and groups failed to make any positive progress points. This week's low scores make a substantial difference to the final average score. This can be seen in Graph 13, which shows that if Week 3 quiz results were discounted, students would have scored an average final percentage score of 55% (+3% than baseline). Finally, student attitude to learning (ATL) scores given by the teacher to a cohort also improved following the intervention cycle. The ATL descriptors can be found below in Table 15 and are awarded by teachers, encompassing student effort and behaviour in class and completion of set homework.

1	2	3	4
Excellent	Good	Satisfactory	Unacceptable

Table 15: ATL Descriptors

Graph 14 below identifies that before the intervention, the cohort received an average ATL score of 2.88. Following the five-week cycle, this average improved to 2.55, suggesting that the STAD intervention had a positive impact on teacher perception of the cohort and their attitude to learning within lessons.



Graph 14: Cohort ATL: Pre and Post Intervention

4.3.3 Students Helping Students

Another apparent benefit yielded from the STAD intervention is that some higher ability students assisted lower ability peers from within their groups, potentially allowing them to make increased levels of progress. This, for example, was witnessed several times in the observations of Group 3, where Student 3C was found to be assisting Student 3C on two separate occasions. Examples of assistance provided include reading through the materials together, sharing answers and providing explanations of the theory within the materials. One example of this was in Observation One, where it was noted:

3D is trying to take the lead and is talking the questions through with 3A.

In Observation Two, the following was also recorded:

3D attempting to help 3A with the question, she is really struggling.

Student 3D also refers to this assistance offered when asked in Focus Group One, where they commented:

3D: 'I was trying to like be cooperative and help out where I could'

From the data, it was identified that this assistance offered in the group meetings by 3D appears to have impacted the progress made by the student receiving the additional support (3B). Over the cycle, Student 3C achieved the most positive points out of the whole cohort with 60 points. There was also another example in Group 4 and in Focus Group Two, Student 4B refers to this:

4B: 'I'm like 3D, I'm normally the one that helps the others.'

This group were not seen as part of the observations, so it was not possible to see how this might have looked within the group meetings or who potentially received more or less of the guidance and support provided by 4B. However, Group 4 overall did come in second place for total positive points, with 147 positive points awarded over the cycle, which could have potentially been caused by this support from peers within the group.

4.3.4 Time to Study

Within the data collection, there were instances of students referencing their use of the group meeting time over the five weeks as an opportunity to revise and work on the subject materials independently. This suggests that in cases where students didn't work effectively as a group as they could have, there may still have been benefits to the scheduled meeting time and the structured additional resources that were provided each week. This is a particular focus for Student 3D, who in Focus Group Two makes the following two comments:

3D: '*I still feel like we just sort of get on with our own thing.'*

3D: 'For me it's more so the independent study time it gives me. With the group at the minute, I feel like I would make the same progress alone than I would being in the group so. It does still give me the focussed time to work on Business.'

This suggests that for this student, the independent, focused time the group meetings provided allowed them to spend more time working on the subject independently. This was also supported by Student 3D's attainment over the period. Despite only making 14 positive points, they consistently scored well on the quiz each week, attaining the second-highest average percentage score of 62%.

4.3.5 Challenges

In addition to the benefits to student progress, the data also suggests several potential limitations to the intervention, which this section outlines. These centre on the ability of some students to contribute towards the group's positive points each week due to scoring high on the initial baseline assessment, the potential lack of teacher supervision and the approach to the intervention by some students that resulted in some failing to attend group meetings and collecting answers from peers rather than completing the work themselves. This appears to have been exacerbated by some groups not quite having the confidence in their ability to work effectively as a group, which may suggest the group training conducted with the groups before the intervention might not have been sufficiently detailed or comprehensive.

4.3.6 Point Restrictions

One of the main limitations of the STAD study was the potential restrictions it might have placed on students who scored high on the initial baseline quiz. Scoring high initially made it potentially more challenging to improve each week, as the average would have started higher. When looking at the top three students who achieved the highest score on the baseline test in Table 16, both Students 3D and 3B contributed under 15 positive points each (14/6) against a cohort average of 29.

Student	Baseline	Positive Points
3D	75	14
3B	73	6
4B	69	59

Table 16: Highest Three Baseline Scores

From responses provided in Focus Group One, for Student 3D, it was this high initial score that they attribute as the reason for them not being able to consistently score high positive progress points. In the focus group, 3D comments:

3D: 'What I've found in terms of the competition is I sort of feel like it is hard for me as I got two high scores at the start, I can't really contribute as much, yeah maybe bonus points.'

However, Student 4B, who scored the third highest baseline score of 69%, managed over the period to make excellent progress, totalling 59 positive points over the cycle, more than the other two high initial scorers combined. This was potentially due to them being able to achieve strong scores across all quiz assessments. For example, in Weeks One and Two, Student 4B achieved 95% and 98%. This could potentially be linked to the section earlier on motivation from the weekly recognition, as in Focus Group Two when asked whether they felt the recognition was having any impact, Student 4B commented:

4B: 'To some extent because, it shows that the hard work is paying off, so I think yeah it does. When we won it felt good and my parents were happy'.

4.3.7 Environment and Supervision

The entirety of the group meetings over the five weeks took place during students' study time. This was a time when students were not in subject lessons and instead had the opportunity and flexibility to choose how they spent this time and how they would study as a group. In preparation for the intervention, groups were selected on convenience, with a set weekly meeting time arranged and communicated with each

group. STAD as a method in the past has exclusively been completed in a traditional classroom setting, where the teacher can monitor the group meetings/discussions and intervene and guide where necessary. This opportunity for monitoring was not possible in this study, as it was looking to investigate whether the benefits of STAD could be maintained when the intervention was implemented with students without a teacher present, outside of the classroom environment. From the data collected, it appears that despite some positive results regarding student progress, some of the success seems to have been limited by the lack of teacher presence. This is supported by the following comment by Student 3D in Focus Group One:

3D: 'Sometimes the group don't really listen or take part.'

The approach groups took in the meetings without the teacher present is further developed in Focus Group Two by Student 4D who commented:

4D: 'Not necessarily but like 3D said, some people might just slack off a bit and erm.. and not speak and just get on with their own independent work.'

From this comment, it can be suggested that for some of the meetings, students did not work effectively as a group, and at times decided not to complete the work at all or listen to each other in the meetings. The researcher themselves questioned the accuracy of what they observed, and in Observation Two, they commented:

3D is really trying to help 3A, I wonder if this happens in every meeting when I am not here..

Some students appeared to struggle with this issue more than others, with some deciding to actively leave the sessions before the end. This was witnessed in observations one and two, where students 3B and 3C left one meeting early and did not attend the next, contributing 6 and 0 total positive points each over the cycle as a result. This suggests that without teacher's presence and the lack of a structured classroom

environment may have provided a limitation for the students when working together as a group on the materials provided.

4.3.8 Group Training

Before the sessions started, the groups received a lesson delivered to them on working as a group by the teacher, including some 'top tips' outlined and discussed. These top tips included *'get to know the members in your group, their strengths and preferred ways of working'* and *'ensure that each group member has responsibility and accountability for their task with an agreed deadline'*. However, the ability to divide tasks within the sessions and work effectively as a single group unit appears to have been restricted due to students' skills and confidence in this area. For example, in Focus Group One, Student 3D comments:

3D: 'Maybe like confidence and communication is the biggest thing. I think the tasks are good, I haven't got an issue with the tasks.'

This suggests that the tasks set each week were adequate and matched well to student ability; however, communication between group members might have been a restrictive factor in the impact each meeting had on student progress. Student 3A from the same group commented:

'I think we could do with some more guidance and what to do in the time as a group.'

This supports the comments made by 3D regarding student communication and provides an additional cause, which was a potential lack of sufficient guidance provided to the groups on how to approach each meeting effectively. This was supported by comments made by a different group member in Focus Group Two, where Student 5B commented:

5B: 'I think the group work needs to be done a bit more efficiently, coz erm you might not be able to erm, do it, like in a good way. So, like the first week we erm, we took it in turns and read one paragraph each,

so we did that, but I don't think it was efficient enough in the time we had to erm really revise all the topics.'

In the focus group, Student 5B alludes to the belief that their group should have done things a bit more efficiently and gave the example in the first week, where the group used the time to read a paragraph each. The student also references time constraints as a possible hindrance to the group's effectiveness. However, despite this belief around group inefficiencies, Group 5 made the most progress points of the cohort, with 137 in total over the intervention cycle.

4.4 Conclusion

This chapter has examined the impact of STAD intervention on student progress and motivation when trialled in students' independent study time, as opposed to a traditional classroom setting. The study looked at five groups of four students, using a range of measures such as positive weekly points, academic benchmarks such as GCSE APS score and attitude to learning measures. The STAD intervention seems to have had a positive impact for academic progress, evidenced by the increase in weekly quiz positive points compared to benchmark scores, discounting Week 3. There was, however, a difference by groups, with Group 5, for example, making the most progress (187 positive points) and Group 3 the least (80 positive points). There was also a slight difference in gender, with females making more progress than males. This could suggest that females responded better to this intervention, although some group dynamic issues around females and their male group counterparts will be explored further in the discussion chapter. Attendance was also a critical factor in group progress on the weekly quizzes. This was highlighted in the performance of Group 5, who consistently attended the group meetings and quiz lessons.

This progress appears to have also been limited by several factors. These include the limited nature of the quiz structure for those with higher baseline scores. The Week 3 accounting quiz also provided a

significant challenge for the groups, who all underachieved in this cycle and restricted their overall progress points at the end of the intervention as a result. The impact of COVID-19 on students' previous GCSE scores may have also restricted some of the progress analysis due to the grade inflation and teacher-predicted grades that were used in that particular year of schooling for the intervention cohort.

Research Question 2 explored the relationship between the STAD intervention and student motivation. This included analysing the positive points and quantitative data, such as attendance. We also explored individual student examples from the focus groups and observations to identify the links motivation may have on student progress. From the analysed findings, the data suggests that there is a strong link between student motivation, attendance, and academic progress. Positive examples include student 5B, who expressed clear future educational goals, had high attendance and made significant progress (37 positive points). 3D was another example of a motivated student who showed dedication in the group meetings and assisted others in the tasks, which appears to again contribute to their success (14 positive points). Conversely, students such as 3B and 3C demonstrated a lack of motivation, who expressed this through their disengagement in meetings, lack of attendance and disruptive behaviour.

Some contributing factors to motivation over the cycle also appear to include social relationships, with some students struggling to communicate with their group due to relationship issues, with one student even moving groups to work with someone they already know. Some students, despite seeing the benefits of working with others, found at times they were just assisting others rather than relieving any direct benefits for themselves.

The peripheral benefits include increased knowledge and progress for several students, particularly where higher ability students help others of a lower ability. The STAD intervention also appears to have

enhanced motivation for some students, in some cases encouraging them to work harder to attain the recognition on offer for the winning group each week. Finally, for some students, the time provided each week allowed them to focus on their own individual progress in the subject, and this time was used to study independently, which the student in question appreciated and attributed to their success.

There were also several apparent limitations to the STAD intervention taking place outside of a classroom setting. This included, for some, the limitation of the points system each week, and some students believed they would have benefitted from the opportunity to achieve bonus points where they had achieved well. The lack of teacher supervision that is present in traditional STAD interventions also appeared to be an issue and, in some cases, led to ineffective group dynamics and reduced individual accountability, which manifested in examples of not attending group meetings or the incompletion of group tasks. The initial group training delivered to the groups before the group intervention, although it may have helped, may not have been as comprehensive or as regular as required, when looking at some of the examples in the findings around students struggling to communicate with each other within the group setting.

This findings chapter has outlined a wide range of findings gathered over the research period. Overall, the STAD intervention shows promise for enhancing student progress and fostering collaborative learning in a Sixth Form study setting. However, there are a number of limitations that this study recommends are addressed and considered before further STAD intervention takes place in this manner. These include the requirement of teacher supervision and maintaining motivation for students while working alone. There is also a need to adapt the intervention further over time to include more explicit guidance and training for any future group work within supervised study. The discussion chapter takes these issues further, including their implication and practicalities for future practice.

5.0 Discussion

5.1 Introduction

In the previous chapter, the main findings from the data of the cooperative learning STAD intervention in the Year 12 Sixth Form class were analysed and themed using the three research questions posed at the start of the methodology. The research questions for this project were:

1) To what extent is the STAD cooperative learning method effective within Supervised Study for improving student attainment?
2) In what ways can STAD improve student motivation to achieve in an academic subject?
3) What are the further challenges and benefits of the STAD cooperative learning method on student and Sixth Form practice?

For each research question, there have been several suggested findings. This discussion chapter discusses these findings in relation to the research questions and corresponding themes. The supporting literature outlined in the literature review chapter earlier in the project is also linked, where the findings support the literature or raise additional questions. It is also important to note that the research findings connect to the theoretical framework and approach of action research. Particularly, the viewpoint that outcomes of actions are often varied and difficult to predict (Mason, 2008). The findings of this study were very much in tune with this view, and this will be explored further in this discussion.

5.2 Student Progress and Attainment

The STAD cooperative learning intervention has been shown in a wide range of studies to have a positive impact on academic outcomes for students. However, the STAD intervention used in this study differed from traditional examples of the cooperative learning method, such as the study from Van Wyk (2012), where STAD was modified to focus more on group demonstrations and role play, rather than quizzing. However, this adjusted STAD study remained in the confines of a traditional classroom environment, with

the teacher present. This study sought to explore whether the STAD benefits could be replicated for students outside the conventional classroom, within their own independent study time.

This study attempted to increase the efficiency of students' time in supervised study sessions. Students were organised into homogeneous groups of four, organised by convenience using the timing of the students' study time availability. Students then completed the individual topic quiz each week. The intervention involved replicating the STAD model with a focus on two important factors – group goals and individual accountability. Group goals were established through the scoring system, where each week, the group with the most positive progress points won recognition for the group. The positive points came from the individual accountability, as each student sat the individual quiz each week, including questions that assessed their knowledge on the topics covered. Students contributed positive points to their group if they could improve on their running average percentage. However, in previous studies into STAD, these group meetings were completed within classrooms with the teacher present and supporting them. It was also advised by Slavin (1995) that as part of the intervention, the teacher assists with the lesson group work, circulating and offering support where required.

