UNIVERSITY
of
GLASGOW

CAN THE TEACHING OF COOPERATIVE SKILLS HAVE A POSITIVE EFFECT ON PLAYTIME BEHAVIOURS IN A SCOTTISH PRIMARY SCHOOL?

Gerard Bell

Dissertation submitted by Gerard Bell (M.A., PGDE) in part fulfilment of the requirements for the degree Master of Education.

University of Glasgow

September 2020

TABLE OF CONTENTS:

ABSTRACT

Cooperation and play are increasingly significant topics within education. Despite strong research evidence to support the proposition that cooperation in education offers wide ranging benefits to pupils, there has been little in the way of explicit policy directive aimed at encouraging its implementation in Scotland. Nor has there been much research conducted around the issues of play or cooperation in Scottish schools. This empirical study aims to fill a significant gap within the relevant literature. The author proposes to employ a mixed methods research approach in order to assess any changes that might occur in the behaviour and attitudes of participants. The study, which will take place over six weeks, incorporates a programme of games designed to improve cooperative skills within a primary 5/4 class in an urban Scottish Primary school. Several means of data collection will be used; consenting participants will be observed during play sessions, as well as during a structured pre- and post-test activity. In addition, the views of participating pupils will be sought during semi-structured interviews. Lastly, parents and carers will have the opportunity to contribute their views, through the completion of a questionnaire. Once analysed, the findings will be distributed to participants and any other interested parties.

CHAPTER 1 - INTRODUCTION

1.1 STUDY AIMS AND DEFINITIONS

The aim of this study will be to explore whether the teaching of cooperative games to participants within a P5/4 class in a Scottish urban primary school (hereafter ‘School A’) will result in higher levels of ‘cooperative play’ (Parten, 1932; see Appendix 1). This purpose is situated within a broader, future aspiration of developing cooperative learning methods within school A.

Cooperation is an ambiguous term; in an examination of the literature, Hake and Vukelich (1972, p333) reported “procedures differing so greatly that it is surprising that all of them are considered under the same topic.” For the sake of simplicity, I have adopted Nisbet’s (1968) definition:

> Cooperation is a joint or collaborative behaviour that is directed toward some goal in which there is common interest or hope of reward (cited in Marwell & Schmitt, 1975, p.5).

Cooperative learning is often used as an umbrella term in relation to various pedagogical strategies (Sharan, 2002). Detailed discussion of those individual strategies lies beyond the remit of this paper. However, as the cooperative games taught in this project are intended to be a vehicle for learning, it is appropriate to examine cooperative learning in its broadest sense: "*Cooperative learning* involves students working together in small groups to accomplish shared goals" (Gillies, 2007, p1, emphasis in original).

Play is a nebulous concept that has proved challenging to define (Swindells & Stagnatti, 2006). Peter Gray (2013), identifies five defining features common to the literature: it is *self-directed*, *intrinsically motivated*, *guided by mental rules*, has an *imaginative aspect* and is conducted in a relatively *non-stressed state of mind*. Initially, my intention was to use the term 'free play', as that is the terminology used within school A; however, this is clearly a misnomer; play in schools is always bound by teachers' values and norms (Wood, 2013).

I will argue from the literature that concepts of cooperation are best *taught,* that cooperation may be developed *through group games*, that resulting increased cooperation may be observed in *play behaviour,* and that this will support the major *aims of government* to improve outcomes for children.

1.2 RATIONALE, RELEVANCE, SIGNIFICANCE

I have chosen the topics of cooperation and play for several reasons. Firstly, *play* is fundamental to children's development; promoting cognitive growth and social awareness (Piaget, 1962; Vygotsky, 1978), as well as verbal capacity (Bruner, 1983). It should also be fun; an aspect which, in the study thereof, must not be neglected. Although presumably older than humanity, it is not a constant; societal changes and technological innovation have affected children's play (Children's Play Policy Forum, 2019; Schwarzmueller & Rinaldo, 2013), and evidence exists that

there has been a significant decline in opportunities to play over recent years (Watchman & Spencer-Cavaliere, 2017).

Play is also an important international issue; Article 31 of the United Nations Convention on the Rights of the Child (UNICEF, 1989) enshrines the right of children to play. The Scottish Government has stated that it takes this legal responsibility seriously (Scottish Government, 2018) and requires all schools and nurseries to provide “free play” opportunities (2013a, p18), citing not only its benefit to individuals but to the “social, economic and environmental wellbeing of Scotland as a whole” (2013b, p5).

Cooperation in education has been shown to encourage greater achievement and productivity (Deutsch, 1949); accelerate classroom learning (McAlister, 2010); improve social and emotional outcomes for participants (Johnson *et al*., 1983); and establish trust and the ability to understand the perspectives of others (Sandy, 2006). It has been the subject of fewer international edicts than play, although the United Nations has welcomed the expansion of peer education and set an expectation of “a social climate in the classroom, which stimulates cooperation and mutual support needed for child-centred interactive learning” (UN, 2009, p22).

Within the context of school A, play features in the school improvement plan: *all* classes are required to timetable between two and four 30-60 minute ‘free play’ opportunities each week. Despite evidence that play has an important role in children’s development (Cole-Hamilton, 2012), some teachers at School A have expressed reluctance in investing so much time in this pursuit. Contributing to this discourse may interest these teachers (Davis, 1971). In addition, tacit knowledge shared amongst staff members creates an impression of deteriorating behaviour that is often attributed to friction between *peers*, rather than between pupils and teachers. Demonstration of effective methods that encourage greater cooperation between pupils, particularly during opportunities to play, might address this perception, and as such would be highly prized by staff in School A.

These areas therefore represent significant and overlapping focal points to study. In addition, there is evidence to support the argument that the interpersonal and

social skills necessary for cooperative groups to function effectively ought to be taught explicitly (Gillies, 2007), and that cooperative games are an ideal method to achieve this (Orlick, 2006).

1.3 PROPOSED RESEARCH QUESTION

These interesting issues have led me to ask a question that seems to me to be relevant, practical and answerable (Baumfield, 2008): ‘To what extent, and why, does teaching cooperative games affect how 9-year olds play in a Scottish Primary School?’ Researching and reflecting upon the field of literature connected to this question has identified a set of secondary questions; each is related to the others, as well as to assumptions implicit within the first:

- Is cooperation a more positive course of action than either competition or individualism?
- Should cooperation be explicitly taught, or is acquired innately?
- How should cooperation best be taught?
- Is cooperative play necessarily a desirable outcome?
- Is observing types of play an effective or appropriate means of assessment?

1.4 STRUCTURE OF DISSERTATION

In order to address these questions, I will examine the background and contemporary policy position in Scotland, in order to establish a context for my research proposal (Chapter 2).

This will be followed by an analysis of the literature (Chapter 3), in which I will examine the themes associated with my secondary questions.

Chapter 4 will outline paradigmatic and theoretical frameworks, methodology and research methods, and analytical and ethical considerations.

Finally, I will consider the conclusions of my proposal (Chapter 5).

CHAPTER 2 - BACKGROUND AND POLICY CONTEXT

2.1 INTRODUCTION

In this chapter I will seek to examine the case for encouraging cooperative learning by looking at the current context in Scotland. I will argue that a 'Curriculum for Excellence' (CfE hereafter) offers little detailed pedagogical guidance. This has by default likely enabled a continuity of traditional practice in many classrooms; practice which is unlikely to foster cooperative learning.

Cooperative learning and teaching cooperative skills, although related, are distinct concepts; however, *cooperative learning* is worthy of examination for two reasons. Firstly, as playing and learning are overlapping entities that are difficult to separate (Pramling Samuelsson & Johansson, 2006), I would argue that cooperative play and cooperative learning are similarly linked; the cooperative games that this study proposes to teach *are* a form of cooperative learning. Secondly, the participants' interpersonal skills that this study aims to improve are a key feature of efficient cooperative learning groups (Johnson *et al*., 1991). They are fundamental to the group's success and must be explicitly taught (Gillies, 2007). As such, if the intervention outlined in this proposal was successful, it would facilitate future attempts to enact classroom cooperative learning strategies.

The lack of detail about cooperative learning in Scottish policy documents makes its examination rather difficult. I will therefore finish this chapter by examining how the implementation of cooperative learning would address some key current policy priorities (Scottish Government, 2016), specifically the need to close the gap, raise the bar and improve young peoples' health and wellbeing and employability outcomes.

2.2 ANALYSIS OF GUIDANCE PROVIDED BY A CURRICULUM FOR EXCELLENCE

Criticism of a CfE has come from what seem to be contrasting directions. Some authors (Priestley & Humes, 2010) have concluded that a CfE is a mastery model of

curriculum; a blend of elements of content and product, which Kelly (2009) argues merely reinforces the idea that education is a transmission of objective ideas from teacher to student. However, others (*e.g.* Young, 2008; Rata, 2012; Paterson, 2018) deride what they see as the subordination of knowledge to skills. Some critics rail against its indeterminate malleability (Convery, 2017); to others, this merely represents an admirable lack of prescription (*e.g*. Hedge & MacKenzie, 2016). Ultimately, the lack of conceptual clarity that such a *range* of criticisms suggests has reinforced the perception that it is "theoretically agnostic… and thus often riddled with contradictions" (Priestley, 2011, p222).