The STAD suggested aspect of teacher guidance was not possible within this study; despite this, the findings indicate that the STAD group intervention still has a positive effect on academic outcomes. As outlined in the findings section, the cohort involved in the STAD intervention collected a total of 589 positive points over the intervention cycle and improved their attainment score by 3% overall on average. There was also a progressive development in terms of academic progress for Groups 4 and 5, where there was a substantial amount of progress made. This demonstrates that overall, despite the group meetings taking place outside of the classroom without the teacher, there was a positive impact on student

progress. This aligns with previous studies into STAD, where there was a similar impact on academic achievement.

One example was the study completed by Slavin and Karweit (1984), which found positive effects on learning outcomes in Algebra over a one-year study. In that study, the effects were found to be similar for students of low, middle, and high pretest scores; however, in this study, there was no clear link between performance on the pretest and progress made. There was a range of variability in the progress levels of each individual group. Group 5 made the most academic progress and had higher than average ability at the start of the intervention based on their entry GCSE APS scores. Conversely, Group 3 made the least progress and had the lowest APS on entry. This broadly suggests that the group with higher ability students were able to make more progress compared to groups with lower ability students. However, in Group 3 several variables appeared to impact the progress made in addition to the relatively low ability of the student members, including attendance to sessions and initial low levels of student motivation. These will be addressed further in this chapter.

5.2.1 Attitude to Learning

Another measure where there was a notable improvement included the students' attitude to learning scores, based on student work ethic in lessons. This was particularly present in groups that had made progress over the cycle in the quiz results. For example, Group 1 improved their ATL average from a score of 3 to 2.25. In contrast, the lowest attaining group, Group 3, maintained their ATL average throughout the cycle at a 3. This suggests that the intervention that took place outside of regular lessons had an impact on students' attitude to work within lessons. However, there may have also been a level of bias from the focus groups and observations that the teacher was involved in. The quiz scores each week may have also influenced the score indirectly, as the teacher might have relied on these scores when assigning the attitude to learning measure for students.

5.2.2 Gender

Broadly, there were limited differences in student progress when comparing students of different genders. However, females did outperform males in the overall weekly assessments (32 average positive points vs 28 points for males). One student, Student 5C, also made significant progress over the period (72 positive points). This supports a similar opinion from (Kagan, 1985), who found that female students respond more to a cooperative environment compared to other classroom techniques. Their writing suggests that possible explanations might be greater verbal skills or different social preferences. However, despite the higher progress score, there were instances in this study where the female students gave the impression that they did not enjoy the group work, particularly because they were grouped with males and not with other females from their own friendship group. This is explored later in the motivation section of this chapter.

5.2.3 Attendance and Progress

As expected, a strong and direct correlation existed between student attendance and progress in the weekly quiz assessments. Students who attended the group meetings scored higher than those with poor attendance. For example, as shown in the attendance summary in Table 14, Group 5 achieved a total positive points of 187, with 95% attendance to the group meetings compared to just 80 positive points from Group 3, who only attended 65% of the meetings overall. This is supported by researchers such as Johnson and Johnson (2002) who suggest that higher levels of participation are linked to increased motivation and academic achievement. Possible reasons for absence in the group meetings for some students appear to be caused by their perceived value of the meetings and their levels of motivation, which are explored further in this chapter. This initial low attendance by Group 3, for example, went on to impact other areas of the group's performance. For example, how the other group members perceived their peers and the value they placed on the group meetings highlighted the possible sensitivity to initial conditions of a complex system.

5.2.4 Week 3 Anomaly

The quiz results from week 3 in the intervention were identified as an anomaly in the data. This was because in Week 3, all five groups achieved low scores compared to the other weeks (28% average score). The findings chapter explores this, including the content of the resources provided for this week compared to others and the skills level required in the assessment used that week. From the observations in that week, students also appeared to be confused initially with the context of the resources. In the focus groups, students such as 5B identified the finance section of the specification as a 'hard topic in general'.

These findings raise questions regarding the type of assessment topics suitable for the STAD intervention. It appears that the numerical application style questions would have benefitted from some additional live feedback and instruction from the teacher, which was not possible in this environment. Therefore, this could be a potential limitation to using STAD outside of the classroom for some types of knowledge acquisition. However, other factors could be involved that limited the effectiveness of the intervention for week 3. This includes potential confusion around the assessment question. It had also been several weeks since the students had practised finance within standard lessons, which could have caused them to have issues with some memory recall. However, teacher presence at group meetings may have addressed this.

5.2.5 Point Restrictions

Students who scored high on the initial baseline test found it harder overall to contribute to their group's total, which may have impacted their ability to score substantial positive progress points over the intervention cycle. The top two baseline students, students 3D and 3B, could only contribute 20 positive points combined. In the focus group, this is supported by comments made by 3D, who suggested that they would have benefitted from a bonus points system, which they could achieve by consistently scoring

well on the weekly quiz. On reflection, a system for bonus points for higher-achieving students might be something to consider moving forward.

However, the STAD intervention is designed to encourage students to support each other. One of the incentives that have been seen in previous studies (Slavin, 1996) is that higher ability students begin to recognise that they can still contribute to the group total score. However, this would be indirectly through the support of their peers in the group, rather than achieving high positive points themselves. This was witnessed in the observation of this very group, where student 5B was seen supporting 3D, who in turn contributed the second highest number of positive points in all the groups (60 points). This demonstrates that students with high baseline scores can still make an impact on the group's overall score. Group 3 was also unique because it had the most disengaged students (3B and 3C), who only attended 40% of the group meetings. Even though Group 3 scored the lowest positive points across all groups, it appears that factors such as attendance and motivation were a larger contributing factor rather than the lack of a bonus point structure.

5.3 Student Motivation

From the two theories of student motivation explored as part of this study, there appear to be five key areas to consider when looking at improving student motivation when operating the STAD competitive learning method. STAD first provided students with autonomy. Students were not given autonomy in group selection as in Group Investigation (Sharan & Sharon, 1989); however, in each group meeting, there was group freedom on how to approach the meetings and the tasks set. For example, if they chose, students did not have to complete any of the tasks in the meeting. As the students were also grouped into groups of four, there was also the potential for some observational learning, as students met together and worked on the set tasks together. As students were also from the same class, there should have been a level of relatedness included in the cooperative group meetings. However, as discussed in the findings

chapter, this was variable. The STAD method also has group goals at the centre of its philosophy, as it is the group improvement score each week that is used to reward groups. Within the STAD intervention, each group had a goal of winning each week, which provided motivation for some. However, as SDT outlines, external rewards can be effective if they continue to a student's goal setting and competence (Deci & Ryan, 2000). Working with group peers should also develop a student's competence, as students should learn from each other when working with others. This feature was a feature for STAD in this study, but not for all students involved.

Student motivation in the intervention appears to have a clear link to how well students both attended and achieved through the STAD group meetings. From the data analysis, it is suggested that when students were motivated in the intervention, they attended well and made strong progress academically as a result. Conversely, where motivation appeared to be low, this had the opposite effect. Two individual student group examples were explored in the findings to discuss this.

In the case of students 3D and 5B, their motivation appeared to be consistently high. This was demonstrated through their planning for the sessions, high attendance levels and comments made in the focus groups regarding their desire to achieve and reach specific goals in their academic future. This positive approach shown by Students 3D and 5B, links to the role of self-regulation (Zimmerman, 1989) as they were able to manage their own workloads. It also supports the view of self-determination theory, as the introduction of choice and autonomy for the groups in the case of these students appears to have resulted in an increased perception of value around the process, which was demonstrated by the students' continued efforts (Deci & Ryan, 2000).

5.3.1 Motivation and Attendance

From the data analysed in the findings, it is clear that attendance at the group meetings mattered and was a critical factor in student achievement in the weekly quiz assessments. Attendance at the optional meetings can also be a useful factor when looking to explore the levels of motivation students had regarding the intervention. The strongest case for poor attendance came from students 3B and 3C in Group 3. Both students only attended 40% of the meetings and were witnessed in one example to be playing football in the playground instead. This, as Slavin (1995) suggests, may have been down to the students perceiving the tasks as potentially too challenging, or they may have been disengaged with the learning materials and tasks provided. It is also recommended that these factors are addressed to enhance the impact the intervention has on the group's process. All students at regular points were reminded of the potential positive impact the intervention may have on their achievement. However, without mandatory attendance and the ability to intervene in group meetings as the teacher, addressing this issue was difficult.

5.3.2 Motivation and Social Dynamics

Social dynamics and how the students worked together in a group appeared to have a significant impact on the group's ability to make academic progress. An example of how this had a positive impact on motivation seems to be in the case of Group 3, where a higher-ability student, 3D, was observed supporting student 3A on a topic which they found challenging, demonstrating cooperative behaviours (Deutsch, 1973). This supports the view that STAD can have positive effects on a wide range of social-emotional outcomes, such as self-esteem and acceptance of academically handicapped students (Slavin, 1985). However, in the focus groups, student 5B explained that they did not see any value in supporting peers and felt like they were just being used to give the answers. They were also keen to be grouped with students with similar abilities in the future.

There were, however, some cases where social dynamics limited the impact of the intervention. In some cases, previous associations and friendship groups appeared to be a limiting factor. For example, the lowest performing students, 3B and 3C, were strong friends before the intervention. This may have been a contributing factor to them being absent at the same group sessions and avoiding the meetings together as a pair. The negative approach shown by 3B and 3C, including their disengaged approach when attending group meetings, demonstrated the impact of peer relationships and social dynamics outlined by Webb (1982), who stated that negative peer relationships can be detrimental to academic performance.

Existing peer relationships also caused student 3A to move groups informally to another group partway through the intervention cycle. In the focus group, 3A explained that they made this decision due to the group not communicating well and had the desire to work with someone they knew. This example supports the view of Gillies (2014) , who highlights the importance of relatedness and impactful student discussions and talk can impact the success of a cooperative setting. This feeling of belonging may have been impeded by the convenience method of grouping used. As the groups were arranged by where they had the same corresponding supervised study slot on their timetables, this meant that some groups had a stronger past association with each other than some students. There could also have been more work done in lessons throughout the cycle to build group identity and positively challenge instances where students wanted to move. However, as the group meetings took place independently away from standard lessons, this was difficult to monitor and intervene.

5.3.3 Motivation and Recognition

A key element of the STAD cooperative learning method, alongside individual accountability and group goals, is the group recognition that follows. It is the group recognition and reward that should motivate the groups to set goals together and achieve recognition each week. Slavin (1985) states that these factors

may indeed fall short without considering incentives to enhance student motivation. The reward was given out at the end of the week to the team that had contributed the most positive points in that week's assessment quiz. Because of this method of cooperative competition, each group wins recognition each week, rather than in pure competition, where the most able tend to 'win' (Johnson & Johnson, 1994). In this intervention, initially, the weekly acknowledgement came in the form of a small trophy in the year group assembly each week. The findings show that the recognition provided by being in the winning group was well received by some students, who felt good seeing their hard work had paid off. This links well to the work by Deci and Ryan (2000), who highlight the importance of rewarding hard work for motivation. It is also interesting to see that all the groups, apart from Group 2, won one award each over the cycle, including the groups with lower-than-average baseline tests and GCSE entry scores, indicating the system's inclusivity through the competitive focus on beating their own averages. Linking to action research, this may have also created a positive feedforward loop, where students were able to harness their motivation from winning recognition to being motivated to do well moving forward (Phelps & Hase, 2002).

However, the recognition provided in the form of a trophy in a whole year group assembly in front of peers had a mixed response from the students involved. When asked about it in the first focus group, it was met with some nervous laughter and a comment that students were not sure everyone liked the assembly reward structure. Instead, the focus group suggested an email home to their parents informing them of their son/daughter's success. Following the reflect and act model of action research (Newby, 2014), following that particular focus group the parental email home was put in place. This was later met with positive comments in focus group 2, demonstrating that adjusting the recognition based on the student voice was effective in maintaining student motivation through the system of group

acknowledgement. Listening to the students and catering to the rewards and acknowledgement of their desires appears to be a useful consideration for future STAD studies.

5.4 Benefits of the STAD Intervention

Several benefits from the study have already been discussed above. These include the improvement in progress over the groups and the acquisition of new knowledge. This was evidenced by the total progress points over the cycle and in focus groups, where students explained that they found the group meetings useful when working together and learning new content. There was also an improvement in the students' attitude to learning within lessons, and some went on to improve their A-level Business Studies grades in the summer. However, this is likely to have been impacted by a range of external variables, including the level of revision completed by each candidate in the run up to the public examinations.

5.4.1 Time to Focus

Another benefit that appears to have come from the intervention for some students was the time the planned group meeting gave them to study individually. For example, in the focus group, student 3D referred to the fact that they used the time as a group to work on their own, after they could not effectively communicate and work with their group initially. Despite the group goals in this case not appearing to be embedded, the fact that some of the students could make adequate use of this focused time is a possible result. This supports the view of (Hockings et al., 2018) who states that having this time and space is an important aspect of effective independent working.

5.5 Limitations of the STAD Intervention

In addition to the wide range of suggested benefits the STAD intervention had, there were also some apparent limitations and restrictions to the structure and format adopted for the six-week study. This included the lack of teacher presence, which is usually a standard feature of past STAD interventions. The

group's ability to work and communicate together was also a limitation, along with the limited time provided for students to develop a group identity and any substantial group-relatedness.

5.5.1 Teacher Presence and Support

One interesting finding from the STAD study was how students responded to the cooperative method without the traditional classroom structure and teacher presence/ support. Throughout the data analysis, there were several examples of negative behaviour from students. This included a student moving groups, students not attending group sessions and cases where students in group meetings were disengaged, choosing in one case to play on their phone rather than support the group. This negative behaviour, as discussed earlier in this chapter, might have been due to students not valuing the intervention or not being motivated by the tasks or the content.

However, the teacher's lack of presence and support in the group meetings appears to have been a contributing factor. This is in line with recommendations from Slavin (1985), who agrees that one consequence of the STAD intervention is often the increased need for more effective instruction from the teacher. If the group meetings had taken place in traditional classroom settings as initially outlined in the approach, some of the issues highlighted above may have been addressed. For example, in the case of student moving groups, the teacher in a traditional lesson might have identified this earlier and discussed the issue with the students. They may have also been able to provide additional guidance to groups regarding the tasks set and encourage them to persevere rather than move off task. This links to a student's ability to self-regulate and have autonomy when taking responsibility for their learning, which will be discussed later in this chapter.

5.5.2 Attendance as an Option

Due to the intervention taking place outside of lesson time, attendance was encouraged, although not mandatory. The information and permission forms provided to students involved made it clear that

students' involvement and performance in the intervention would not impede the teacher's opinion of them or impact their academic progress. Students who took part gave permission and attended the group sessions, which was optional. However, at a number of stages, including in the initial information letter provided, the potential benefits the intervention may yield were outlined, including the potential for an improved understanding of the subject of Business Studies. Despite these reminders, attendance by some students was poor, ultimately impacting their positive points and their group's progress. Without attending the sessions, the students missed out on the opportunity to discuss the learning materials with their peers. It also created issues with building group identity and communication, as those who did attend were left to work on the materials alone, creating further distance between group peers.

5.5.3 Group Training and Skillset

At the start of the six-week cycle, students attended a brief training session within a lesson on group work. In the session, a number of top tips were communicated on how to work effectively as a group in the weekly group meetings. Advice included information on the importance of working as a group and communicating effectively. However, there is a question about whether this training was comprehensive and consistent enough to equip the students with the guidance they needed to work as a group effectively. This was highlighted by student 3A, who in focus group one stated, 'I think we could do with some more guidance on what to do in the time as a group'. This resonates with the guidance provided by Slavin (1995) on STAD, who recommends that the STAD intervention receives a lot of practice at the start of the process. Group work has been used substantially in the subject lessons over the past 12 months, and the STAD method has been trialled for a short period in the lead-up to the intervention cycle. However, practising the STAD method outside of the traditional classroom setting was not possible in this instance due to time restrictions, which potentially became a limitation to the effectiveness of this intervention.

5.5.4 Time to Relate

Due to the relatively short nature of the five-week group intervention cycle, it could be suggested that there was a limited amount of time for the groups to be relatable and establish a positive group relationship. This was further hindered by the lack of attendance by some group members, which prevented them from building a working relationship with the group peers. However, if the students attended sessions and had sufficient support in the group meetings, the five weeks may have been adequate time to see the possible impacts of the STAD intervention. For example, Slavin (1995) suggests waiting no more than six weeks before changing the groups to create fresh members moving forward, so the process can start again.

5.5.5 COVID-19 and Subsequent Apathy

Following the COVID-19 pandemic and corresponding national lockdowns on schools and society, there was an impact on student engagement and the grading process. This firstly impacted the GCSE average point score data used as part of the benchmarking of student groups. This may have caused inaccuracies in the entry ability discussed in the findings of students before they enrolled on the subject. However, the initial baseline quiz did provide recent data and students' current ability in the subject's topics, which should have provided an additional level of accuracy.

In the academic years following teacher assigned GCSE grades and substantial disruption to students' schooling and social development, in this academic year, there had been a marked increase in apathy within the student body. Examples reported within the school included a distinct lack of engagement in lessons from some students and poor attendance over the year. There was also a similar picture nationally, with reports of a significant increase in student mental health issues (Hall, 2023) and an increase in parents' attitude towards school and school attendance (Whittaker, 2023)This study does not investigate the impact COVID-19 had on Sixth Form student progress. However, it is important to

acknowledge that the pandemic and apathy following the international crisis may be contributing factors to some of the findings, such as the poor attendance of some students and the disengagement witnessed in some cases.

5.6 Conclusion

In this chapter, the main findings from the data analysis are discussed, including the impact on student progress and motivation. Regarding student progress, the findings suggest that overall, the student cohort involved in the study made positive progress over the six-week intervention. Data that suggests this includes the total positive points score of 589, and the overall attainment score increasing by 3% over the cycle. There was also enhanced success in specific groups, such as Group 5 who achieved a total of 187 positive progress points over the intervention. Possible reasons for success include the student's approach to the study, including their attendance at the group meetings. Where students attended and worked together, progress scores were high. The financial topic covered in week three of the intervention also did not score well by all groups, indicating that the topic and level of questions used within STAD can impact the progress made by the groups.

Motivation was also linked to academic progress and was a key driver in student progress and attendance at group meetings. There were, for example, some groups where progress was limited. This was attributed to individual student motivation throughout the intervention and their attendance at the group meetings and quiz lessons. Reasons for this demotivation included detrimental friendship groups and not having strong relatedness with peers in the group.

Some higher ability students also had their motivation impacted as they perceived the group meetings to be more of a benefit to those who did not know the content, who received support from these higher ability students. The scoring system further impeded these students, making it difficult to contribute

positive progress points if they had scored high initially on the benchmark assessment. In contrast, the findings show that motivated students were motivated by clear aspirations for their future and by the rewards used in STAD and achieved well academically as a result.

The potential additional benefits of the STAD intervention were also discussed, including the benefits of students having the opportunity to use the set time to study independently. However, several clear limitations to the STAD method were identified that should be considered for future research. These include the issue of the meetings being optional, as not part of the standard lesson attendance. This resulted in attendance issues for some groups that scored low on the quiz data as a result.

The lack of teacher presence and support in the group meetings also had an impact, which was demonstrated by the example of poor behaviour in group meetings and confusion displayed by some students. Finally, the group's ability to work together effectively was also an issue. Despite initial training on how to work as a group, there were several examples where students did not feel they had the confidence or knowledge to use this time effectively. This confidence and approach to group work may have also been impacted by external factors, such as the apathy reported by this particular cohort following the COVID-19 pandemic and a substantial part of their schooling taking place from home in relative isolation.

The next chapter concludes and summarises the future implications of this action research study, including several recommendations for the future use of STAD independently from the traditional classroom setting. This includes recommendations around developing the intervention to give students more consistent guidance of group work, increasing teacher presence and considering which students could benefit from a similar intervention moving forward.

6.0 Conclusions and Recommendations

6.1 Introduction

In the last discussion chapter, the research questions posed were addressed in relation to both the findings within the data and the relevant research into areas such as the STAD intervention and motivational theories. The findings include a positive impact on academic progress for some students, particularly those who attended the group sessions. This chapter will now discuss the main themes from the research in the context of their implications for future study, including schools that may be considering a similar model within their Supervised Study provision.

6.2 Summary of Study

The starting point for the intervention was an identified issue within a Sixth Form Supervised Study programme. The secondary school involved had previously invested in a programme of timetabled study periods, which students in the Sixth Form attended and used the time to complete their own independent work, set by subject teachers. This resource, staffed by a combination of support staff and underallocated teachers, was intended to provide students with the space and resources to complete work and, in turn, make academic progress. In many cases, students used this time effectively, using the sessions to complete tasks such as homework, extended reading and exam revision. The staff members responsible for the area were also, at times, proactive in supporting students, with examples including support with researching academic journals and meeting to discuss university personal statements.

However, some restrictions have been identified regarding this provision. This included some students not using the time productively and instead using the time in some instances to browse the internet or play games, for example. Feedback from the staff members involved also identified a concern that some students appeared to find it challenging to concentrate in these supervised study lessons, with reasons given including not knowing what or how to study in the time allocated or struggling to complete the set

work independently. From this identified issue, the initial research question for this study was formulated: can a cooperative learning model be used within Supervised Study to improve student motivation and academic progress?

Initial research revealed that some of the current limitations faced by students within supervised study had been identified in wider research into an individualised learning approach. These included potential limited progress when tasks set by teachers are too complex in nature (Johnson, 2014). From the findings in the literature on individualised learning, alternative approaches to learning were investigated, including competitive and cooperative methods. Cooperative learning came out as the approach with the most potential for enhancing student learning, and it was for this reason that cooperative learning was chosen as the intervention approach. Cooperative learning models brought a wide range of approaches that had been used within the classroom successfully in the past to improve progress. These included well-researched methods such as Jigsaw (Aronson, 2002), Learning Together (Johnson & Johnson, 2002) and Stratified Team Achievement Divisions (STAD) (Slavin, 1985). STAD was chosen as the model of use due to its adaptability outside of a typical classroom, with many of the methods' aspects remaining intact. For example, the STAD quizzes could be taken within the subject lessons, allowing individual accountability. The group meetings could then be completed within the supervised study time, away from the traditional lesson setting but still promoting group goals.

As a result, a STAD cooperative learning model was trialled to address the issue of disengagement within supervised study lessons. Students from the researcher's subject lessons were chosen so that the STAD training and quizzes could be completed within the subject lessons. This intervention had previously been shown to positively impact student engagement and progress when used within the classroom in past studies, and it was hoped that this study might have a similar effect when used within the supervised study lessons.

6.3 STAD effects on student progress and attainment

The findings suggest that the STAD model, when used outside of the classroom, can positively impact student progress and attainment. Over the intervention, several individual students and groups made positive progress on the weekly topic quizzes. This included more students of a higher ability on entry. This may suggest that the STAD method, operating independently of the teacher's presence, has a higher likelihood of impact rate for those who are of a higher ability. This might be because they can concentrate outside of the lesson. Some students also attributed their success to the time they were given in the group to focus on their work, which suggests that, potentially, having clear guidance on when and exactly what to study might be of further benefit to Sixth Form students. Attendance to the group meetings also had an impact on the success of the intervention, which was expected as to benefit from the group STAD meetings, students had to be there. However, there appears to be a link between their attendance and performance and their perceived motivation to do well in the subject at the start of the STAD intervention. This will be discussed in the next section on student motivation.

6.4 Student Motivation and its effect on the STAD intervention

The findings suggest that for some students with specific goals already set, this study did assist in their motivation to want to achieve well in the subject. However, students' motivation levels did have a direct link to their approach to the intervention and, therefore, the benefits they gained from the STAD project. For example, several students who chose not to attend the optional group meetings made limited progress. This demonstrated that not only did the intervention impact motivation for some students, but their motivation levels at the start of the intervention also impacted the progress made. This might have been due to a lack of motivation about the subject or the group goal structure adopted in STAD. As referenced earlier in section 2.6, Slavin (2015) suggests that the group goal structure supports the group dynamics, fuels students' motivation to do well in group work, and encourages them to support others. Some students also found value in supporting others in the groups and gaining recognition for doing well.

However, it appears that for some, their motivation levels on entry to the intervention potentially impeded the ability of the intervention to foster motivation within them to attend and succeed. This could have been due to strong social dynamics outside (encouraging them to play football instead of attending the meeting) of the lessons and the meeting structure. This does appear to highlight the importance of students' motivation and, again, the need for mandatory attendance to ensure students attend. It has a strong link to the motivational approaches highlighted in section 2.7, particularly when considering Social Interdependence Theory and the suggested importance of how students see their future outcomes linked to the peers around them (Deutsch, 1949a). The two students who were the most combative of the intervention may have actually built negative ties to their other group peers and the intervention overall, potentially driving their apparent disinterest in the group meetings. This may have also been attributed to their lack of membership and sense of belonging with their other two group members, which is highlighted as an important element of social dynamics in Social Identity Theory (Deci & Ryan, 2000).

6.5 Contribution to Practice

The study did not aim to be generalisable to the broader educational sector, as the sample size of 20 students was relatively small. The STAD intervention was also trialled in one specific subject, over a short period of just six weeks. This means that the findings from the data cannot be applied to a wider population of Sixth Form students. However, the study findings make some important contributions for other educational institutions to consider when looking to improve the effectiveness of supervised study structures within a Sixth Form setting. This study demonstrates that cooperative learning methods such as STAD can potentially be effective outside of the classroom for students working on subject stimulus, with the impact potentially enhanced through ensuring several important factors.

Firstly, the groups that are established need to be considered carefully, including student ability, previous social relationships, and frequency of revised groupings. Due to the subject specific angle taken by this study, the students were grouped by convenience and organised by when they had supervised study lessons together. However, this resulted in disproportional ability ranges within some groups, which may have impacted the academic progress made. For example, the group that made the most progress was also the highest in ability. Slavin (1985) recommends having a cross-section of ability ranges in each group, where possible. When looking at implementing STAD into a wider supervised study provision, ensuring mixed ability within the supervised study groupings should be an important consideration. It is also recommended that the groups be reorganised approximately every six weeks to ensure students have the opportunity to work with a range of individuals and do not form potentially negative group habits. This might also assist with the issues identified in this study, with some students looking to move groups to be with friendship groups or the same gender.

Regarding student ability, the study findings also suggest that higher ability students' (who consistently achieve high scores) perception of how they can contribute to their group's success may be a useful consideration to make. This could either come from making explicit links to the student's capacity to improve group totals through the support of group peers rather than gaining positive points for the group through their own scores. Alternatively, there may be benefits in a bonus system for higher ability students, where those who maintain high average scores on the assessments can achieve additional points for their group.

The findings from this study have also shown that the groups involved in the STAD intervention outside of lessons may have benefitted from some additional continuous training on how to work effectively as a group. In future studies, this could be a focus for subject teachers within lessons or explicitly delivered as

part of the school's supervised study provision or other tutor time opportunities. This continuous training and support should allow the groups to have more confidence when working on group activities due to their improved awareness of how they may work together. Training took place in this study, but the findings show that students would have benefitted from this guidance more regularly.

Having the teacher present at the group meetings as a source of support is a core feature of STAD that was missing from this study, and did limit the impact as a result. Schools should review how this teacher input and support might be implemented as part of any future STAD intervention. For example, the support might be provided in the form of the supervised study teacher assisting and supporting groups within supervised lessons and encouraging work completion to motivate groups. This, however, may not address the benefits of having the subject specialist teacher available to support with the specifics of the group work tasks. This was identified as an important aspect in this study, especially when students were completing work covering a particularly challenging topic, such as business finance in this case. These types of subject specific, specialist topics would benefit from an increased level of scaffolding and support provided by teacher presence, so confirming how students could receive this support would be important to consider. Group rewards for the students involved in the study were also well received, although the rewards used should be considered through student voice and feedback. For example, the findings of this study identified that students preferred communication with their parents about their success more than recognition from their peers.

Finally, the findings also suggested that student attendance at the group meetings was a crucial factor in progress made. For this reason, it is advised that any group meetings within supervised study sessions be made mandatory, with high attendance acknowledged and celebrated. This attendance and sharing examples of positive progress made with peers should, over the long term, allow students within

supervised study to see the value in the STAD intervention, possibly motivating them to put an increased level of effort into the group sessions.

STAD should not, however, be a direct replacement for individual or independent work commonly seen in study provisions such as Supervised Study. As this study's findings show, students benefit and enjoy having the opportunity to work on their studies alone, at their own pace. This should be considered, including the importance of ensuring the individual tasks are clear, encouraging students to take responsibility for their learning and work facilitated by a subject academic (Hockings et al., 2018). However, the STAD intervention may provide an alternative approach for some of this time that may offer additional benefits to student engagement and progress within study sessions.