Such intrinsic inconsistencies have been perceived as leading to an extended period of stasis, delay and confusion (Britton *et al*., 2019). Although it is probably impossible to prove a causal relationship between the two, Priestley (2011, p224) suggests that if the processes by which curriculum policy is enacted into practice are not fully understood, teachers may resort to focusing "on how existing patterns of practice may be manipulated to fit the new outcomes".

This would seemingly contradict the Scottish Government's stated aim that a CfE "has profound implications for learning and teaching processes" (Scottish Government, 2004, p9); processes which are "at the heart of an effective curriculum" (Scottish Government, 2006, p8). However, there seems little detail about what those implications are. In fact, in being offered "more freedom to teach in innovative and creative ways" (ibid, p16), the responsibility to decide the nature of those methods is clearly placed upon practitioners themselves: guidance for teachers "will specify only what needs to be specified" (ibid, p22).

Unlike the English system, which has in the past given detailed information on epistemology, pedagogical approaches and the specific benefits of cooperative learning (*e.g*. DfES, 2006), pedagogical direction in Scottish policy documents is generally sparse (Priestley, 2012). Cooperative learning is seldom mentioned in policy documents; one of the most explicit occasions is expressed as an "aim to encourage more cooperative experiences as children develop" (Scottish Government, 2007, p12). Despite McKechan and Ellis' argument that, in clear recognition of the social dimension to learning, the Scottish Government

"recommends that learners work cooperatively and the requirement for collaborative learning is evident" (2014, p477), the evidence for this claim seems to be relatively weak. The document they cite in support (arguably the place that pedagogical direction might be expected to be found) 'A Framework for Learning and Teaching' (Scottish Government, 2008) contains only one recommendation that learning and teaching be collaborative in nature (ibid, p13) as well as two references to 'cooperative learners'. However these, in common with most other such mentions in a CfE literature, are simply framed as *aspirations* for young people, rather than as pedagogical techniques. Beyond this, documents simply make recommendations such as using "relevant, lively and motivating" teaching approaches (ibid, p9), which could arguably be depicted as abstract platitudes. The most frequently mentioned pedagogical ideal in CfE documents, active learning, is similarly open to misinterpretation, with many teachers conflating the concept with play or kinaesthetic learning (Watkins *et al.*, 2007). Some authors have accused it of being little more than meaningless discourse: a "hooray term" (Harber & Davies, 1997, cited in Britton *et al*., 2019, p32).

2.3 PEDAGOGICAL PRACTICE IN SCOTTISH SCHOOLS

It is difficult to assess how this lack of guidance has affected teachers' practice. Very little data exist which would allow meaningful analysis of trends in pedagogical practice in Scotland. However, the Scottish Survey of Numeracy and Literacy (SSNL; Scottish Government, 2017) included a pupil survey component which may shed some light on young people's perception of *how* learning occurs in our classrooms. Data exist relating to P4, P7 and S2 year groups, from 2011 to 2016, when the Scottish Government discontinued the survey. Although the procedure for selecting and interviewing participants is unclear, the scale is large; the 2016 survey reports responses from 10,100 students from 2,250 schools. I have summarised data in the tables in Appendix 2. Averages have been calculated using mean rather than median as there were very few statistical outliers.

The data reveal two interesting points; firstly, the *consistency* of results, both longitudinally and across age groups: and secondly, the relatively low standard deviation. This may point to consistent structural bias within the survey procedure;

but if not, it paints a rather uniform picture of educational experience for Scotland's young people. In each survey year, the participants would necessarily be different, and in many cases would be describing separate teachers and schools. Yet, consistently, two-thirds of all children report listening to their teacher talk 'very often'; well over a half work on their own 'very often'; well *under* a half work with others 'very often' (Scottish Government, 2017). The nature of that group work is not specified; participants' perception of working 'with others' may not, of course, satisfy all theoretical definitions of cooperative learning.

Two conclusions may be drawn about pedagogical practice in Scotland in the period described. Firstly, the predominant style of teaching in Scotland is likely to be whole-class tuition, complemented by individual work. Secondly, there has been very little *change* in classroom experience over the course of the six surveyed years; arguably, the very period during which policy makers in Scotland had expected to see dramatic shifts. This suggests that pedagogical practice in Scotland has *not* transformed in the way that early CfE documentation suggested it should, and has instead retained a more traditional, transmissive form (Brody, 1998); a form which is fundamentally unsuited to cooperative learning (Buchs *et al*., 2017). This is also broadly in line with data available for the rest of the UK. Blatchford *et al.* (2008, p14), in collating the findings of dozens of research projects relating to class structures and groupings, reported "little awareness of social pedagogical relationships inherent in the classroom". Ninety-eight per cent of such classrooms had children seated within groups; however, over 60% of *tasks* assigned to these children were individual. Sitting children in groups does not, of itself, constitute cooperative learning (Kohn, 1986).

This begs the question: if Scottish policy has little to say about the concept of cooperative learning, and it is not much evidenced in practice either, to what extent would its adoption meet the needs of Scottish educational policy's aims? I will now seek to address the suitability of cooperative learning to meeting the four current priorities of government education policy, as set out in the National Improvement Framework (Scottish Government, 2016); improvement in attainment, closing the attainment gap between the most and least disadvantaged children, improving young

people's health and wellbeing outcomes, and improving employability skills for school leavers.

2.4 RAISING ATTAINMENT

The Organization for Economic Cooperation and Development's (OECD hereafter) report into improving Scottish schools highlighted perceived strengths in Scottish education, but also a need to ensure quality and equity across Scotland's schools: "'closing the gap' and 'raising the bar'" (OECD, 2015, p11). There is an abundance of research evidence that supports the proposition that *in general* students who work in heterogenous cooperative groups will realise higher achievement and productivity than will their peers working in either competitive or individual situations (Deutsch, 1949; Johnson *et al*., 1981; Slavin, 1996). This is a theme I shall return to in the review of literature, below. I will therefore restrict my attention initially to the benefits of cooperative learning to higher-achieving pupils.

Although 'raising the bar' should of course not be seen exclusively as relating to higher-achieving pupils, I have chosen to consider the benefits of cooperative learning to this group in particular: if 'the bar' is perceived as a current ceiling which must be raised, then this presumably is where it sat, *ante rem*. Kukla (1972) showed that when able pupils perceive their ability to be high (as you would expect them to do in a competitive environment) their performance actually diminishes. How they might fare in a cooperative environment seems less clear: there is some agreement that more able pupils have been an under-researched group within this field (Robinson, 1990). However, some evidence from targeted studies does exist which confirms that higher-achieving pupils show greater cognitive gains when working in cooperative groups, compared with working on the same tasks as individuals (*e.g.* Hooper *et al*., 1993; Johnson *et al*., 1993). Interestingly, in a two-year longitudinal study of two different schools, Stevens and Slavin (1995) found no significant difference in attainment between high-achieving groups in either school after one year. However, by the end of the *second* year, high-achieving pupils in the cooperative school were significantly ahead of their peers in the comparison school in most areas of literacy and some numeracy too. This may offer an insight into the findings from other research studies, some of which have claimed that the gains in

achievement for more able children (and attitudes towards the experience itself), whilst still positive, are generally less so than for lower- and middle- achieving children (Shachar, 2003). It is possible that able children may require more time to accept and adapt to changes in their learning environment. They might have felt more comfortable about their perceived position within a whole-class, competitive learning situation; an environment that they then might resent forgoing. It seems that this group's needs must be considered carefully when planning the *nature* of cooperative learning experiences offered, especially in the short term. There is some research that suggests they respond well to tasks that incorporate two elements in particular: group goals and individual accountability (Slavin, 1990). This would allow high-achieving children to work collaboratively within a group, but retain some individuality in assessment.

In addition to research evidence, cognitive elaboration theory (Wittrock, 1978) has a fascinating contribution to make to the role of higher achieving pupils within cooperative groups. It proposes that the cognitive restructuring and elaboration required in explaining a topic to another will lead to greater understanding on the part of the explainer: in order to master a concept, teach it. This argument was supported by evidence from Webb (1985) who, in investigating the variables that lead to greater achievement within cooperative groups, identified the quality of peer explanations as being positively correlated to outcome, and that the most able children consistently offered the highest quality of explanation. This rather undermines Robinson's (1990) claim that cooperative learning exploits these children, whose development is hindered by the need to continually interpret to the rest of their group.