6.6 Contribution to knowledge

When exploring past cooperative learning studies, most approaches incorporating the STAD model have had an explicit focus on the classroom environment with the subject teacher present, including studies from Van Wyk (2012) and Vaughan (2002), who despite making adjustments to the STAD model and focusing on different areas of study (impact on students of colour, for example), took place in a traditional classroom environment. This study looked to find out whether this learning method could be effective in the alternative setting of a Sixth Form study area. Due to this, the study has contributed new, original knowledge to this area of cooperative learning. This includes the findings that suggest that without a teacher present in the group meetings, the intervention can have a limited impact on the progress made by some students. This affirms the importance of this STAD aspect, initially suggested by Slavin (1985). However, this study has demonstrated that the STAD model can still potentially lead to other benefits despite the absence of teacher presence, including the provision of subject focused study time and increased motivation for some students through group rewards and acknowledgement.

This study has also provided similar schools and institutions with some practical considerations when reviewing their approach to supervised/independent study areas, possibly providing them with an alternative model that could improve academic progress, enhance motivation, and build peer relationships in preparation for future higher education.

This study into the STAD cooperative learning method provides further justification for the use of cooperative learning approaches in schools when looking to improve progress. Past studies from prominent researchers in this area, including Johnson and Johnson (2015) and Slavin (2011), have shown that cooperative models can dramatically impact academic progress and self-esteem when compared to alternative approaches such as the competitive model. This study supports these past findings; for example, the STAD intervention did result in improved progress on the weekly topic quizzes overall for the group of students involved.

However, through the limitations identified in the study, the findings do support the suggestion made in previous studies that some elements of cooperative learning do need to be present in order to maximise its effectiveness. For example, through its difference in a physical setting (study room rather than a traditional classroom), this study lacked the key element of teacher support and presence while the group meetings were taking place. This resulted in incidents of students struggling to effectively manage their time as a group, and students not having the regular support that the teacher would have usually provided in a usual STAD intervention. The group meetings were also optional, often resulting in some students failing to attend and, therefore, failing to make significant academic progress. This is an important contribution to wider knowledge, as it suggests that these elements are important considerations that appear to impede group progress when not present within the STAD structure.

As an action research study, this research has contributed additional knowledge, including a different perspective on the use of action research within education, specifically in a school study area. This further supports the value of practitioner-based research in schools, with teaching professionals exploring their own identified issues and practical ways school improvement can take place. This should provide further evidence to school leaders and the research community on the ability of school-based action research to bring about positive change.

This action research study has also contributed additional knowledge for future researchers on the dual role of a teacher-researcher and their positionality within the research. Chapter 3.16 provides a reflexive account of how the teacher-researcher in this study perceived their role's main benefits and dangers and how their past personal and professional experience may have influenced their approach to the study. This reflection enhanced the trustworthiness of the findings and serves as a practical guide for other EdD students who may find themselves navigating similar issues with their own positionality. By clarifying their reflexive stance and adopting practical strategies, the researcher provided additional insight into reflexivity with action research studies taking place in school-based settings.

6.7 Contribution to Theory

This study attempted to use the STAD cooperative learning method outside the traditional classroom setting. To that end, it has provided helpful insight for the STAD approach, demonstrating that it can positively impact student progress without the teacher presence, which is a key foundational feature of STAD (Slavin, 1985). However, the research findings suggest that the effect may have been greater with the teacher presence as a consistent feature, thus confirming this aspect as a key consideration in future STAD studies. Group training also emerged as a key consideration, as the lack of this appeared to impact STAD's success. Recognition was also a key area, especially when adjusted to student desires, such as the email home suggested by the participants.

In addition to STAD, the study also contributes significantly to motivational theories. Autonomy, a core SDT principle (Deci & Ryan, 2000), was shown to be an important aspect for some students, as some students thrived on being able to choose how they study. This included students who decided to help others and who used the group meeting time to complete their own studies. However, this increased autonomy provided in the optional attendance and the group meetings taking place outside of lessons had a double-edged sword, with some students using this autonomy as motivation and others instead deciding not to attend the meetings and choosing other social activities. This highlights that autonomy is indeed an important aspect of student motivation, as suggested by SDT; however, this autonomy and choice still require some control from the teacher through clear expectations, to ensure students use this freedom appropriately for learning. The findings also support SCT's (Bandura, 1986) emphasis on peer relationships, with the groups who performed well attributing how well they worked with each other in their group settings.

The study also gave valuable insights into the role and impact of social dynamics. Participation and progress were stronger in groups where students felt connected to each other. However, progress was more fractured in groups (such as group 3) with a more substantial mismatch of ability levels and social friendships. This supports SIT's (Deutsch, 1949a) principle of positive interdependence, as students who perceived their success as linked to their peers were more likely to attend and contribute. The study also affirmed the theory of SIDT (Tajfel, 1978), specifically the importance of a sense of identity within the group, which was influenced by factors such as gender, ability and prior friendships. This was particularly clear in the case of students who disengaged due to feeling disconnected from their group or lacking shared goals. Those who pursue STAD in an independent setting, away from the classroom, should consider the importance of these social identity factors, such as friendships, gender and ability, when conducting group work and setting up future cooperative learning environments.

Finally, this research study contributes valuable insights into the action research approach, particularly in a secondary school setting. Using action research has allowed this study to make a meaningful impact on actual school improvement, adding to the literature on action research and its benefits within a school setting when tackling real practitioner problems. It demonstrates how action research can be a suitable model for teaching professionals looking to conduct research-based inquiries into their educational settings. It also gives insight into how the reflexive, cyclical action research approach can be implemented.

6.8 Limitations of Methodology

This action research study used a mixed methods approach to track students over a five-week period. This included collating quantitative data in the form of weekly topic quizzes that students sat individually within subject lessons. Other quantitative data, such as attendance and attitude to learning scores, were also collected and tracked to assess student progress over the intervention. In addition to the quantitative data, a range of observations took place with two of the five student groups, along with three focus groups where students discussed their opinions and feelings on how the intervention was going, allowing for effective data triangulation. The research undertaken was small in scale and covered just one demographic within the south of England; therefore, it is important to acknowledge that there are potential issues relating to generalisability.

The cohort involved in the research was chosen because they were part of the researcher's subject class. This allowed the researcher the ability to use some lesson time to complete the initial training for students on how to work effectively as a group. It also provided a specific subject for students to study as part of the intervention. It allowed the teacher-researcher the opportunity to use lesson time to complete the regular quizzes in a controlled environment. However, the multiple roles held by the teacher-researcher may have impacted the validity of the findings. As well as the student's teacher, the researcher was also the head of the Sixth Form that the students were part of. Despite the teacher-research having positive

relationships with the class and explaining the ethical considerations carefully to the group, this influential role of power may have caused some students to work harder than they usually would have. This may have also impeded the observations and focus groups undertaken. The researcher conducted the observations and focus group sessions, which could have possibly impacted the integrity of what was witnessed, and the responses students gave regarding the perceptions of their progress. Using a different member of staff, such as another teacher, to conduct some of the observations, for example, might have allowed for an improved insight into the group behaviour.

The scope of the observations and focus group may have been a limitation. Only two groups were observed in their group meetings out of the five groupings. The three focus groups were also attended by mostly the same participants. Having the same students for most focus group sessions allowed the researcher to understand how some students were progressing over time; however, having a wider range of students involved in the focus groups may have given additional insight. For example, if Student 3C attended, we may have been able to gather more information on their negative approach to the meetings and explore why they decided not to attend some of the group sessions. This was difficult to address as only a specific number of students consented to participate in the optional focus groups. If these had, however, been offered as part of lesson time, this might have encouraged more students to attend and share their opinions. For example, some students who agreed to the focus group attendance either did not attend or only attended one of the focus groups offered.

If the intervention cycle had been over a longer period, the timescale of the intervention cycle may have also provided additional data to analyse. Slavin (1995) for example, recommends that the STAD groupings be changed approximately every six weeks to allow students to work with other peers. This was not possible in this study due to the timing given to the intervention cycle. If it had been possible to have a

second cycle with a second set of groupings, this might have provided additional insight into how the group dynamics evolved and could have allowed the researcher to compare progress from two different groupings.

Finally, the location of the room where the STAD group meetings took place may have been a limiting factor to the findings of the study. The study was looking to see if there were benefits of the STAD cooperative learning model when group meetings happen outside of the traditional classroom, in an area such as Supervised Study. However, to limit the impact on the rest of the Supervised Study cohort within the usual study room, the group meetings took place in the room next door. The room was similar to the supervised study room and was a room that students were familiar with. The supervised study teacher also checked in on the groups, as did the researcher, as part of their observations. However, if the meetings had taken place in the actual Supervised Study room, with the rest of the student cohort and the supervised study teacher, this may have provided additional insight into how the group meetings might have progressed in supervised study. For example, a typical supervised study lesson is a quiet working space for 60+ students at a time in one large study room. Holding STAD group meetings would likely change the dynamic of this room, particularly for those wanting to study quietly.

6.9 Future Research and Influence on Practice

The STAD cooperative study within an independent study environment has shown that cooperative learning approaches can have a positive impact on student progress in an academic subject. How it might be developed further to improve its suitability within a supervised study setting would be an interesting area of future research. For example, further research studies may look to identify proactive ways to address and mitigate the limitations identified in this study. One area where this might be effective could be to involve the staff members responsible for the supervised study area. Supervised study staff could monitor the group meetings taking place and potentially provide a similar level of support a subject

teacher would typically provide in a traditional STAD intervention. This could include providing general support and guiding students who might be struggling to engage in the group sessions.

The tracking of group quiz totals could also be supported by the supervised study teachers or the wider Sixth Form pastoral team, including managing rewards and contacting home for the winning groups. This may also provide the opportunity to run the STAD assessment data across multiple subjects and allow group training to be provided to all students centrally through the supervised study provision. As these supervised sessions usually take place weekly over an academic year, this could allow for further research to implement STAD over a more extended period, allowing studies to make the suggested STAD group changes every six weeks. Using STAD this way may also provide an alternative approach to students' independent study time in higher education settings. Further research may investigate the impact of STAD in this setting, potentially looking longitudinally at students over their time in Sixth Form and then at undergraduate level. Linking to action research, completing a STAD programme over a more extended period of time could also allow for a deeper analysis of how the complex factors at play in a supervised study group setting develop over time.

These potential areas of further research have already started to become priorities for the school used for this study. This study provided useful insight and suggestions that were shared with the wider Sixth Form team, which has resulted in several adjustments to the supervised study provision provided for students. The supervised study provision within the school is an important area, and the school leadership team was keen to ensure it provided an impactful area for students to work and progress. This was supported further by the recent data collected showing over 30 students (12%) within the Sixth Form did not have a quiet suitable study area at home. Examples of developments made following this study include the approach to the staffing of the supervised study lessons. This has now moved away from the use of under-allocated teachers. Instead, the school has committed to a full-time learning support

assistant to run the supervised study sessions for most of the timetable each week. This has allowed the staff member to build strong relationships with the students, allowing them to have an improved oversight of the work students are completing.

In addition to the support provided in the room, the learning support assistant has launched several new initiatives as part of the revised supervised study provision. This includes a coordinated programme of half-termly task sheets for students to complete within the supervised study time. This is an attempt to organise students' completion of work more efficiently, ensuring the support assistant has improved oversight of work available to students each week, allowing for improved accountability from students.

The supervised study environment has also been developed to support cooperative working. Previously, the room was a strict, quiet working space, with desks set out in rows facing the front and students working independently. Following this study, the ergonomics in the room has been developed to include both a quiet section and an area for explicit group work. This cooperative space has had positive initial feedback from students, who use the space when they need to complete and discuss work with their peers. This should hopefully provide students with an area to work together as groups, changing the approach to supervised study to become more welcoming of cooperative learning.

This study has also had a broader school impact. From sharing the study findings with the wider senior leadership team, the school was keen to develop a wider research-based programme for teachers that allowed them to own their professional development through an action research-based project. With this mandate in mind, the school has recently joined a research community of schools, organised through the education faculty at a local university. The programme, led internally by the researcher of this study, allows teaching professionals to opt into a year long mini-research project, where they can explore research-based solutions to practical issues they are facing in their classrooms. The first cohort to join the programme had the chance to attend several community meetings, where key research topics such as

research question creation, methodology design and data analysis were discussed. Participants are also assigned a supervisor over the research period to support their mini-research study. Finally, at the end of the programme after completing a short report, teachers share their findings and next steps with the wider school as part of a poster conference in the summer term. This programme so far has shown a positive impact, with early career teachers to experienced upper pay scale staff having the chance to drive their own CPD and address specific issues in their everyday practice. Examples of studies in the first year include exploring the behaviour of Year 11 boys and addressing underachievement within A-Level Mathematics. The experience built as part of this study has allowed the researcher to be an authoritative lead on this school wide programme. It has given them the knowledge and skills to lead these research discussions confidently.

6.10 Summary

This study has demonstrated that the STAD cooperative learning model can positively impact student academic progress and motivation when used in a study environment outside of a traditional classroom setting. These 20 students in the subject of Business Studies have shown that with the correct levels of motivation by students at the start of the programme, they can improve their progress. This can include students assisting peers and being motivated by the recognition the STAD model provides in the form of its regular rewards.

However, key considerations should be made by schools looking to take this approach further. This includes the need for staff to increase their level of presence. Attendance should also be mandatory if schools want to maximise the provision. The topics and tasks set for student groups should also be considered, as well as regular, thorough training for groups for them to have the knowledge and capacity to work effectively as a group. If these factors can be addressed successfully, then a cooperative learning

approach such as STAD in a study environment, such as supervised study, might be a valuable addition to current approaches to student study areas, both in schools and other educational settings.

7.0 Reflections

Over the completion of this EdD study, I have developed in many ways, both personally and professionally. Personally, the completion of the programme has allowed me to develop my soft skills, such as time management. This EdD programme has taken over six years to complete, including completing a wide range of assignments and a final research project, taking the last four years in total. Completing such an extensive programme of study over such a significant period has required a careful, organised, and considered approach when planning my time. As a senior leader in a large secondary school with a busy family life, ensuring the EdD is prioritised where needed has been important, with time set aside for writing. This has included weekends and school holidays to ensure adequate time to draft and confirm each chapter. Through managing both a full-time job and academic study, I am now much more able to organise my time to ensure my professional work is completed whilst also managing family life.

This project has also run into several issues, which have required a high level of problem-solving and resilience at times. One primary example of this was the COVID-19 pandemic, which caused huge, unexpected disruption to the study and my professional role as Assistant Headteacher, responsible for Post 16. This included multiple lockdowns, online learning, and ensuring a successful return to school life for students, through the process of teacher assessed grades. Throughout these disruptions, I was able to stay positive and make the necessary adjustments where needed. The intervention cycle of the study, for example, was initially planned to run for two cycles of six weeks, although due to time restraints and delays, it could only run for one five-week cycle. I have also worked closely with my supervisors and university assessors, requesting additional time where needed.

The ability to communicate effectively with others has also been an area where I have developed significantly. This project has required effective communication with various stakeholders, including students, colleagues, and my supervision team. Over the programme, I have presented updates to colleagues within my school, both at the governor level and the whole staff at school inset days. This has allowed me to improve how I communicate my research findings, and I am now a much stronger presenter and communicator as a result. Sharing my initial findings at the university's PGR conference in June 2023 also assisted with this. It allowed me to gather the main themes from my initial data analysis, and presenting and answering questions from those in attendance allowed me to develop my confidence in my study and helped me reflect on how best to communicate my study findings with others. I have also benefitted from the professional relationship I have built with my two supervisors. Both have provided invaluable support, and our regular meetings and resulting feedback over the period have allowed me to improve my ability to communicate and ask for support, particularly when I am finding things difficult or pressured.

My knowledge and expertise in cooperative learning have also improved significantly because of this study. I have a strong understanding of cooperative learning methods, particularly Slavin's STAD model and how it can be applied to a variety of different educational contexts. I am proud of the work completed and the fact that it has brought about positive change in my school setting, including the development of the supervised study room to make it more cooperative. This study has also provided me with an improved ability to code and analyse data from a range of different sources. The mixed methods research approach, for example, has allowed me to build my experience conducting and leading a range of methods, including focus groups and student observations.

There have also been positive developments in my professional career throughout this EdD study. I am satisfied that there has been an impact because of the study suggestions, particularly in the Sixth Form

supervised study area of the Sixth Form. I am pleased that the school has also supported my passion for action research and encouraged the launch of the action research community within the school. The programme has made a strong start, and I am very proud of my achievements, which have included supporting other teaching colleagues with their mini-research projects, improving their teaching practice as a result.

In addition to leading the action research community, I have continued to use and develop the skills developed as part of the EdD. For example, I have completed further mini-research projects as part of the research community within the school, including piloting a flexible working timetable for teachers and running a teaching and learning research group, exploring the benefits and challenges of Artificial Intelligence within the classroom. Both recent examples have utilised my knowledge of the action research approach (identify issue, plan, action, observe and reflect) and my ability to work with others to explore potential developments. Finally, the skills and experience I have gathered over the EdD have contributed to my recent promotion within the school from Assistant Headteacher to Deputy Headteacher, now responsible for teaching and learning and the curriculum. During the application process for the promoted post, I was able to discuss my research findings in depth and demonstrate how I have utilised my knowledge and experience to work with others and drive school improvement.

References

Abdul Rehman, A., & Alharthi, K. (2016). An introduction to research paradigms. *International Journal of Educational Investigations*, *3*. https://api.semanticscholar.org/CorpusID:228253774

Ames, C., Ames, R., & Felker, D. W. (1977). Effects of competitive reward structure and valence of outcome on children's achievement attributions. *Journal of Educational Psychology*, *69*(1), pp1-8. https://doi.org/10.1037/0022-0663.69.1.1

Anderson, A. J., & Sankofa, N. (2025). Preparing for participatory action research: professional development to support education doctoral students' critical reflexivity. *Educational Action Research*, 1-15. https://doi.org/10.1080/09650792.2025.2495684

Aronson, E. (2002). *Chapter 10 - Building Empathy, Compassion, and Achievement in the Jigsaw Classroom*. In *Aronson (Ed.), Improving academic achievement: Impact of psychological factors on education* (pp. 209-225). Academic Press. https://doi.org/10.1016/B978-012064455-1/50013-0

Aronson, E., et al. (1978). *The jigsaw classroom*. Sage.

Assor, A., Kaplan, H., & Roth, G. (2002). Choice is good, but relevance is excellent: Autonomy-enhancing and suppressing teacher behaviours predicting students' engagement in schoolwork. *British Journal of Educational Psychology*, *72*, 261. https://doi.org/https://doi.org/10.1348/000709902158883

Atweh, B., Kemmis, S., & Weeks, P. (1998). *Action research in practice : partnerships for social justice in education*. Routledge.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall, Inc.

Bassey, M. (1999). *Case study research in educational settings*. Open University Press.

BBC. (2021). *Exams: Covid grade inflation to be wound back over two years*. BBC News Retrieved 10th January from https://www.bbc.co.uk/news/education-58734418

BERA, B. E. R. A. (2024). *Ethical Guidelines for Educational Research (5th ed.)*. British Educational Research Association. https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2024

Black, I. (2006). The presentation of interpretivist research. *Qualitative Market Research: An International Journal*, *9*(4), 319-324. https://doi.org/10.1108/13522750610689069

Burton, N., Brundrett, M., & Jones, M. (2014). *Doing Your Education Research Project* (2;Second;Second; ed.). SAGE Publications, Limited. https://doi.org/10.4135/9781473921849

Casey, A., Dyson, B., & Campbell, A. (2009). Action research in physical education: focusing beyond myself through cooperative learning. *Educational Action Research*, *17*(3), 407-423. https://doi.org/10.1080/09650790903093508

Cohen, E., Lotan, R., Scarloss, B., & Arellano, A. (1999). Complex instruction: Equity in cooperative learning classrooms. *Theory Into Practice - THEORY PRACT*, *38*, 80-86. https://doi.org/10.1080/00405849909543836

Cohen, L., Manion, L., & Morrison, K. (2017). *Research Methods in Education*. Taylor & Francis Group. http://ebookcentral.proquest.com/lib/reading/detail.action?docID=5103697

Coleman, J. (2006). The Adolescent Society. *Education next*, *6*(1).

Coleman, P. T., Deutsch, M., & Marcus, E. C. (2014). *The Handbook of Conflict Resolution : Theory and Practice*. John Wiley & Sons, Incorporated. http://ebookcentral.proquest.com/lib/reading/detail.action?docID=1643662

Coultard, L. (2023). T Levels: The story so far and the shape of things to come. https://schoolsweek.co.uk/t-levels-the-story-so-far-and-the-shape-of-things-to-come/

Czerniawski, G., & Thomason, M. (2025). Researcher Positionality, Power and Doctoral Research. In J. Roffey-Barentsen & I. Burnell Reilly (Eds.), *Completing Your EdD: The Essential Guide to the Doctor of Education, Second Edition* (pp. 145-172). Emerald Publishing Limited. https://doi.org/10.1108/978-1-83608-814-120252007

Davies, W. (2014). Neoliberalism: A Bibliographic Review. *Theory, Culture & Society*, *31*(7-8), 309-317. https://doi.org/10.1177/0263276414546383

Deci, E., Vallerand, R., Pelletier, L., & Ryan, R. (1991). Motivation and Education: The Self-Determination Perspective. *Educational Psychologist*, *26*(3), 325-346. https://doi.org/10.1207/s15326985ep2603&4_6

Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, *11*(4), 227-268. https://doi.org/10.1207/S15327965PLI1104_01

Deutsch, M. (1949a). An Experimental Study of the Effects of Co-Operation and Competition upon Group Process. *Human Relations*, *2*(3), 199-231. https://doi.org/10.1177/001872674900200301

Deutsch, M. (1949b). A Theory of Co-operation and Competition. *Human Relations*, *2*(2), 129-152. https://doi.org/10.1177/001872674900200204

Deutsch, M. (1973). The Resolution of Conflict:Constructive and Destructive Processes. *American Behavioral Scientist*, *17*(2), 248-248. https://doi.org/10.1177/000276427301700206

DeVries, D. L., & Edwards, K. J. (1974). Student teams and learning games: Their effects on cross-race and cross-sex interaction. *Journal of Educational Psychology*, *66*(5), 741-749. https://doi.org/10.1037/h0037479

DfE. (2014). 16 to 18 accountability headline measures: Guide for schools, colleges and local authorities on how the 16 to 18 performance measures are calculated.

https://www.gov.uk/government/publications/16-to-19-accountability-headline-measures-technical-guide

DfE. (2023). *Teachers' strikes latest: Everything you need to know about strike action in schools*. Department of Education https://educationhub.blog.gov.uk/2023/06/everything-you-need-to-know-about-strike-action-in-schools-and-colleges/

Edexcel. (2015). *A Level Business Studies Specification* https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/business-2015.html

Edexcel, P. (2023). *Pearson BTEC Level 3 National Certificate in Business Specification: First teaching from September 2016*. https://qualifications.pearson.com

Elliott, J. (1991). *Action research for educational change*. Open University Press.

Faust, J., & Paulson, D. R. (1998). Active Learning in the College Classroom. *Journal on excellence in college teaching*, *9*, 3-24.

Forth, A. (2014). *Students Supporting Students – An Investigation into Cooperative Learning in Vocational Business Studies* [Unpublished MSc Thesis, University of Oxford].

Fulbrook, M. (1978). Max Weber's 'Interpretive Sociology': A Comparison of Conception and Practice. *The British Journal of Sociology*, *29*(1), 71-82. https://doi.org/10.2307/589220

Gillies, R. M. (2014). Developments in Cooperative Learning: Review of Research *Anales de Psicología*, *30*(3), 792-801. https://doi.org/https://doi.org/10.6018/analesps.30.3.201191

Gocłowska, M. A., Aldhobaiban, N., Elliot, A. J., Murayama, K., Kobeisy, A., & Abdelaziz, A. (2017). Temperament and self-based correlates of cooperative, competitive and individualistic learning preferences. *International journal of psychology*, *52*(3), 180-188. https://doi.org/10.1002/ijop.12206

Gov.uk. (2024). *Compare school and college performance in England*. https://www.compare-school-performance.service.gov.uk/

Grix, J. (2004). *Foundations of Research*. Palgrave Macmillan Limited. http://ebookcentral.proquest.com/lib/reading/detail.action?docID=433562

Hall, R. (2023). *Mental health among UK secondary pupils worsened sharply in pandemic, study shows*. The Guardian. Retrieved January 2024 from https://www.theguardian.com/society/2023/sep/21/mental-health-among-uk-secondary-pupils-worsened-sharply-in-pandemic-study-shows

Harris, S. (2007). *The governance of education : how neo-liberalism is transforming policy and practice*. Continuum.

Harvey, D. (2006). *A Brief History of Neoliberalism*. https://doi.org/10.1093/oso/9780199283262.001.0001

Hattie, J. (2009). *Visible learning : a synthesis of over 800 meta-analyses relating to achievement* (9780203887332)

Hill, G. (2024). *The Politics of Action Research: A Storytelling Inquiry*. Cambridge Scholars Publishing.

Hockings, C., Thomas, L., Ottaway, J., & Jones, R. (2018). Independent learning – what we do when you're not there. *Teaching in Higher Education*, *23*(2), 145-161. https://doi.org/10.1080/13562517.2017.1332031

Holmes, A. (2020). Researcher Positionality - A Consideration of Its Influence and Place in Qualitative Research - A New Researcher Guide. *Shanlax International Journal of Education*, *8*, 1-10. https://doi.org/10.34293/education.v8i4.3232

Hopkins, D. (2014). *Teacher'S Guide To Classroom Research*. McGraw-Hill Education. http://ebookcentral.proquest.com/lib/reading/detail.action?docID=1910216

Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging Students in Learning Activities: It Is Not Autonomy Support or Structure but Autonomy Support and Structure. *Journal of Educational Psychology*, *102*(3). https://doi.org/10.1037/a0019682

Johnson, D., & Johnson, R. (1996). Cooperation and the use of technology. *Handb Res Educ Commun Technol*.

Johnson, D., & Johnson, R. T. (2015). Cooperation and Competition. In (pp. 856-861). https://doi.org/10.1016/B978-0-08-097086-8.24051-8

Johnson, D., Johnson, T., & Stanne, M. (2000). Cooperative learning methods: A meta-analysis.

Johnson, D. W. (1981). Effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. *Psychological bulletin*, *89*(1), 47-62. https://doi.org/10.1037/0033-2909.89.1.47

Johnson, D. W. (2014). Cooperative Learning in 21st Century. . *Anales de Psicología*, *30*(3), 841-851. https://doi.org/http://dx.doi.org/10.6018/analesps.30.3.201241

Johnson, D. W., & Johnson, R. T. (1994). *Learning together and alone : cooperative, competitive, and individualistic learning* (4th ed.). Allyn and Bacon.

Johnson, D. W., & Johnson, R. T. (2002). Learning Together and Alone: Overview and Meta-analysis. *Asia Pacific Journal of Education*, *22*(1), 95-105. https://doi.org/10.1080/0218879020220110

Johnson, D. W., Johnson, R. T., & Holubec, E. J. (1994). *The New Circles of Learning : Cooperation in the Classroom and School*. Association for Supervision & Curriculum Development. http://ebookcentral.proquest.com/lib/reading/detail.action?docID=513967

Johnson, D. W., Johnson, R. T., & Taylor, B. (1993). Impact of cooperative and individualistic learning on high-ability students' achievement, self-esteem, and social acceptance. *Journal of Social Psychology*, *133*(6), 839.

Johnson, R. T., Johnson, D. W., & Stanne, M. B. (1985). Effects of Cooperative, Competitive, and Individualistic Goal Structures on Computer-Assisted Instruction. *Journal of Educational Psychology*, *77*(6). https://doi.org/10.1037/0022-0663.77.6.668

Kagan, S. (1985). Dimensions of Cooperative Classroom Structures. In R. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb, & R. Schmuck (Eds.), *Learning to Cooperate, Cooperating to Learn* (pp. 67-96). Springer US. https://doi.org/10.1007/978-1-4899-3650-9_3

Kamberelis, G., & Dimitriadis, G. a. (2013). *Focus groups : from structured interviews to collective conversations*.

Kamler, B., & Thomson, P. (2014). *Helping Doctoral Students Write: Pedagogies for supervision* (2;Second; ed.). Routledge. https://doi.org/10.4324/9781315813639

Kemmis, S. (1980). Action Research in Retrospect and Prospect.

Kemmis, S., McTaggart, R. a., & Nixon, R. a. (2014). *The action research planner : doing critical participatory action research*. Springer.