2.5 CLOSING THE GAP

The Scottish Government has committed itself to eliminating the attainment gap during this decade (Scottish Government, 2016). This is an ambitious goal; although the link between family background (as measured by the OECD in terms of number of books present at home, arguably a rather arbitrary yardstick in an increasingly digital age) and attainment (measured in school test results) is clear across the OECD, the effect is most pronounced in the UK (OECD, 2006). England has the clearest correlation between socio-economic disadvantage and low attainment, with

Scotland coming third, amongst 54 ‘developed’ nations (OECD, 2006). Kerr & West (2010), in an extensive review of the literature relating to schools’ attempt to close the social equality gap, question both the *ability* of schools to make the dramatic improvements sought by governments, and the relation between school attainment figures and actual *life choices* for many school leavers: slightly better school grades do not necessarily lead to improved employment and health outcomes. They argue that in pursuing large-scale, prescriptive schemes to raise attainment, policy-makers often seem to ignore strong evidence which already exists as to which strategies are effective: “specifically, the evidence supports the use of whole-class interactive teaching, peer tutoring … and collaborative small group activities” (Kerr and West (2010, p39).

In fact, policy makers in the UK have had no shortage of advocates for the potential for cooperative learning methods to ‘close the gap’. The Education Endowment Foundation, set up to improve outcomes for the most disadvantaged students in English schools, reported that the “impact of collaborative approaches on learning is consistently positive” (EEF, 2016, para. 3). The Centre for Excellence and Outcomes in Children and Young People’s Services (C4EO), an English advisory group, found that coaching teachers in cooperative learning methods “has been shown to be very effective in several US studies involving pupils from deprived homes” (C4EO, 2011, p22). In Scotland, a ministerial briefing entitled ‘Closing the attainment gap: What can schools do?’ presented evidence for the benefits of various forms of collaborative learning in detail (Marcus, 2016).

As the OECD has linked social deprivation to low attainment, it therefore seems appropriate, for the purposes of this research proposal, to study potential benefit to the lowest attaining young people. There is a great deal of research evidence that lower-achieving pupils benefit from cooperative learning (*e.g.* Thurston, *et al*., 2019; Gillies & Ashman, 2000). However, just as with the most able children, the evidence also highlights caveats: in order to benefit, groups must be carefully constructed and tasked. Cohen *et al.* (1999) highlight the need to mitigate equity gaps *within* cooperative groups, stemming from language, cognitive or social barriers. Slavin (1995) warns of the dangers of the ‘free rider’ effect, when one or more group members are allowed to participate without contribution. In order to achieve the best

gains, lower-achieving pupils in particular must be encouraged to communicate and articulate their thinking within groups (Marcus, 2016). These are precisely the areas which the *teaching* of cooperation seeks to address; the proposed intervention is sufficiently flexible to offer the prospect of tailoring the tuition of skills to the context of each group and situation.

2.6 HEALTH AND WELLBEING

Considerable data are available that show a gradual but sustained decline in young people's emotional and mental wellbeing in recent years; this underlines the need to address their health and wellbeing outcomes. According to recent NHS statistics, one in eight of 5-19 year olds in England had at least one mental disorder when assessed in the past; a figure which has shown a steady increase over the last 20 years (NHS Digital, 2017). In Scotland, "young people are increasingly experiencing emotional and psychological health problems" (SAMH, 2017, p7). Many of these problems relate to the quality and number of friendships young people have (Black & Martin, 2015) as well as diminishing self confidence levels (Cosma *et al*., 2016), and are clearly linked with negative perceptions of school (Scottish Government, 2020a). As a result of this deteriorating situation, the Scottish Government (2019a) has recommended that the promotion of positive mental health in young people is a priority that should be reflected in school improvement plans.

This data suggest an alarming picture nationally; for many of the young people behind these statistics, fear, misery and pain might be all too common an experience. Cooperative learning in schools cannot claim to be a panacea for such an extensive range of issues; however, where the data supports the efficacy of a remedial strategy, there is surely a moral imperative on educators to act.

Such evidence does exist. In his meta-analysis of results from 90 research studies, Slavin (1995, p60) notes that "the most important psychological outcome of cooperative learning methods is their effect on student self-esteem". This may be because the feeling of being liked and accepted by peers, and the perception of academic success, are both key factors in students' self-esteem; these are also two products of cooperative learning. The research on these two variables is not *entirely*

consistent; many studies examined by Slavin (ibid) tended to find improvements in self-perception either of academic success *or* of self-esteem. This may however, be partly explained by the differing nature of the cooperative learning approaches used; some methods seem to be better suited to cognitive gains, while others produce more visible social and interpersonal results (Sharan, 2010). The relatively short duration of many studies may also be a factor: profound changes in self-confidence may take time to achieve. However, studies exist which show clear improvements in the key areas of concern cited by recent reports: quality of peer relationships (Cooper *et al*., 1980; Johnson, *et al*. 1983; Van Ryzin & Roseth, 2018), self-confidence (Nebesniak & Heaton, 2010; Clark & Gakuru, 2014; Zhang & Cui, 2018) and perception of school (DeVries et al., 1974; Köse *et al*., 2010; Zakaria *et al*., 2010).

2.7 EMPLOYABILITY SKILLS

Given the diversity of jobs available, this may be the most difficult to define of the four priorities outlined by the Scottish Government. The Scottish Government divides skills into technical/ practical and people/ personal (Scottish Government, 2019b). As many of the former would be specific to particular roles, and thus too wide ranging to be included in an assessment of the effectiveness of cooperative learning, I shall focus on the more generic people/ personal skills sought by employers.

The Department for Education reported in its 2017 Employers Skills Survey (DfE, 2018) that the six skills most commonly absent in applicants were as follows; ability to manage own tasks (apparently lacking in 46% of applicants), managing one's own feelings or those of others (42%), customer handling skills (40%), team working (38%), motivating other staff members (37%) and persuading others (33%). Bennet (2002) supports this picture; communication, teamworking and interpersonal skills are amongst the most-cited skills sought in a wide survey of employers' advertisements. These social skills can surely be honed most effectively by giving opportunities to experience them; opportunities which would be limited by competitive or individualistic learning environments. By contrast, cooperative groups, when functioning correctly, create an interpersonal social reward structure that inherently motivates and encourages behaviour which contributes to group success

(Slavin, 1995). These groups also offer opportunities to refine communication skills as well as reinforcing pro-social behaviours (Street *et al*, 2004). These features would seem a good match for the skills that employers seek. This argument is supported by evidence that graduates who have been taught in cooperative groups felt their employability skills had been enhanced as a result (Ballantine & Larres, 2007).

As such, I would argue that there is a strong case, based upon evidence and theory, that cooperative learning practices would be an efficient response to the Scottish Government's four priorities. Blatchford *et al*. (2008, p2) are equally convinced; "there is a gap between current practice and the potential for using pupil groups to enhance learning". Furthermore, with the UK expected to suffer the greatest economic damage from the Covid-19 pandemic in the 'developed' world (OECD, 2020), training teachers to implement cooperative learning strategies may be a relatively cost effective measure, one that arguably might seem like a good use of some of the extra £15 million the Scottish Government plans to invest in support for learning in 2020-21 (Scottish Government, 2020b).

Having reflected upon the context of contemporary policy and practice within Scotland, I shall now examine the body of literature relating to my chosen topics.

CHAPTER 3 - LITERATURE REVIEW

3.1 SEARCH METHODS

Research projects must be grounded in an immersive review of the relevant literature (Cohen *et al*., 2011); this forges the proposal, by establishing what has been done already, and what remains to be done (Ridley, 2012). Furthermore, it enhances subject vocabulary, introduces the methodologies and assessment tools used by others, and reveals relationships between academics' theories and practical issues within the topic (Hart, 2018). I began by entering 'play' and 'cooperation/ co-operation' into online synonym generators in order to make sure that I had not missed any key similar terminology (such as games, teamwork, collaboration *etc.*). I then applied these designations to various databases: Google Scholar, Glasgow

University Library's search engine, ProQuest Academic, EBSCOhost. I prioritised peer reviewed journals but also looked for policy documents. I then used the 'snowball method'; exploring the reference lists of relevant articles. This process instigated ongoing and iterative cycles of reading (Hart, 2001); as new areas of interest emerged, I returned to database searches to ensure I was not in danger of restricting myself to 'established' schools of thought. Lastly, I kept a 'literature map' record (Creswell & Creswell, 2018, see Appendix 3) of my findings.

Because 'play' and 'cooperation' are amorphous, wide concepts with correspondingly extensive bodies of literature, I remained focussed upon themes that related specifically to my main research question. Several fascinating topics that reflect contemporary research in this field emerged which fall outside the remit of this paper; *e.g.* the effects of rewards upon group productivity and the identification of barriers to the widespread implementation of cooperative learning. However, several key themes began to emerge consistently that I *did* feel addressed assumptions implicit within my question. I shall begin with a general introduction to the literature, and then address these themes in turn, in sections 3.3 to 3.7.