Koshy, V. (2005). *Action research for improving practice : a practical guide*. Thousand Oaks PCP/Sage Publications. Table of contents only http://www.loc.gov/catdir/toc/fy0606/2004117261.html

Publisher description http://www.loc.gov/catdir/enhancements/fy0657/2004117261-d.html

Krueger, R. A., & Casey, M. A. c. (2015). *Focus groups : a practical guide for applied research* (5th edition ed.).

Lankshear, C., & Knobel, M. (2004). *A handbook for teacher research : from design to implementation*.

Lau, K. (2017). 'The most important thing is to learn the way to learn': evaluating the effectiveness of independent learning by perceptual changes. *Assessment and evaluation in higher education*, *42*(3), 415-430. https://doi.org/10.1080/02602938.2015.1118434

Lewin, K. (1946). Action Research and Minority Problems. *Journal of social issues*, *2*(4), 34-46. https://doi.org/10.1111/j.1540-4560.1946.tb02295.x

Lewis, J. (2024). *The reform of level 3 qualifications in England* https://commonslibrary.parliament.uk

Lewis, J. B., Paul. (2025). *Further education funding in England*.

Mack, N., Woodsong, C., Macqueen, K., Guest, G., & Namey, E. (2005). *Qualitative Research Methods: A Data Collector's Field Guide*.

Marsh, D., & Stoker, G. (2002). *Theory and methods in political science* (2nd ed.). Palgrave Macmillan.

Mason, M. (2008). Complexity Theory and the Philosophy of Education. *Educational philosophy and theory*, *40*(1), 4-18. https://doi.org/10.1111/j.1469-5812.2007.00412.x

Mclean, D. W., Jack. Smith, Andrew. (2024). *Teacher Labour Market in England: Annual Report 2024*.

McNiff, J. (1992). *Teaching as learning : an action research approach*. Routledge.

McNiff, J. (2013). *Action research: principles and practice* (3rd ed ed.). Routledge.

McNiff, J. (2014). *Writing and doing action research*.

McNiff, J., & Whitehead, J. (2005). *Action research for teachers : a practical guide*. David Fulton Publishers.

Mercer, J. (2007). The challenges of insider research in educational institutions: Wielding a double-edged sword and resolving delicate dilemmas. *Oxford review of education*, *33*(1), 1-17. https://doi.org/10.1080/03054980601094651

Mistrano, A. (2008). Practitioner research regarding independent learning in sixth-form education within eight Bedfordshire schools. *Teacher development*, *12*(3), 165-177. https://doi.org/10.1080/13664530802259198

Morgan, J. (2014). *HEPI Survey Highlights Wide Disparity in Contact Hours*. Times Higher Education Supplement. Retrieved 15.04.21 from https://www.timeshighereducation.com/news/hepi-survey-highlights-wide-disparity-in-contact-hours/2013489.article

Moskowitz, J. M., Malvin, J. H., Schaeffer, G. A., & Schaps, E. (1985). Evaluation of Jigsaw, a cooperative learning technique. *Contemporary Educational Psychology*, *10*(2), 104-112. https://doi.org/https://doi.org/10.1016/0361-476X(85)90011-6

Munusamy, E., & Ganesan, M. (2021). Meta Analysis of Study Habits and Academic Achievement. *Shanlax International Journal of Arts, Science and Humanities*, *8*, 139-145. https://doi.org/10.34293/sijash.v8i4.3722

Murayama, K., & Elliot, A. (2012). The Competition-Performance Relation: A Meta-Analytic Review and Test of the Opposing Processes Model of Competition and Performance. *Psychological bulletin*, *138*, 1035-1070. https://doi.org/10.1037/a0028324

Newby, P. (2014). *Research methods for education* (2nd ed ed.). Routledge.

Ntoumanis, N. (2005). A Prospective Study of Participation in Optional School Physical Education Using a Self-Determination Theory Framework. *Journal of Educational Psychology*, *97*(3). https://doi.org/10.1037/0022-0663.97.3.444

OfQual. (2018). Get the facts: AS and A level reform. https://www.gov.uk/government/publications/get-the-facts-gcse-and-a-level-reform/get-the-facts-as-and-a-level-reform

OfQual. (2020). *Summer 2020 grades for GCSE, AS and A level, Extended Project Qualification and Advanced Extension Award in maths: Guidance for teachers, students, parents and carers*. Coventry: Crown Copyright 2020 Retrieved from

https://assets.publishing.service.gov.uk/media/5f3261f3e90e0732ddaf4288/Summer_2020_grades_for_GCSE_AS_and_A_level_110820.pdf

Ofsted. (2019). *Education inspection framework*. https://www.gov.uk/government/publications/education-inspection-framework

Ofsted. (2024). *School Inspection Handbook*. https://www.gov.uk/government/publications/school-inspection-handbook-eif/school-inspection-handbook-for-september-2023

Pearson Edexcel. (2014). *A Level Business Specification* https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/business-2015.html

Phelps, R., & Hase, S. (2002). Complexity and action research: exploring the theoretical and methodological connections. *Educational Action Research*, *10*(3), 507-524. https://doi.org/10.1080/09650790200200198

Pollock, E., Chandler, P., & Sweller, J. (2002). Assimilating complex information. *Learning and instruction*, *12*(1), 61-86. https://doi.org/10.1016/S0959-4752(01)00016-0

Powney, J., & Watts, M. (1987). *Interviewing in educational research*. Routledge & Kegan Paul.

Qualifications, J. C. f. (2021). *JCQ Guidance on the determination of grades for A/AS Levels and GCSEs for Summer 2021: PROCESSES TO BE ADOPTED BY EXAM CENTRES AND SUPPORT AVAILABLE FROM AWARDING ORGANISATIONS*. Retrieved from https://www.jcq.org.uk/wp-content/uploads/2021/07/JCQ-Guidance-on-the-Determination-of-Grades-for-A-AS-Levels-and-GCSEs-Summer-2021.pdf

Reeve, J., & Jang, H. (2006). What Teachers Say and Do to Support Students' Autonomy During a Learning Activity. *Journal of Educational Psychology*, *98*(1). https://doi.org/10.1037/0022-0663.98.1.209

Richards, K. (2003). *Qualitative Inquiry in TESOL*. Palgrave Macmillan UK.

Roediger, H. L., & Karpicke, J. D. (2006). Test-Enhanced Learning: Taking Memory Tests Improves Long-Term Retention. *Psychological Science*, *17*(3), 249-255. http://www.jstor.org/stable/40064526

Ryan, L., & Golden, A. (2006). 'Tick the Box Please': A Reflexive Approach to Doing Quantitative Social Research. *Sociology*, *40*(6), 1191-1200. https://doi.org/10.1177/0038038506072287

Ryan, R. M., & Powelson, C. L. (1991). Autonomy and Relatedness as Fundamental to Motivation and Education. *The Journal of Experimental Education*, *60*(1), 49-66. https://doi.org/10.1080/00220973.1991.10806579

Schunk, D. H., & Hanson, A. R. (1985). Peer models: Influence on children's self-efficacy and achievement. *Journal of Educational Psychology*, *77*(3), 313-322. https://doi.org/10.1037/0022-0663.77.3.313

Sharan, Y. (2014). Learning to cooperate for cooperative learning. [Aprendiendo a cooperar en el aprendizaje cooperativo]. *Anales de psicología (Murcia, Spain)*, *30*(3), 802. https://doi.org/10.6018/analesps.30.3.201211

Sharan, Y., & Sharon, S. (1989). Group Investigation Expands Cooperative Learning. *Educational Leadership*, *47*(4), 17.

Shenton, A. K. (2021). *Facilitating Effective Sixth Form Independent Learning: Methodologies, Methods and Tools* (1 ed.). Facet Publishing. https://doi.org/10.29085/9781783305605

Slavin, R. (1978). Student teams and comparison among equals: Effects on academic performance and student attitudes. *Journal of Educational Psychology*, *70*, 532-538. https://doi.org/10.1037/0022-0663.70.4.532

Slavin, R. (1985). *Learning to cooperate, cooperating to learn*. Plenum Press.

Slavin, R. (2011). Instruction Based on Cooperative Learning. *Handbook of Research on Learning and Instruction*.

Slavin, R. E. (1984). Students motivating students to excel: Cooperative incentives, cooperative tasks, and student achievement. *The Elementary School Journal*, *85*(1), 53-63. https://doi.org/10.1086/461391

Slavin, R. E. (1987). Cooperative Learning: Where Behavioral and Humanistic Approaches to Classroom Motivation Meet. *The Elementary School Journal*, *88*(1), 29-37. www.jstor.org/stable/1002001

Slavin, R. E. (1988, Apr 1988). Cooperative Learning and Individualized Instruction. *The Education Digest*, *53*(8), 23.

Slavin, R. E. (1989). Cooperative learning and student achievement. *Education Digest*, *54*(6), 15.

Slavin, R. E. (1995). *Cooperative learning : theory, research, and practice* (2nd ed.). Allyn and Bacon.

Slavin, R. E. (1996). Research on Cooperative Learning and Achievement: What We Know, What We Need to Know. *Contemporary Educational Psychology*, *21*(1), 43-69. https://doi.org/https://doi.org/10.1006/ceps.1996.0004

Slavin, R. E. (2015). Cooperative Learning in Schools. In J. D. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)* (pp. 881-886). Elsevier. https://doi.org/https://doi.org/10.1016/B978-0-08-097086-8.92028-2

Slavin, R. E., & Karweit, N. L. (1984). Mastery learning and student teams: A factorial experiment in urban general mathematics classes. *American Educational Research Journal*, *21*(4), 725-736. https://doi.org/10.2307/1162997

Smith, J. H. (1987). ELTON MAYO AND THE HIDDEN HAWTHORNE. *Work, Employment & Society*, *1*(1), 107-120. http://www.jstor.org/stable/23745146

Spradley, J. P. (1980). *Participant observation*. Holt, Rinehart and Winston.

Stanne, M. B., Johnson, D. W., & Johnson, R. T. (1999). Does Competition Enhance or Inhibit Motor Performance: A Meta-Analysis. *Psychological bulletin*, *125*(1), 133-154. https://doi.org/10.1037/0033-2909.125.1.133

Stoten, D. W. (2014). Are we there yet? Progress in promoting independent learning in a Sixth Form College. *Educational studies*, *40*(4), 452-455. https://doi.org/10.1080/03055698.2014.930342

Suwartono, T., & Romdona, Y. (2024). The Jigsaw Learning Model to Promote Engagement in the English Language Classroom: A Teacher's Reflection. *Acta Pedagogia Asiana*, *3*, 55-64. https://doi.org/10.53623/apga.v3i2.401

Tajfel, H. (1982). Social Psychology of Intergroup Relations. *Annual review of psychology*, *33*(1), 1-39. https://doi.org/10.1146/annurev.ps.33.020182.000245

Tajfel, H., & Turner, J. C. (2004). *The Social Identity Theory of Intergroup Behavior* [doi:10.4324/9780203505984-16]. Psychology Press. https://doi.org/10.4324/9780203505984-16

Tajfel, H. e. (1978). *Differentiation between social groups : studies in the social psychology of intergroup relations*.

Thomas, L. (2024). The Researcher's Gaze: Positionality and Reflexivity. In J. Cyr & S. W. Goodman (Eds.), *Doing Good Qualitative Research* (pp. 0). Oxford University Press. https://doi.org/10.1093/oso/9780197633137.003.0003

Thompson, K. (2023). Neolibralism Education. https://revisesociology.com/2022/10/31/neoliberalism-education/

Tiantong, M., & Teemueangsa, S. (2013). Student Team Achievement Divisions (STAD) Technique through the Moodle to Enhance Learning Achievement. *International Education Studies*, *6*, 85-92. https://doi.org/10.5539/ies.v6n4p85

UK Government. (1988). *Education Reform Act* https://www.legislation.gov.uk/ukpga/1988/40/introduction

Van Wyk, M. (2012). The Effects of the STAD-Cooperative Learning Method on Student Achievement, Attitude and Motivation in Economics Education. *Journal of Social Sciences*, *33*, 261-270. https://doi.org/10.1080/09718923.2012.11893104

Vaughan, W. (2002). Effects of Cooperative Learning on Achievement and Attitude Among Students of Color. *The Journal of educational research (Washington, D.C.)*, *95*(6), 359-364. https://doi.org/10.1080/00220670209596610

Vaughn, S., Schumm, J. S., & Sinagub, J. (1996). *Focus group interviews in education and psychology*. Sage.

Vu, N. C., Hooker, J. F., & Simonds, C. J. (2021). Cooperative, competitive, or individualistic? Exploring the role of social interdependence in the classroom. *Communication Education*, *70*(3), 247-265. https://doi.org/10.1080/03634523.2020.1851733

Webb, N. M. (1982). Peer interaction and learning in cooperative small groups. *Journal of Educational Psychology*, *74*(5), 642-655. https://doi.org/10.1037/0022-0663.74.5.642

Whittaker, F. (2023). *'I don't really care anymore': Parent apathy on attendance laid bare*. Schools Week. Retrieved Sept 2024 from https://schoolsweek.co.uk/i-dont-really-care-anymore-parent-apathy-on-attendance-laid-bare/

Wilbraham, S. J., Jones, E., Brewster, L., Priestley, M., Broglia, E., Hughes, G., & Spanner, L. (2024). Inclusion or Isolation? Differential Student Experiences of Independent Learning and Wellbeing in Higher Education. *Education sciences*, *14*(3), 285. https://doi.org/10.3390/educsci14030285

Yang, C., Luo, L., Vadillo, M., Yu, R., & Shanks, D. (2021). Testing (quizzing) boosts classroom learning: A systematic and meta-analytic review. *Psychological bulletin*, *147*. https://doi.org/10.1037/bul0000309

Yip, S. Y. (2024). Positionality and reflexivity: negotiating insider-outsider positions within and across cultures. *International journal of research & method in education*, *47*(3), 222-232. https://doi.org/10.1080/1743727X.2023.2266375

Zembylas, M. (2025). Rethinking positionality statements in research: from looking back to building solidarity. *International journal of research & method in education*, 1-13. https://doi.org/10.1080/1743727X.2025.2475762

Zimmerman, B. J. (1989). A Social Cognitive View of Self-Regulated Academic Learning. *Journal of Educational Psychology*, *81*(3), 329-339. https://doi.org/10.1037/0022-0663.81.3.329

Zingaro, D. (2008). Group Investigation: Theory and Practice.

Appendices

Appendix A: Student Information Sheet

PARTICIPANT INFORMATION SHEET

Research Project: The impact of Cooperative Learning on student progress in Sixth Form Supervised Study. **Project Team Members**: XXXXXX

Dear Student,
I would like to invite you to take part in a research study I am undertaking as part of my educational doctorate.

What is the study?

The research project will form the final thesis for Part B of the EdD programme. I aim to provide an original contribution of knowledge to the educational profession, through exploring how cooperative learning methods might provide a format for students to make increased levels of progress within their independent study time at Key Stage Five.

Why have I been chosen to take part?

The project will be exploring how cooperative learning methods might improve student progress in Sixth Form Supervised Study. As you are a student in Year 13, this is why you have been selected. As you also study A Level Business, this would make assessing your academic progress over the project easier to assess, as you are also a subject student of the researcher.

Do I have to take part?

It is entirely up to you whether you give your consent to participate. You may also withdraw your consent to participation at any time during the project, without any repercussions to you, by contacting XXXXXX.

What will happen if I take part?

If you decide to take part, you will be asked to complete several cooperative learning activities within your Supervised Study time over a eight-week period between January and March 2023. These activities will last for no more than one hour each week and will include working in a small group of no more than four other Year 13 Business Students. These group activities will take place in your normal Supervised Study time and will not require any additional time commitments. Over the period, a total of three 30-minute focus groups will also be conducted with the researcher, where the project to date will be discussed, including how students think they are progressing over the study. This will only take place with one of the groups. Over this six-week period, you will also take part in a weekly knowledge quiz within Business lessons that will be used to assess the class progress over the study period.

What are the risks and benefits of taking part?

The information given by participants in the study will remain confidential and will only be seen by the research team listed at the start of this letter. Neither you nor the school will be identifiable in any published report resulting from the study. Information about individuals will not be shared with the University.

Taking part in this study will give you the opportunity to trial cooperative learning methods within your supervised study. These methods may allow you to make additional progress in your studies and could give you the opportunity to develop your ability to work effectively with others. You will also have experience of being involved in a research project at doctorate level, which could be used as part of future university applications.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. All data recorded will also be kept in secure locations such as password protected devices and locked filing cabinets.

In line with the University's policy on the management of research data, anonymised data gathered in this research may be preserved and made publicly available for others to consult and re-use. All anonymised research data will be retained indefinitely whereas any identifying information such as consent forms will be disposed of securely after the research findings have been written up. The results of the study will be presented at national and international conferences, and in written reports and articles. We can send you electronic copies of these publications if you wish.

Who has reviewed the study?

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.

What happens if I change my mind?

You can change your mind at any time without any repercussions. If you change your mind after data collection has ended, we will discard your data.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact XXXXX (supervisor), University of Reading; Tel: XXXXXXXXX, email: XXXXXXXXX

Where can I get more information?

If you would like more information, please contact the researcher. We do hope that you will agree to your participation in the study. If you do, please complete the attached consent form and return it to me.

If you are happy to take part, please complete and return to myself the attached consent form.

Yours faithfully
XXXXXXX

Data Protection Information

The organisation responsible for protection of your personal information is the University of Reading (the Data Controller). Queries regarding data protection and your rights should be directed to the University Data Protection Officer at imps@reading.ac.uk, or in writing to: Information Management & Policy Services, University of Reading, Whiteknights, P O Box 217, Reading, RG6 6AH.

The University of Reading collects, analyses, uses, shares, and retains personal data for the purposes of research in the public interest. Under data protection law we are required to inform you that this use of the personal data we may hold about you is on the lawful basis of being a public task in the public interest and where it is necessary for scientific or historical research purposes. If you withdraw from a research study, which processes your personal data, dependant on the stage of withdrawal, we may still rely on this lawful basis to continue using your data if your withdrawal would be of significant detriment to the research study aims. We will always have in place appropriate safeguards to protect your personal data. You have certain rights under data protection law which are:

- Withdraw your consent, for example if you opted in to be added to a participant register
- Access your personal data or ask for a copy
- Rectify inaccuracies in personal data that we hold about you
- Be forgotten, that is your details to be removed from systems that we use to process your personal data
- Restrict uses of your data
- Object to uses of your data, for example retention after you have withdrawn from a study

Some restrictions apply to the above rights where data is collected and used for research purposes. You can find out more about your rights on the website of the Information Commissioners Office (ICO) at https://ico.org.uk. You also have a right to complain the ICO if you are unhappy with how your data has been handled. Please contact the University Data Protection Officer in the first instance.

Appendix B: Student Consent Form

Student Consent Form

Research Project: *The impact of Cooperative Learning on student progress in Sixth Form Supervised Study*

Please complete and return this form to: XXXXXXX

1. I have read the information sheet about the project and received a copy of it. ☐

2. I understand what the purpose of the study is and what you want me to do.

All my questions have been answered. ☐

3. I agree to being observed whilst completing cooperative learning activities within

Supervised Study lessons ☐

4. I agree to taking part in three 30-minute focus groups over this project to discuss my

own perceptions and progress over this project ☐

5. I agree to the focus groups being video recorded ☐

Name:

Signed:

Date:

Appendix C: Headteacher Information Sheet

Researcher:

Name: XXXXXX

Phone : XXXXXXX

Email: XXXXXXXXX

Supervisor:

Name: XXXXX

Phone : XXXXX

Email: XXXXXXX

INFORMATION SHEET

Research Project (Title): *The impact of Cooperative Learning on student progress in Sixth Form Supervised Study*

Dear XXXXX

I am an EdD candidate at the University of Reading, UK. As part of my final research thesis, I am looking to investigate the impact of cooperative learning methods on student motivation and academic progress within Sixth Form Supervised Study provision. I am writing to invite you to take part in the research project.

What is the project?

The research project will form the final thesis for Part B of the EdD programme. I aim to provide an original contribution of knowledge to the educational profession, through exploring how cooperative learning methods might provide a format for students to make increased levels of progress within their independent study time at Key Stage Five.

Why have I been chosen to take part?

The project will be exploring how cooperative learning methods might improve on provision within my own working practice as a teacher within the school. Due to this action research focus, the project will look to take place within the Supervised Study provision at Key Stage Five with my own Year 13 Business Studies Cohort. Therefore, the project requires permission from yourself as Headteacher for the research to go ahead.

Do I have to take part?

It is entirely up to you whether you give permission to participate. You may also withdraw your consent to participation at any time during the project, without any repercussions to you, by contacting me, the Project Researcher.

What will happen if I take part?

If you agree for the school to participate in this study, the group of 20 Year 13 A level Business studies students will be selected for the project. These students will be given a detailed information sheet and will also consent themselves to be part of the research project. The data collection will take place over an 8-week period between January and March 2023 and will involve initial observations of the students working in the Supervised Study lessons and students attempting cooperative learning methods in small groups within select Supervised Study lessons.

One of the small groups will also be involved in three focus groups over the eight-week period of the project, which will be recorded using the school IRIS software. All 20 students will complete five weekly lesson-based quizzes to assess their academic progress over the research period.

What are the risks and benefits of taking part?

Students involved in the study will be provided with a comprehensive information sheet and will give written consent to be involved in the study. Within the information sheet and before every focus group, students will be reminded of their right to withdraw from the study at any time. The information given by the adult student respondents will remain confidential and will only be seen by the researcher and supervisor listed at the top of the letter. All students will also be assigned a pseudonym, which will not be associated with their own names. No identifiers linking them to the study will be included in the thesis write up. All possible links and references to the school will also be removed from the study analysis. This additional provision provided to the students will not replace any standard teaching practices within the subject. The benefits of taking part include opportunity to be involved in a research project that may improve the progress of students involved and potentially provide recommendations for further development of cooperative methods within Sixth Form Supervised Study and the wider school.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in the subsequent thesis. The records of this study will be kept private. No identifiers linking participants or the school to the study will be included in the thesis. Participants will be assigned a pseudonym and will be referred to by that in all records. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the researcher and the supervisor identified at the top of this letter will have access to the records.

What happens if I change my mind?

You can change your mind at any time without any repercussions. If you change your mind after data collection has ended, we will discard the data.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact XXXXX

Where can I get more information?

If you would like more information, please contact the researcher. I do hope that you will agree to your participation in the study. If you do, please complete the attached consent form and return it to myself.

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.

Appendix D: Headteacher Consent Form

Researcher:

Name: XXXXXXX

Phone : XXXX

Email: XXXXXX

Supervisor:

Name: XXXX

Phone : XXX

Email: XXXXX

School Consent Form

Research Project (Title): *The impact of Cooperative Learning on student progress in Sixth Form Supervised Study*

I have read and had explained to me by XXXX in the Information Sheet relating to this EdD project.

I have had explained to me the purpose of the project and what will be required of me, and any questions have been answered to my satisfaction. I agree to the arrangements described in the Information Sheet in so far as they relate to XXXXXXXX.

I understand that the school's participation is entirely voluntary and that I have the right to withdraw the school from the project any time, without giving a reason and without repercussions.

I have received a copy of this Consent Form and of the accompanying Information Sheet.

Please delete as appropriate:

I consent to the cooperative learning research project taking place with a select group of students

at XXXXXXX

YES/NO

I consent to this data to be securely recorded and analysed

YES/NO

Name:

Signed:

Date:

Appendix E: Focus Group 1 Sample Questions

Focus Group 1 – Initial Questions

Date: XXX

Time: XXXX

Questions

1. Give me a summary of how it is going?
2. What have been the benefits to the group work so far?
3. Compared to your usual working in Supervised Study before, how does the group work compare?
4. Has there been any issues the group have faced to date?
5. Tell me how you are finding the resources?
6. Is there anything you would change?
7. How did you feel about your quiz scores so far?
8. How do you feel about your groups ranking in the first round?

Appendix F: Focus Group Transcript Sample Coding

Focus Group Two Transcript

Week 4 of Cycle

Participants and Codes

- Mod – Moderator/ Researcher
- 4B – Participant One
- 3A – Participant Two
- 5B - Participant Three
- 3C - Participant Four – did not attend.

Transcript

- *Mod: This is firstly a reminder that no other students will be seeing this footage or receiving this information. This meeting is being video recorded and will then be transcribed with student names and references to the schools and class will be removed to ensure that the data remains anonymous. Once the video has been transcribed the footage will be permanently deleted off all devices. Please be natural.*

- *Mod: So, we are just going to start off asking some general open questions on how you are finding the group project. I am aware we have had some adjustments recently to the quizzes and awards due to assembly changes and mock exams that have impacted the schedule a little. Despite this, I am very interested in how as a group you are doing.*

- *Mod: As there been any positive progress in your ability to work effectively as a group and if so, how?*

- *3A: I mean some of the resources are useful, it's like recapping but, erm. Like for what we need to revise but some of it is just not helpful, and I don't understand it.*

- *Mod: ok, can you give some examples?*

- *3A: I think. I don't know, I can remember off the top of my head right now.*

- *Mod: that's ok, is it because when you read the material it's hard to make sense of, or is it something else?*

- *3A: Yeah, I just didn't get some of it.*

- *Mod: Ok that's interesting, thank you. Any other thoughts from anyone else on that?*

- *5B: I think in the group meetings it is good, everyone can bring in their own contributions, so they can bring in their own revising techniques, and erm their own knowledge to the table. I have gone to every one of them coz I want to do well in the exams for uni.*

- *Mod: And has that what has been happening in your group meetings?*

- *5B: Yeah, we met a few times at the beginning but then we stopped towards the start of the exams. So, we didn't meet before the finance quiz.*

- *Mod: Interesting. And are you planning to meet for the last group meeting this week?*

- *5B: Yeah, I think so.*

- *Mod: And when you did meet how useful did you find the resources?*

- *5B: I looked at the resources in House Tutor before the main meeting because we have independent prep time once a week in that time. Usually, I like doing my own independent research, but the group work does help as you can get extra information from what other people tell you.*

- *Mod: So the group meetings were useful to learning?*

- *5B: Yeah. We used bits of the research packs each time but not all of it.*

- *What about your group 4B?*

- *4B: This week we didn't meet but we did meet in every other week. We find the resources are alright, it's like but with the finance one, I found there was probably too much information. I think that might have been the problem with that. There was quite a lot of writing, so you had to read all that information and then pick out the key points.*

- *Mod: But its great you have kept the meetings going which is great. I am also aware that your group have won twice. What impact do you think that has had?*

- *4B: Probably just by chance if I'm honest.*

- *Mod: and we have also added in the weekly email along with the recognition and trophy for the winning group, has that had any impact do you think?*

- *4B: To some extent because, it shows that the hard work is paying off, so I think yeah it does. When we won it felt good and my parents were happy.*

- *Mod: for the other two of you, how did it make you feel when Group 4 won those two times?*

- *5B: I think we need to do a bit more work obviously, and erm, maybe the group work could help if we attended it and, I think the group work needs to be done a bit more efficiently, coz erm you might not be able to erm, do it, like in a good way. So, like the first week we erm, we took it in turns and read one paragraph each, so we did that, but I don't think it was efficient enough in the time we had to erm really revise all the topics.*

- *Mod: Do you think the group had enough training then and guidance to plan their own ways of efficiently working as a group?*

- *3A: I think we could do with some more guidance and what to do in the time as a group. Like my group has not met at all. We have only met like once or twice. And you know, no one seems bothered in my group. So recently I went to Group 1 to work with 1B, going through the workbook with her and I am in the same study room as her and they try and meet as a group.*

- *Mod: Interesting so you have recently joined another group informally. Why do you think your group are not meeting?*

- *3A: I would just say they can't be arsed is what I would say. No one wants to sort the meeting out. I see them in the study room, but no one bothers. But I'm happy to just do my work with someone else I know you know.*

- *Mod: and the fact that the groups were random, did that have an impact do you think – did you know each other before the group work started?*

- *5B: our group weren't friends, but we have always been friendly with each other in sixth form.*

- *Mod: has there been any other benefits or limitations to the group work? Does anyone want to comment of last week's finance quiz for example?*

- *5B: I think its just a hard topic in general to be honest. I don't think it's anything to do with the group work. I just think it's a hard topic, in general.*

- *3A: Erm, I made mistakes it mine in the equations and formulas and stuff. Like current assets and current liabilities, I got it all wrong.*

- *4B: I didn't do too bad on the quiz myself. But I think the structure of the balance sheet might have confused some people. I took for example the overdraft as a long-term liability, so included it as a non-current liability. So, I think that might have confused people. People added it as the wrong thing, I think. It was also quite a long time we have done that topic in class – not since year 12.*

- *5B: I looked at the resources in House Tutor time. They were good but like they said the way the balance sheet was laid out in the quiz erm was a bit confusing.*

- *Talk to me about your mock exam you say this week. How are you feeling about it?*

- *5B: I think I just need to work on my time management for each question. Time management for me. So, I don't rush.*

- *4B: I'm in a good position. The main thing for me is being able to read the question and understand it properly. Making sure I don't go off topic and putting the correct context in.*

- *I need to work on my time management. I think paper 3 mock I could answered it all but I just ran out of time. I also think that I haven't properly get the structure correct. That why I am spending so much time at the moment on structure for the exam.*

- *Mod: Anything else you would like to say about the group work or anything else? (staff enter room – room booked for 5 minutes time)*

- *All: no.*

- *Mod: great thank you all for coming that was useful and interesting to this study.*

End of meeting: 18 minutes.