I shall conclude this chapter by establishing the gap within the literature that my research seeks to fill.

3.2 GENERAL INTRODUCTION TO LITERATURE

Cooperation is not a novel concept in education: the Talmud, first written around 1500 years ago, claims that scholars may only fully understand the Torah by learning it with a partner: "when Torah scholars study together, they sharpen one another" (Ta'anit 7a).

The 19th century saw some of the earliest developments in the use of cooperative learning in schools. In the United States, Colonel Francis Parker, a school supervisor in New England, pioneered a system of group learning between 1875 and 1880. This attracted a great deal of interest, and may have influenced John Dewey in the use of peer-learning within his 'laboratory school' in Chicago, 1896 (Kellum, 1983). Dewey developed one of the two main historical strands of thought about cooperative

learning (Slavin, 1985); a social and philosophical perspective, which argued that schools had a moral imperative to model cooperative, child-centred, democratic processes (Schmuck, 1985). The other contribution came from social psychologists such as Kurt Lewin and his pupil Morton Deutsch, whose seminal 1949 study highlighted wide ranging benefits of cooperative learning amongst first year college students. These scientists provided empirical data that seemed to support Dewey's ideas. By the 1970s, interest in cooperative learning in school classrooms had flourished in the USA, driven by burgeoning research data as well as the systemic change resulting from desegregation (Gillies & Ashman, 2003).

Cooperative learning had, by the end of the century, become "one of the most extensively evaluated of all instructional innovations" (Slavin, 1996, p19); over 900 studies had been published comparing the effectiveness of cooperative, competitive and individualistic efforts (Johnson *et al*., 2000).

3.3 IS COOPERATION MORE EFFECTIVE THAN COMPETITION OR INDIVIDUALISM?

This voluminous body of research evidence overwhelmingly supports the proposition that a cooperative process, more so than competitive or individual, leads to higher academic achievement, greater productivity, more favourable interpersonal relations, better psychological health and higher self-esteem (Deutsch, 2006). It is a capability that has been credited with accelerating human evolution (Slocombe & Seed, 2019) as well as enabling modern society itself (Fehr & Fischbacher, 2004; Melis & Semmann, 2010).

Several meta-analyses of studies relating to cooperation have been published; of these, Bowen (2000), Lou *et al*. (1996), Newmann and Thompson (1987), Slavin (1983; 1996), Springer *et al*. (1999) and Thanh *et al*. (2008) compared the effects of cooperative learning styles with a 'traditional', whole-class transmissive approach. Johnson *et al*., (1991; 1998; 2000) and Qin *et al*., (1995) compared cooperative learning with competitive *and* individual efforts. The studies included within these meta-analyses were based across a variety of cultures, academic subjects and ages of participants. Impediments to definitive conclusions that are commonly expressed

include the range of cooperative learning procedures used within studies, range of methodologies, and range of variables studied, which can be roughly grouped into two broad categories: achievement and attitude. It should be noted that these studies examine quantitative data exclusively. Only one of these analyses (Thanh *et al*. (2008)) reported equivocal results: half of the studies it examined showed a positive effect of cooperative learning on achievement; the other half reported a negative or neutral effect. However, the authors noted a common speculation cited by several of the authors studied; that there may be cultural issues (in this case, particular to Asian school traditions) that negatively affected participants' perceptions (*eg.,* Tan *et al*., 2007). Aside from this, the evidence from the other meta-analyses is clear; cooperation has consistent, positive effects on achievement and attitude (Hattie, 2009; Kyndt *et al*., 2013).

Such is the weight of evidence that only a few academic writers now question a position which can seem like orthodoxy: Randall (1999) argues that the burden of responsibility *for others'* learning entailed in cooperative learning is too great to expect young people to bear. However, she goes on to (rather selectively) quote Slavin: "cooperative learning is simply an instructional method, a means of effectively transmitting knowledge and skills to students" (1990, cited in Randall, 1999, p16). From this, Randall extrapolates that cooperative learning is a transmissive style of teaching, which smothers higher order thinking skills and accordingly "puts the very concept of learning at risk" (ibid, p16). This seems to reveal an inconsistency in her argument; as she has previously objected to issues arising from group members learning *from each other*, it is surely illogical to characterise it as didactic, one-way transmission.

Shields and Bredemeier (2010), in critiquing Kohn's (1986) case against competition, draw a distinction between *contesting* and *competing*. They argue that the former involves striving *against* others, and that "true competition is a process of striving *together* with one's opponent" in order to achieve a common goal (Shields & Bredemeier, 2010, p64, emphasis in original). This claim is based upon their translation of the Latin preposition and verb, from which 'competition' is derived. However, as Nelson and Dawson (2017) point out, the original application of the Latin term is ambiguous. Notwithstanding such nuances, and the fluidity of meaning

over time in a language such as English, this simply seems to be a semantic inversion; their definition of competition seems a close fit for many interpretations of cooperation. Shields and Bredemeier (2010) further claim that Kohn viewed the mutually exclusive goal structure inherent in his definition of competition as an external factor. However, this is not true: Kohn (1986) distinguishes between what he termed 'situational' and 'intentional' competition: the latter being predicated upon an internal goal structure, connected to self-esteem.

Finally, it should be noted that Kohn is one of a very few authors who claim competition is inherently nefarious. Slavin (1995) argues that competition can be an effective and harmless means of motivation. Most simply point to the greater contribution cooperation makes by comparison. Furthermore, cooperation and competition do not exist in dichotomous isolation (Phillips & DeVault, 1957): Deutsch's original study (1949) examining intra-group cooperation relied upon inter-group competition. However, so many later experiments have controlled for this variable that it seems unlikely that Deutsch's success was dependent upon the competitive element (Kohn, 1986).

Having established the worth of cooperation in education, I feel that it is an important topic of study for this research proposal: increased cooperation offers the possibility of evidence-based, holistic benefits for the participants of this study. I shall now examine whether cooperation should be *taught*, or if it is simply acquired *innately*.

3.4 SHOULD COOPERATION BE EXPLICITLY TAUGHT?

Kohn (1986) points out that, although competition is often cited as a feature of 'human nature', if *cooperation* can be learned then this suggests that *competition* is simply learned behaviour too. This view is supported by the fact that different societies, in different ages, have exhibited varying degrees of cooperative behaviour (Sommerlad & Bellingham, 1972); thus it seems less likely that either characteristic is an immutable, innate human feature. In the first review of literature on the subject, May (1937, p888) noted that "human beings by original nature strive for goals, but striving with others (co-operation) or against others (competition) are learned forms

of behaviour". If one accepts that it is indeed *learned* behaviour, then the debate moves on to whether it should be *taught*.

A review of the literature reveals two major arguments against the teaching of cooperative skills to young people. The first is a view, more commonly held in western education before the 1980s, which suggested that children would automatically acquire social skills as part of the developmental process (Ogilvy, 1994) and that the active cultivation of these skills in young people was thus restricted to a correctional intervention in the few cases where these skills seemed deficient (Goldstein & McGinnis, 1997). More recently, Hill and Reed (1990) blame what they see as an overly-romanticised view of child-centred learning for the assumption that children would develop naturally without intervention or direction; they go on to argue that although "cooperative activities that develop spontaneously should be encouraged we also believe that there is a place in the early childhood curriculum for the deliberate, conscious teaching of social skills" (ibid, p13).

The second cited barrier to the teaching of cooperative skills is an overly-rigid adherence to stage developmental theories such as those of Piaget and Kohlberg. This encouraged some educators to see children as being fundamentally egocentric until they have reached Piaget's 'formal operational' age (around 10 or 11) (Korthals, 1992), thereby rendering the teaching of social skills to younger children essentially futile (Sapon-Shevin, 1986). Flavel (1963, p274) saw the status of the preoperational child as being quite fixed: "the unwitting centre of his [sic] universe… unaware that others see things differently". However, there is a growing body of research which shows children capable of empathic, prosocial behaviours at around 2 to 3 years old: behaviours such as the altruistic helping of others (Warneken & Tomasello, 2006), comforting upset peers (Yarrow & Waxler, 1973), and responding to feelings of guilt (Vaish *et al*., 2016). Paulus (2014), in a review of the literature around the emergence of these prosocial behaviours in children, identifies four theoretical models, each relying on varying degrees of implicit empathic awareness, the influences of social norms or a simple alignment of behavioural goals. As each model seems only able to offer a plausible account for certain prosocial actions, Paulus concludes that no one single theoretical model can explain all prosocial behaviours, and that *each* of the models helps to explain *certain* behaviours. The

significance of this is that as two of the models are based upon very young children demonstrating either outright empathic concern for others (emotion-sharing model), or an inherent inclination to socialise (social interaction model), they would seem to question the exclusive self-centredness claimed of children at this age by absolutists of stage theory.