Notes on Body Language

3A: Quiet, reserved, softly spoken, coat on.

4B: Quiet, coat on.

5B: Quiet, coat on.

Coding Key

Yellow: Group Contributions

Blue: Value of the Resources

Green: Group Dynamics

Purple: Student Motivation

Appendix G: Sample Observation Notes

Observation Summary Notes

Week 2

Participants and Codes

- Mod – Moderator/ Researcher
- Group 3
    - 3A – present
    - 3B – present
    - 3C – present
    - 3D – present

Running Notes

- *Quiet start – look nervous.*
- *Not much talking going on*
- *Think me being here is making them apprehensive.*
- *I am just pretending to mind my own business and mark test papers on the desk to the side.*
- *3D is trying to take the lead and is talking the questions through with 3A.*
- *3B attempting to appear professional – 'ok guys, I'm going to take the lead on this', everyone laughs.*
- *3C on his phone, not sure what he is doing but does not look to be doing the answers.*
- *3D is now just working in silence on the worksheet. Looks to be working hard with head down.*
- *3C and 3B ask him what he has put, and he is giving the answers to them.*
- *3A looks lost and is clearly struggling. She also now writes the answers from 3D.*
- *3C and 3B look bored and stop working – take phones out and start to scroll. 3D and 3A are now looking at the second resource sheet.*

Side Note

- Approx 5 minutes after I leave to the staff office, I see 3C and 3B walk past the window, they have left the group meeting after 20 minutes.

Appendix H: Reflective Journal Sample Extract

Reflective Journal Entry - Date: Week 3, Monday P3. Business Studies y13 lesson, usual room.

It has been an interesting week. I observed Group 2 at the start of the week and had a business lesson with the group today. Today's lesson was a quiz on motivational theories. Students were engaged in the lesson and seemed to focus hard on the quiz, which is good. It's interesting to see how they do. Especially Students 3B and 3C, who were late to the lesson again and were playing football when I observed the group. I am not sure they will do well in the quiz, to be honest. However, that is unfair, as 3D is quite capable, but

Need to make sure that I limit my preconceptions of these students. I know student 3C well, as I have taught them for 4 years, so I know they are capable but lazy and easily distracted, but that is not to say they won't do well overall in this intervention. I also think about student 3A, who was clearly struggling in this week's group meeting. I doubt she will perform well as she usually struggles in Business, but again, I need to be careful not to let this experience of the student in the lesson drive conclusions too much. She has agreed to the focus groups, so I hope she attends the next one so I can learn more about her reflections on the STAD meetings.

I will speak with HT about this during Monday's next line management meeting, as she also knows the students and will give me a chance to check my own bias. Being their teacher who knows them has been useful, but it is hard not to let my opinion of some of the students from past lessons impact the way I put meaning to things. I need to let the data drive the analysis as much as possible.

Appendix I: Ethical Approval Form

Ethical Approval Form A

Please tick one:

Staff: ☐ PhD: ☐ EdD: X

Name of applicant(s):

Title of project: Cooperative Learning in Sixth Form Supervised Study

Name of supervisor (s) (for student projects):

Please complete the form below.

Have you prepared an Information Sheet for participants and/or their parents/carers that	YES	NO	N.A.
a) explains the purpose(s) of the project	X		
b) explains how they have been selected as potential participants	X		
c) gives a full, fair, and clear account of what will be asked of them and how the information that they provide will be used	X		
d) makes clear that participation in the project is voluntary	X		
e) explains the arrangements to allow participants to withdraw at any stage if they wish	X		
f) explains the arrangements to ensure the confidentiality of any material collected during the project, including secure arrangements for its storage, retention, and disposal	X		
g) explains the arrangements for publishing the research results and, if confidentiality might be affected, for obtaining written consent for this	X		
h) explains the arrangements for providing participants with the research results if they wish to have them	X		
i) gives the name and designation of the member of staff with responsibility for the project together with contact details, including email. If any of the project investigators are students at the IoE, then this information must be included, and their name provided	X		
j) explains, where applicable, the arrangements for expenses and other payments to be made to the participants			X
k) includes a standard statement indicating the process of ethical review at the University undergone by the project, as follows: "This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct."	X		
l) includes a standard statement regarding insurance: "The University has the appropriate insurances in place. Full details are available on request."	X		
Please answer the following questions:	YES	NO	N.A.
1) Will you provide participants involved in your research with all the information necessary to ensure that they are fully informed and not in any way deceived or misled as to the purpose(s) and nature of the research? (Please use the subheadings used in the example information sheets on blackboard to ensure this).	X		
2) Will you seek written or other formal consent from all participants, if they are able to provide it, in addition to 1)?	X		
3) Is there any risk that participants may experience physical or psychological distress in taking part in your research?		X	

4) Staff Only – Have you taken the online training modules in data protection and information security (which can be found here: http://www.reading.ac.uk/internal/humanresources/PeopleDevelopment/newstaff/humresMandatoryOnlineCourses.aspx For all student projects, please tick N.A. and complete the Data Protection Declaration form (which is included in this document) and submit it with this application to the ethics committee.			X
5) Have you read the Health and Safety booklet (available on Blackboard) and completed a Risk Assessment Form (included below with this ethics application)?	X		
6) Does your research comply with the University's Code of Good Practice in Research?	X		
7) If your research is taking place in a school, have you prepared an information sheet and consent form to gain the permission in writing of the head teacher or other relevant supervisory professional?	X		
8) Has the data collector obtained satisfactory DBS clearance?	X		
9) If your research involves working with children under the age of 16 (or those whose special educational needs mean they are unable to give informed consent), have you prepared an information sheet and consent form for parents/carers to seek permission in writing, or to give parents/carers the opportunity to decline consent?			X
10) If your research involves processing sensitive personal data[1], or if it involves audio/video recordings, have you obtained the explicit consent of participants/parents?			X
11) If you are using a data processor to subcontract any part of your research, have you got a written contract with that contractor which (a) specifies that the contractor is required to act only on your instructions, and (b) provides for appropriate technical and organisational security measures to protect the data?			X
12a) Does your research involve data collection outside the UK?		X	
12b) If the answer to question 12a is "yes", does your research comply with the legal and ethical requirements for doing research in that country?			X
13a) Does your research involve collecting data in a language other than English?		X	
13b) If the answer to question 13a is "yes", please confirm that information sheets, consent forms, and research instruments, where appropriate, have been directly translated from the English versions submitted with this application.			X
14a. Does the proposed research involve children under the age of 5?		X	
14b. If the answer to question 14a is "yes": My Head of School (or authorised Head of Department) has given details of the proposed research to the University's insurance officer, and the research will not proceed until I have confirmation that insurance cover is in place.			X
If you have answered YES to Question 3, please complete Section B below			

- Complete either **Section A** or **Section B** below with details of your research project.
- Complete a **Risk Assessment**.
- Sign the form in **Section C**.
- For all student projects, complete a **Data Protection Declaration form**.
- Append at the end of this form all relevant documents: information sheets, consent forms, and ALL research instruments which may include tests, questionnaires, and interview schedules, and for staff, evidence that you have completed information security training (e.g., screen shot/copy of certificate).

[1] Sensitive personal data consists of information relating to the racial or ethnic origin of a data subject, their political opinions, religious beliefs, trade union membership, sexual life, physical or mental health or condition, or criminal offences or record.

- Email the completed form, as a **SINGLE** document, to the Institute's Ethics Committee for consideration. Any missing information will result in the form being returned to you.

Section A: My research goes beyond the "accepted custom and practice of teaching" but I consider that this project has **no** significant ethical implications. (Please tick the box.)	X

Please state the total number of participants that will be involved in the project and give a breakdown of how many there are in each category e.g., teachers, parents, pupils etc.

20 Sixth Form students over 16, who study A Level Business in Year 12

Give a succinct description of the aims and the methods (participants, instruments, and procedures) of the project in up to 500 words noting:

1. Title of project

Co-operative learning in Sixth Form Supervised Study

2. Purpose of project and its academic rationale

The project intends to investigate the impact of cooperative learning methods on student's attainment within an A Level subject, through the use of cooperative learning methods within student supervised study time. Cooperative learning methods such as STAD (Stratified Team Achievement Divisions), have had a positive impact on student attainment within a classroom setting. This project intends to implement these methods into independent student time to assess whether there is an impact outside of the usual classroom setting.

3. Brief description of methods and measurements

The data collection will take place over a 13 week period in total and will include initial observations of the supervised study room to collect initial data on how the students use the space to complete independent work. Students involved in the project will then be given additional study resources to complete in this supervised study time over 8 weeks, with guidance on how these resources should be completed as a group. At different points throughout the collection stage one group of student participants will be involved in three focus groups, where they will be asked questions on how they feel the resources are assisting them in their academic progress. These focus groups will be recorded using the lesson observation software IRIS. This technology uses an IPAD and Microphone to record audio and visual. The software is used as common practice in the school, primarily to record full lessons for staff development. I have used the software with the subject cohort involved in the study to record full Business Studies lessons and they are used to the software. Students involved will also complete regular academic quizzes within their standard Business Studies lessons, that will be used to assess attainment over the project. The quizzes will include knowledge-based questions from the topics taught in lessons over the academic term. The purpose of the quizzes is to measure any progress student groups make over each week and will also form a basis for discussion in the focus groups.

4. Participants: Recruitment methods, number, age, gender, exclusion/inclusion criteria

The students involved with be the 20 Year 13 (17-18 Years old, 13 males, 7 females) students from the A Level Business cohort. This group have been chosen as they are my own Business Studies group that I have taught since the start of Year 12 last year. This group have been chosen as I am their teacher, and we have a good working relationship. These students have also had over a year of usual supervised study in the Sixth Form so have significant experience of how the lesson currently operates.

All of the 20 students will be placed into small groups of five, based on when they have Supervised Study together. As the Supervised Study lesson takes place across the Timetable blocks, students will have the lesson at different times in the week. Due to convenience (when I am not teaching), I will be collecting focus group data from one of the groups of 5, due to their sessions in Supervised Study taking place when I am available. This will mean that all the groups from my class will be involved in the additional resources and activities, but only one group will be used for the focus groups. Due the quiz data been collected in usual business lessons, data will be collected and analysed from all the groups.

5. Consent and participant information arrangements, debriefing (attach forms where necessary)

Students will be provided with a comprehensive participant information sheet and be invited to give their consent to the study using the consent sheet (both forms attached).

6. A clear and concise statement of the ethical considerations raised by the project and how you intend to deal with them.

Students may feel uncomfortable being observed and interviewed by their Business Studies teacher within their Supervised Study lessons. They may also not want to take part in the study and may feel like other study methods work better for their learning, as opposed to the cooperative methods encouraged as part of this research project.

I intend to mitigate this by ensuring any observations that take place in the Supervised Study sessions are from distance, with minimal involvement in session. The cooperative activities will also only be designed to take approximately one hour per week, leaving at least four other Supervised Study hours available each week for students to use any other preferred study methods. Students will also be given a comprehensive information sheet and asked to sign their consent to ensure they are happy taking part in the research project. If they do not feel comfortable in the study once it begins, the information sheet outlines their right to withdraw at any time without recourse.

Within the three focus groups for the one group involved in them, the participants will also be informed each time of their right to withdraw at any time and will also be given the opportunity to check the record for accuracy at any time. The regular academic quizzing will be completed in lesson as a whole class as part of usual lessons, so there will not be any extra assessment of those involved in the study.

7. Estimated start date and duration of project : XXXX

Section B: I consider that this project **may** have ethical implications that should be brought before the Institute's Ethics Committee.	☐
Please state the total number of participants that will be involved in the project and give a breakdown of how many there are in each category e.g., teachers, parents, pupils etc.	
Give a succinct description of the aims and the methods (participants, instruments, and procedures) of the project in up to 500 words. 1. Title of project 2. Purpose of project and its academic rationale 3. Brief description of methods and measurements	
4. Participants: Recruitment methods, number, age, gender, exclusion/inclusion criteria 5. Consent and participant information arrangements, debriefing (attach forms where necessary) 6. A clear and concise statement of the ethical considerations raised by the project and how you intend to deal with them. 7. Estimated start date and duration of project	

RISK ASSESSMENT

Brief outline of Work/activity:	Observing Sixth Form students working in their Supervised Study Room. Completing three focus groups with one of the groups involved (one group of 5 students)

Where will data be collected?	In the Sixth Form Supervised Study classroom (observation) and the usual Business Studies lesson classroom (focus group)

Significant hazards:	Not applicable

Who might be exposed to hazards?	Students

Existing control measures:	**Supervised Study Classroom** Teaching professional present in the classroom at all times. CCTV in the corridors outside the room. Windows and fire exit in the room. Adequate school desks and chairs. Cables tied away. **Business Studies Classroom** Teaching professional present in the classroom at all times. CCTV in the corridors outside the room. Windows and fire exit in the room. Adequate school desks and chairs. Cables tied away.

Are risks adequately controlled:	Yes

If NO, list additional controls and actions required:	Additional controls	Action by:

Section C: SIGNATURE OF APPLICANT

Note: a signature is required. Typed names are not acceptable.

I have declared all relevant information regarding my proposed project and confirm that ethical good practice will be followed within the project.

Signed:

Print Name:

STATEMENT OF ETHICAL APPROVAL FOR PROPOSALS SUBMITTED TO THE INSTITUTE ETHICS COMMITTEE

This project has been considered using agreed Institute procedures and is now approved.

Print Name: Date:

Signed:

(IoE Research Ethics Committee representative) *

* A decision to allow a project to proceed is not an expert assessment of its content or of the possible risks involved in the investigation, nor does it detract in any way from the ultimate responsibility which students/investigators must themselves have for these matters. Approval is granted on the basis of the information declared by the applicant.