As views have changed over time, these barriers have become less fixed and a shift toward a more pedagogical, taught approach to social skills has emerged (Street *et al*., 2004). Despite this, very few studies have sought to measure the effect on groups of the actual *tuition* of cooperative skills. In two similar studies, Gillies and Ashman (1996, 1998) sought to assess the effect of teaching these skills on achievement and behavioural interactions. In the first study, small heterogenous groups of children (aged ten or eleven) were given training in group responsibility and communication. Similar, comparison groups of peers were told to work together but given no training. Although only quantitative data was recorded, the methodology was broad; pre- and post-intervention ability tests, coded observation of group behaviours, and both pupil and teacher questionnaires were used. Interestingly, the authors do not describe any potential limitations of their research. However, they mention that none of the teachers involved in the study had made much use of cooperative learning prior to the study; the variety of ability and enthusiasm these participants may have shown must surely present an unacknowledged variable. In addition, although the authors were careful to allot the untrained groups the same time together to discuss how they might work as a group as the trained groups had in instruction of cooperative methods, it is possible that differing levels of teacher attention given to each group affected motivation levels within them. Notwithstanding these qualifications, the authors' findings were clear: the trained groups recorded higher attainment scores, were more responsive to others and provided more explanations to their peers than did the untrained group. The results provide "strong evidence that training children to collaborate facilitates group functioning and has a positive effect on student achievement" (Gillies & Ashman, 1996).

I do not consider it too behaviouristic a proposition to argue that young people should be taught cooperative skills. As Sapon-Shevin (1986, p281) notes, cooperation "is not simply a mind-set or an inclination. Rather there are very specific

skills and strategies that children need to be taught in order to cooperate successfully". It is the skills, rather than the behaviour, that I consider it incumbent on educators to impart; equipped with these skills, young people may choose to behave as they please. In addition, although the nuances of adult cooperation are clearly beyond the preoperational child, I would argue that the development of some of the constituent skills are not; for example, communication, sharing and turn-taking are the focus of many a pre-school teacher. In conclusion, I find that the literature supports the proposition of this study that cooperation should be actively taught to young people, and in doing so, one might expect to see measurable positive effects. Having accepted that cooperative skills should be taught, the logical next step is: how best to teach them?

3.5 HOW SHOULD COOPERATION BEST BE TAUGHT?

I intend to argue that several factors support the proposition that cooperative games are an ideal method of teaching cooperative skills. Firstly, they are an efficient way of *assessing which skills* require development. Secondly, they offer an effective, flexible means by which to *develop particular skills*. Lastly, research evidence suggests that use of cooperative games to teach social skills encourages their *generalisation*- the use of those skills in other contexts.

Before young people can be expected to work cooperatively, Buchs *et al*. identify a need to conduct "specific *work on cooperative skills* [which] makes it clear what skills are needed and how pupils can display them during teamwork" (2017, p297, emphasis in original). This suggests a need to firstly identify the skills, which are often grouped into categories of coordination and communication (Etel & Slaughter, 2019; see Appendix 4). Smiley (2001) outlined a typology of cooperative skills; establishing a topic, timing turn-taking, maintaining focus on group activity, exchanging roles, responding to cues, communicating own intent and understanding others' intent. This typology is similar in content to Gillies' (2007) list of interpersonal and small-group skills, one of his five defining features of successful cooperative groups.

The games planned for this intervention (Appendix 5) may be correlated directly to Smiley's (2001) typology of skills: 'long long long jump' is designed to emphasise turn-taking; 'collective rounders' aims to maintain group focus; 'all on one side' offers practice at exchanging roles. Whilst all of the games will enhance the communication of intent, arguably few will do so more than 'silent birthday line-up'. They therefore offer an ideal opportunity to make assessments of those skills in which participants already show strengths**,** and which require development. As cooperative situations depend upon social skills, it is precisely in these moments that the skills, or lack thereof, will become apparent: accordingly, it is also the optimal situation in which to teach these social skills (Goodwin, 1999).

Cooperative games "provide an ideal medium for teaching children skills for cooperation, caring and collaboration" (Orlick, 2006, p5). This is in large part due to two factors: firstly, they are a *flexible* means of tuition. As I have already argued, individual games are matched to suit particular skills; this means that a games programme may be tailored to suit certain outcomes, as well as changed or adapted at short notice. In addition, the complexity of games may also be easily modulated, in order to suit participants' needs: an important consideration in ensuring effective outcomes (Fawcett & Garton, 2005). Furthermore, assuming they are structured with care (as any cooperative group ought to be), the selection of teams offers a natural means with which to engineer varying, heterogenous, inclusive groups (Carlson, 1999). Secondly, cooperative games offer a more positive *dynamic* than other activities. This is partly because although most children already accept games as 'fun', they simultaneously offer an accepted means by which to introduce a brief environmental structure (Sapon-Shevin, 1986). In addition, cooperative games differ from their competitive counterparts in that the goal structure is not established to produce winners and losers: instead, young people must strive together to overcome another obstacle, such as time (Hill & Reed, 1990). Therefore the external rule structure of the game, combined with the internal social dynamics of the group, reinforces the very skills that this study seeks to impart. Lastly, although teachers play a critical role in establishing the process (Gillies, 2007), cooperation is dependent upon their ability to relinquish control as the group develops their abilities: a defining characteristic of the successful group is that they assume control and ownership of the process (Blatchford *et al*., 2003). Games are a suitable vehicle for

this; once the rules and purpose of a game have been established, young people are quite used to playing them themselves. They may well be used to hoping for little adult intervention once a game begins as this usually only happens when something goes wrong**,** or the game has ended.

Goodwin (1999) recommends that in teaching young people to work cooperatively, teachers should introduce them to the process in non-academic settings, before attempting cooperative activities in the classroom; cooperative games clearly offer such an opportunity. However, this raises the issue of whether these skills will be transferable to the classroom and beyond: if they can be *generalised*. Several studies (*e.g.* Creighton & Szymkowiak, 2004; Garaigordobil *et al*., 1996; Street *et al*., 2004) report positive effects on classroom social behaviour following a cooperative games intervention. Stokes and Baer (1977), in a review of relevant literature, suggest that social skills are best generalised when they are taught in a natural environment, ideally using peers as tutors, and with skills being practised repetitively, but in differing contexts. This further supports the proposition that games are an effective medium through which to teach the necessary skills for cooperation, as they are a good match for these criteria. However, their argument also implies a need to reinforce cooperative skills through classroom activities that are separate from the cooperative games outlined in Appendix 5. Potential exists within the limits of this proposed study for playing simple cooperative games in the classroom; however, participants may not yet be ready for more complex collaborative problem-solving challenges typically associated with classroom cooperative learning. Blatchford *et al*. (2003), in describing a sequential development process used by the SPRinG project (Social Pedagogic Research into Group-work), emphasise the need to begin with social activities designed to support relationships and trust, followed by activities that develop communication skills; only then do they proceed through more advanced problem-solving activities to full curricular integration of cooperative learning. Failure to recognise this may help to explain why some teachers have complained of a lack of success when attempting to implement cooperative learning in the classroom (Buchs *et al*., 2017; Sharan, 2010): without the foundations established by the initial steps, attempting to achieve the final outcome may be futile. The scope of this research proposal is limited to the necessary first stages of this process.

In conclusion, there is a range of research evidence to support the proposal that a cooperative games programme may be an effective means by which to initiate the teaching of social skills such as cooperation and that “a simple intervention of this kind can be very beneficial for children” (Garaigordobil *et al*.,1996, p149). As such, I am persuaded that such an intervention is worthy of research within school A, and that its participants may expect to experience similar benefits. Having addressed questions arising from the intervention that this study proposes, I shall now turn to the themes that emerged from the literature connected to its means of assessment.

3.6 IS COOPERATIVE PLAY NECESSARILY A DESIRABLE OUTCOME?

This study proposes to measure progress in terms of greater tendency to *play* cooperatively. But is encouraging such a tendency necessarily a noble endeavour? Three main conceptual areas emerged in answer to this question; theoretical, practical and moral.

The theoretical basis for encouraging cooperative play is well-established. Vygotsky (1978, p102) considered children’s social play to be a zone of proximal development: “in play, a child always behaves beyond his [sic] average age, above his daily behavior; in play it is as though he were a head taller than himself”. Forms of cooperative play are generally given primacy in hierarchical descriptions of play behaviours: Piaget (1962) and subsequently Smilansky (1968) considered them reflective of higher levels of *cognitive* development. Parten (1932), having established that social participation in play tended to increase with age, outlined a hierarchy of playtime behaviours that she argued were linked to *social* development. These theories would suggest that the ability to participate in cooperative play is *both* a vital tool *and* an important benchmark in young people’s progress. This proposition is supported by evidence: children “rated as more cognitively and socially competent were found to engage in higher levels of play behaviours” (Farmer-Dougan & Kaszuba, 1999, p429).

Despite the wide acceptance of these theories, some authors have staged a defence of individual, or solitary, play. Strom (1972) makes a rather beguiling argument that, due to its potential for fantasising, solitary play is positively linked to the development

of imagination and creativity. However, one of the main studies he cited in support of this proposition (MacKinnon, 1962) examined a group of forty architects, on the questionable rationale that this profession represents creativity more than any other. Furthermore, although around two thirds of this group self-identified as having been introverted in youth, this is one of a very wide range of variables included within the study, and thus renders a specific link between creativity and introversion rather tenuous. A more rigorous and focussed study, conducted by Kéri (2011), examined intelligence and latent inhibition, often correlated with creativity (Carson *et al*., 2003), and reported that the "most important finding of this study is the robust association between primary social network size and real-life creative achievement" (Kéri, 2011, p217). Although the study points out that a causal relationship could not be established, it clearly linked creativity to wide social circles; this suggests that the concept of the solitary, imaginative dreamer may simply be a romantic myth. Kohn goes even further, claiming that without social interaction, people seldom have the opportunity to have their views challenged. As such "the individualist worldview is a profoundly conservative doctrine: it inherently stifles change" (Kohn, 1986, p67).

There is further, specific evidence to show that encouraging cooperative play is a desirable outcome in practical terms. Several studies show positive effects on participants' social skills from teaching and learning cooperative games (Bay-Hinitz *et al*., 1994; Carlson, 1999; Creighton & Szymkowiak, 2004; Finlinson *et al*., 2000; Garaigordobil *et al*., 1996; Hill & Reed, 1990; Orlick, 1981a, 1981b; Street *et al*., 2004; Toppe *et al*., 2019). One longitudinal study also exists which found a positive correlation between social playtime behaviours and children's ability to cooperate three years later (Trnavsky, 1997). In summary, because possession of the skills promoted by these studies is linked to future positive outcomes in terms of relationships and careers (Finlinson *et al*, 2000), it surely becomes a moral imperative to teach them.

Questions of morality seem inescapable in addressing this theme: if one accepts that cooperative play is beneficial to children *in general*, is it right to encourage or expect it of individuals? This seems to be clearly framed in a debate between utilitarian and libertarian perspectives. On the one hand, one surely cannot advocate for mandating cooperative play on the basis that it is beneficial; there must be respect for others'

choices of whether or not to participate in cooperative group activity (Friend & Cook, 1992). On the other, if the benefits of cooperative play are well-evidenced, is there not a duty to introduce it and declare it a desirable outcome? Ultimately, it may be indefensible to claim any more than that the *capacity* to play cooperatively is a desirable end; but that the *expectation* that young people behave in such a way is an infringement of their freedom and agency. Sometimes people just want to be left alone. This serves as a reminder that in conducting research in school A, whilst I am persuaded that it is in the best interests of participants that I outline the benefits of cooperation to them, I must take care not to foster *too* reverential an attitude toward it, lest participants feel pressure to conform to perceived norms.

One fascinating postscript to this argument is provided by Curry *et al*., who reframe the question of whether the promotion of cooperation is a moral act by concluding that "the function of morality is to promote cooperation" (2019, p47). Their proposition is based upon an ethnographic survey of the moral valence of seven specific cooperative behaviours in sixty disparate societies around the world. The authors reported that these behaviours, although expressed in quite diverse traditions, are valued uniformly across all of the societies. As a result they consider that it is "precisely these multiple solutions to problems of cooperation— this collection of instincts, intuitions, inventions, and institutions—that constitute human morality" (ibid, p48). This seems at first to be quite a leap of reason; however, it does prompt the question of whether there would be morality in isolation: if there was nobody else to judge or suffer our actions, would there *be* right and wrong?

Such philosophical debates aside, the final theme arising from a review of the literature returns to purely practical matters: that of the efficacy and pertinence of observing types of play as a means of assessment.

3.7 IS OBSERVING TYPES OF PLAY AN EFFECTIVE OR APPROPRIATE MEANS OF ASSESSMENT?

Early proponents of the role of play in education (such as Frederick Froebel and Maria Montessori) relied heavily upon theory, in the absence of empirical research (Christie, 1980); a paucity of evidence which Mildred Parten sought to address. Her

seminal study, and her resulting social participation framework (1932) is still seen as "one of the most comprehensive descriptions of young children's social play behaviours", despite being nearly one hundred years old (Xu, 2010). Many years later, Parten's framework was first examined by Wintre and Webster (1974) and found to have high reliability across differing settings. Interestingly, Wintre and Webster lamented the fact that other authors had laboriously attempted to devise alternative scales of social participation in play that "in the end, turn out to be remarkably similar to the basic scale described here" (ibid, p347); a prescient comment indeed, given how clearly more recent social play assessment schemes (*eg*., Broadhead, 2010) seem to be related to Parten's original framework. Relatively few studies have sought to review and test these more modern schemes. However, those that have (Broadhead, 2009; Farmer-Dougan & Kaszuba, 1999; Fewell & Rich, 1987; Finn & Fewell, 1994; Kelly-Vance & Ryalls, 2005, 2008; Stagnitti & Unsworth, 2004; Swindells & Stagnatti, 2006) have generally found these various schemes to have validity and reliability, although Swindells and Stagnatti (2006) found that the results of their assessment bore little relation to parents' own perceptions of their children. One of the most cited of these more recent assessment methods is the Transdisciplinary Play-based Assessment (TPBA; Linder, 1993). This is an extremely thorough method, with multi-agency involvement and a detailed observational coding system (Kelly-Vance & Ryalls, 2008). In studying the validity of the TPBA scheme, Myers *et al*. (1996) found it to be popular with participating parents and teachers as well as having a high degree of congruence with findings from alternative methods.

Despite this growing evidential basis for the efficacy of these more modern schemes, Parten's framework is still generally considered to be a widely accepted means of assessing the social categories of children's play behaviours (Miranda *et al*, 2017). However, her work has not been without critics. Xu (2010, p492) presented research evidence showing that "cultural, environmental, social and other factors may have an impact on children's social play behaviour", which she claimed contradicts Parten's sequential theory. However, Parten did find that 'home environment" (1932, p147) *is* an influence on play behaviour. Nevertheless, Xu (2010) goes on to make considerably more valid points: firstly, that Parten's original group of participants were unusually homogenous by the standards of contemporary nurseries. In

addition, she highlights the changes in society and culture that have occurred since 1932; this has undeniably affected societal norms, such as the way solitary, digital play is viewed. Current lifestyles and technological advances have diminished opportunities for young people to interact directly in play in the ways that Parten described (Lee *et al*., 2015). Armstrong (2003) notes that digital games do not, in general, foster opportunities for developing social, imaginative and language skills. The relationship between social play and computer games has received scant academic attention to date (*e.g*. Arnott, 2016; Creighton & Szymkowiak, 2004); there seems little doubt that changing playtime behaviours will require new research and thinking in this field in the future.

Parten's social participation framework, notwithstanding these points, remains a standard whose efficacy and pertinence *is* well suited to this research proposal, for several reasons. Firstly, it is closely linked to widely accepted developmental theories (Ballard, 1981); secondly, it has been declared reliable and valid by academic reviewers (Behnke & Fetkovich, 1984; Bledsoe & Shepherd, 1982; Wintre and Webster, 1974); thirdly, it is defined in purely social terms, with clear descriptions of cooperative and other types of play; fourthly, in keeping with other play assessment methods, it is relatively non-invasive and can be conducted in natural settings (Farmer-Dougan & Kaszuba, 1999); and lastly, it has the advantage of simplicity, relative to its more elaborate (yet structurally similar) contemporaries. Even though Parten's scale was designed for children younger than those whom this study proposes to involve, I regularly observe young people at school A, of *all* ages, engaging in the full spectrum of playtime behaviours that Parten describes. Given all of these considerations, I consider Parten's framework a suitable tool with which to assess changes to participants' behaviour within the proposed research study.

3.8 GAPS WITHIN THE LITERATURE

Having addressed the most relevant themes to emerge from the literature, I shall now highlight gaps within it, and position my research proposal accordingly, in order to show how it could add to the body of knowledge on my chosen topics (Creswell & Creswell, 2018). Although Alvesson and Sandberg (2011) make a compelling argument that 'gap filling' risks merely adds to existing literature, rather than

challenging it, I consider that in order for research to challenge views, it should (in addition to being methodologically and ethically sound) be directed towards novel topics, or offer fresh perspectives on existing ones.

Few studies exist which seek to assess the effects on participants' social behaviours of a cooperative games programme. After reviewing these, I have identified three areas in which this research proposal offers a novel perspective.

Firstly, a *geographical* gap exists. Only three studies were found which have been conducted in this field outside of Australia or the USA; only one of these (Creighton & Szymkowiak, 2014) was undertaken within Scotland. Whilst the findings of this study (that playing cooperative computer games increases social interaction between participants after the game) appear valid, the assessment was based upon a simple, quantitative teacher questionnaire, with no other corroborating evidence. Furthermore, it is unclear how soon the assessment was made, after the game had ended.

Secondly, there is a clear *age-related* gap. Almost all of the previous studies involved children of preschool or reception age; only one (Street *et al*., 2004) involved participants of similar age to my proposed study. Street *et al*. studied the effects of an Australian games programme on the pro-social behaviours of 9 to 12 year-old children. The findings suggested that such a programme had a positive effect upon the participants' behaviour; however, the study was limited by the fact that evidence was gathered by multiple teachers, who had received differing levels of training.

Lastly, and most strikingly of all, a gap in *methodology* exists. All but two of all of the studies were restricted to the collection of quantitative data; this was obtained almost exclusively through the use of questionnaires and coded observations. Some of these methods of data collection appear quite rigorous (*eg*. Toppe *et al*., 2019); however, some do not. Bay-Hinitz *et al*. (1994), in investigating the effects of cooperative or competitive games on participants' levels of aggressive behaviour, observed the participants by scanning the hall from left to right. Given the potential chaotic nature of some games, it seems unlikely that each child received equal attention. In addition, it may be the case that aggressive behaviour would be more

likely to come to attention than cooperative acts. Neither of the two studies which collected qualitative data (Carlson, 1999; Hill & Reed, 1990) featured scientifically rigorous assessments. Carlson (1999, p234) collected data "by a short question and answer period with the children"; the schedule of questions was not included in the report. Hill and Reed (1990, p15) obtained "anecdotal" data from teachers who observed participants; as a result they admitted that they were unable to conclude any observed changes in behaviour were due to the games programme that they had been assessing.

After an exhaustive search, I was unable to find evidence of any previous study of the effects on young people's social behaviour of a cooperative games programme which featured a mixed methods approach to data collection. It is this gap which my study aims to fill. The few published studies in this field have mostly provided quantitative data; this is able only to establish correlations. The two cited attempts to gather qualitative data seem too informal to satisfy scientific rigour. The present study not only proposes to establish a quantitative link between cooperative games and participants' tendency to cooperate; it also aims to gain an insight into *why* this occurs (if indeed it does) by offering participants an opportunity to register their views about the process.

Having established a clear gap in the literature, and accordingly claimed a position unique to this study, this paper will now examine theoretical and methodological matters in more detail.

CHAPTER 4 – THEORIES AND METHODOLOGY

In order to establish a clear structure to this chapter, I have chosen to follow Crotty's (1998) framework; I will therefore outline the research *paradigm*, followed by *theoretical perspectives*, *methodology*, and finally *methods of data collection.* I will conclude the chapter by considering the *validity, methods of analysis, limitations* and *ethical* implications of the proposed study.

4.1 RESEARCH PARADIGM

Masterman's (1970) claim that Thomas Kuhn used the term 'paradigm' in twenty-one different ways in his initial attempt to describe the concept (Kuhn, 1962) is a clear

indication of how difficult a concept it is to define. Kuhn narrowed his definition over time, eventually describing a paradigm as a “constellation of beliefs, values, techniques… shared by the members of a given community” (Kuhn, 1996, p175). Other authors take a more expansive view, portraying paradigms as belief systems or worldviews (Creswell & Creswell, 2018) incorporating ontology, epistemology and axiology (Lincoln et al., 2018). Creswell & Plano Clark (2018) identify four paradigms commonly cited in literature: post-positivist, constructivist, transformative and pragmatic.

Post-positivism, a philosophy that views the world in terms of cause and effect and seeks to form testable hypotheses about an objective reality (Creswell & Creswell, 2018), was the subject of unrelenting criticism by constructivists during the ‘paradigm wars’ of the 1970s and 80s (Gage, 1989). Constructivists (sometimes referred to as interpretivists) claim meaning as subjective; multiple realities exist, as they are constructed and interpreted between individuals (Creswell & Creswell, 2018). As constructivists’ attention turned to issues of hegemony, the transformative paradigm evolved; adherents felt that research must be predicated upon improving the lot of the oppressed (Mertens, 2015). Dissonance between these positions led to unreconcilable dichotomy; “just as surely as belief in a round world precludes belief in a flat one” (Guba, 1987, p31). However, Morgan claimed some commonality in both post-positivism *and* constructivism; he argued that as they shared a conceptual focus on reality and truth, they could *both* be seen as a “metaphysical paradigm… [which] is now exhausted and should be replaced by a pragmatic approach” (Morgan, 2007, p55).

Pragmatism, a multi-faceted, practical viewpoint that favours solving problems using whatever means works (Creswell & Creswell, 2018), is widely cited as a paradigmatic stance capable of supporting mixed methods of research (Mertens, 2012). However, Biesta (2010) argues that pragmatism is more accurately described as a set of utilitarian tools; he warns against the wholesale adoption of belief systems, accusing them of acting as shields which serve to protect researchers from having to consider underlying assumptions. Biesta (2010) attempts to resolve ontological and epistemological issues by drawing upon the work of John Dewey. He refers to Dewey’s ‘Copernican turn’; from viewing knowledge as being developed

internally, to seeing it as created in the transaction between a being and its environment. Dewey described a twin relationship; organisms act in ways that affect their environment; the environment then reacts, affecting the organism (Dewey, 1920). We are not "spectators of a finished universe but participants in an ever evolving, unfinished universe" (Biesta, 2010, p111). Thus, myriad different situations result in experience being subjective; however, they are apparently objective to the participant in each situation. This pragmatic solution rejected the "forced choice between positivism… and constructivism" (Tashakkori & Teddlie, 1998, pp22-23) and allowed researchers to view the world not as an "either/or world, but a mixed world" (Cohen *et al*., 2018, p31).

The consideration of such paradigmatic stances is of utmost importance. It aids in identification (and thereafter, mitigation) of assumptions, values and norms that may otherwise be brought to a project (Creswell & Plano Clark, 2018). I am minded to agree with Morgan's (2007) argument that the debate should be 're-Kuhnified', resulting in a narrower definition of paradigms:

> systems of belief and practices that influence how researchers select both the questions they study and methods that they use to study them (Morgan, 2007, p49).

This view has evolved alongside a shift in my own paradigmatic viewpoint: I originally identified in myself what I considered to be constructivist views, and thought of paradigms in the broadest sense. I would have agreed with Rorty's opinion that pragmatists seek to dodge unavoidable questions and would "simply like to change the subject" (1990, p.xiv, cited in Creswell & Creswell, 2018, p11). However, the more I read and reflected upon paradigms and epistemology, and the apparent twin gravitational pull towards a polarisation of opinion within this debate, the more in danger I felt of sliding down a 'relativist rabbit hole' toward "a kind of academic radicalism of no consequence to anyone else" (Moore and Young, 2010, p25). Although fascinated by such philosophical questions, I felt the need to reconnect with the *reality* of issues faced in school. This, in addition to the work of John Dewey, has led me to embrace a *pragmatic* stance in this research study.

4.2 THEORETICAL PERSPECTIVES

"Theory is a slippery term" (Cohen *et al.*, 2018, p.68). Thomas (1997, p.101) even argues that theoretical engagement inhibits the creativity of researchers and therefore that theory itself is "antagonistic to pluralism in ideas". There is undoubtedly an indistinct boundary between theory and paradigm; Crotty (1998) referred to both interpretivism and post-positivism as theories. This is perhaps due to the more abstract, fundamental premises of epistemology and ontology set out in *grand theories*. Most theories, however, operate at a narrower perspective (Creswell and Plano Clark, 2018): Bacharach (1989, p496) defines theory as "a statement of relations among concepts within a set of boundary assumptions and constraints".

The most widely-studied models of cooperative learning (*e.g.*, Aronson, 1978; DeVries & Edwards, 1973; Johnson & Johnson, 1979; Sharan & Sharan, 1976; Slavin, 1978) typically cite a range of supporting social psychological theories (Slavin, 1985). These theories can be loosely divided into *cognitive* and *motivational* fields (Slavin, 1995). Cognitive theories are mainly developmental, such as those of Vygotsky and Piaget; their basic assumption is that interactions between people who are focussed upon an appropriate task will increase their mastery of concepts relevant to that task. The theories do have significant areas of difference: Piaget saw cognitive development occurring as a result of interaction with the environment; resulting disequilibrium from areas of cognitive conflict led to new understandings, in an internal process (Piaget, 1960). Vygotsky extended Piaget's views by stressing the importance of social, historical and cultural references, and saw cognitive growth as an external process, co-constructed between participants (Vygotsky, 1978). However, these two positions may not be as mutually exclusive as they have sometimes been portrayed (Fawcett & Garton, 2005). The other branch of cognitive theory relating to cooperative learning is that of cognitive elaboration; this has been touched on briefly in section 2.4 above. Detailed analysis of these cognitive theories is largely beyond the remit of this research proposal; the main theoretical focus which is directly applicable to this study is in the *motivational* field.

Social interdependence theory (Deutsch, 1949) provides the foundation upon which the concept of cooperative learning is built (Johnson & Johnson, 2009). Interdependence is characterised as positive (cooperation) or negative (competition)

(Gillies, 2007). The basic premise of social interdependence theory is that “the type of interdependence structured in a situation determines how individuals interact with each other, which, in turn, determines outcomes” (Johnson & Johnson, 2002, p12). The original three variables studied by Deutsch (interdependence, interaction pattern, outcomes) have since been refined and extended to five variables, each mediating the effectiveness of cooperation (Gillies, 2007): positive interdependence; individual accountability; promotive interaction; the appropriate use of social skills; and group processing. I shall briefly outline each of these variables in turn and consider how they relate to the premise of this research proposal.

Positive interdependence results from participants’ perception of the goal structure. It occurs when participants’ goals are connected in such a way that one cannot succeed unless others do, and when actions must be coordinated in order to achieve success (Gillies, 2007). Cooperative games are characterised by positive interdependence (Toppe et al., 2019); this is achieved through the establishment of a shared, external definition of success in a game, such as everyone having to touch a ball (*e.g*. ‘Infinity Ball’; Fluegelman, 1976, see Appendix 5).

Individual accountability involves an assessment of each individual’s performance; feedback is given to the individual *and* to the group. This is an important feature of cooperative learning as it amplifies the sense of responsibility held by members (Matsui *et al*., 1987) and thus helps mitigate the ‘free rider’ effect (Slavin, 1995). However, as this study proposes developing *initial* cooperative skills, group accountability may be more appropriate at first. This may introduce the participants to cooperative processes more gently. Cooperative games offer a sufficiently flexible structure to allow for the gradual introduction of individual accountability as and when it seems appropriate; this can still be done quite informally, by directing a quick comment to each participant whilst still in the group.

Promotive interaction represents the internal dynamics of the successful cooperative group; the relations and exchanges between members that encourage and facilitate the accomplishment of the group goal (Johnson & Johnson, 2009). Developing such internal positive interactions is a key aim of this study; they promote trust, motivation, helpfulness and the tendency to share effectively (Hancock, 2004). It seems

unrealistic to expect such interactions to develop immediately; however, the goal structure of cooperative games, together with the possibility of repeated practice in differing contexts, offers the prospect of generating such a self-perpetuating cycle of promotive interaction, where the display of a certain type of social behaviour elicits similar relationships (Deutsch, 2006).

The appropriate use of social skills is clearly the other main focus of this proposed research. “Unskilled group members cannot cooperate effectively… Students therefore must be taught the interpersonal and small-group skills needed for high-quality cooperation” (Johnson & Johnson, 2009, p369). Putnam *et al*. (1989) have demonstrated that when social skills are taught effectively, and individual feedback is offered, relationships become more positive. Cooperative games, as previously argued, offer an excellent means of teaching these skills (Orlick, 2006).

Group processing involves the reflective and adaptive stage inherent in any learning cycle (Schön, 1983). Specific focus should be placed upon actions which were helpful (or unhelpful) in pursuing the group’s goal. The cooperative games planned in this study each include an integral plenary session, “crucial in teaching cooperation” (Carlson, 1999, p233). The most important theme during group processing is the expression of views in a respectful manner (Johnson & Jonson, 2009); although the aim is that participants will develop their skill in this as in all other areas of cooperation, there is some evidence that respectful and constructive criticism are most beneficial if initially modelled by the teacher (Smith *et al*., 1998).

Aside from such established theoretical frameworks, Punch (2014) notes that researchers may position theory within a study at various points along a continuum. As a theory may be as simple as “what a researcher expects to find in a study” (Creswell and Plano Clark, 2018, p43), it seems reasonable to state straightforwardly that the teaching of cooperative games is expected to increase the tendency of participants to exhibit cooperative skills. This aspect of the study will draw upon quantitative methods of data collection, therefore may be predicated upon a testable hypothesis. These issues are dependent on the methodological framework of the research, which will be outlined in the following sections.

4.3 METHODOLOGY

Based upon my pragmatic viewpoint, I have chosen to adopt a mixed methods research approach. Mixed methods research is a contentious issue. Even its definition is problematic**;** Johnson *et al.* (2007) counted nineteen definitions within the literature. I intend to follow Tashakkori and Teddlie's (relatively) parsimonious definition:

> Mixed methods research is a type of research design in which [qualitative] and [quantitative] approaches are used in type of questions, research methods, data collection and analysis procedures, or in inferences (cited in Johnson *et al.*, 2007, p.121).

Such pluralism has provoked questions regarding the commensurability of this approach: is it possible "to mix methods with distinct and incompatible roots?" (Cohen et al., 2018, p36). According to Lincoln *et al*. (2018, p133; emphasis in original), the answer is "a cautious *yes*". However, Sale *et al*. (2002) argue that it is *not*, and that the blending of contrasting methods reduces the value of each. This directly contradicts Fetters & Freshwater's (2015) stance, that the sum of mixed methods research is greater than its parts. Biesta attempts to resolve this issue by delineating two types of research: interventionist and non-interventionist. He argues that problems only arise in attempting to combine these types, as "knowing something through intervention is different from knowing something through observation" (2010, p101). However, as Dewey's theory denies the possibility of gaining knowledge *without* interaction, and thus intervention, this renders the accusations of incompatibility redundant.

Most authors agree that researchers must set out a clear justification in order to mix data types (Cohen *et al*., 2018; Fetters & Freshwater, 2015; Bryman, 2006). I have two reasons for doing so:

Firstly, a mixed methods approach offers "a greater understanding of the topic or problem... than either a quantitative or a qualitative approach on its own would provide" (Cohen *et al*., 2018, p31). Indeed, a purely quantitative study could only hope to establish a correlation (or an absence thereof) between teaching cooperative

games and changes in behaviour. A purely qualitative study would be restricted to the recording of participants' perceptions, without being able to compare those views with their actions. Mixed methods research offers the possibility of understanding both *what* is happening and *why* (Baumfield *et al*., 2008).

Secondly, it offers participants a voice in the process. This, as outlined above, is a relatively unexplored area within the literature; the proposed study therefore offers participants a more active role. A mixed methods approach is often said to be driven by 'what works'. Some authors contend that this is a distraction from the issue of *who* it works *for*: the involvement of participants in a study is vital, as education is fundamentally a moral practice (Biesta, 2007).

4.4 STUDY DESIGN; METHODS OF DATA COLLECTION

This study will involve the teaching of cooperative games (Fisher, 2005; Fluegelman, 1976; Orlick, 1982, 2006; see Appendix 5) over a six week period to a class of twenty-four 8 and 9 year-old children in School A. The rules, structures and groups (although always heterogenous) will vary according to the games. Each game features a focus on one or more specific cooperative skills which will be explicitly shared as a learning intention; plenary sessions after each game will allow for group processing. There are 13 girls and 11 boys in the class, which is characterised by a wide range of ability and socio-economic background. It includes three children whose first language is not English and two with an Autistic Spectrum Disorder diagnosis. Received consent will frame the scope of those participating in the research. The participants will be within the class I teach; therefore, as the games programme will form a part of my planned teaching, the research will be manageable within the constraints of my work (Baumfield, 2008). The aim of the study is to assess any changes that occur in the tendency of participants to cooperate during play; to this end, the study is based upon a pre-test, intervention, post-test model. In addition, ongoing observations will be made of participants throughout the study period, and parental questionnaires and pupil interviews (conducted at the end of the study) will offer participants the opportunity to register their views. The assessments of playtime behaviours will be made in school A's playroom; a setting distinct from school A's gym hall or playground, where the cooperative games will be taught.

The pre- and post-test assessment of participants' tendency to cooperate will involve the same observational methods (Buchanan and Redford, 2008)**.** The most commonly cited tool in this field is the Prisoner's Dilemma game (Taylor, 1987); this is employed so ubiquitously that Axelrod (1980, p6) claimed it had "become the *E. coli*. of social psychology". However, as the structure and rules of this game may seem confusing to some participants, I have chosen instead to adapt a simpler idea from Etel & Slaughter's (2019) study. Pairs of participants will be tasked with the completion of one jigsaw each; the pieces will be mixed together, spread out and face down. Pictures of both of the completed jigsaws will be displayed for participants to refer to. As they work to complete their jigsaws, video (recorded on an education authority iPad) will capture the time spent by each participant engaging in cooperative communications or gestures. The pairs of participants will be chosen randomly; the same pairs will complete the jigsaw assessment at the start and finish of the study period. This approach will generate numeric coded data (see Appendix 4) allowing for comparison of results before and after the intervention (Buchanan and Redford, 2008).

In addition, I have planned a series of ongoing play-based observations of participants, using Parten's (1932) social hierarchy of categories of play (see Appendix 1). The observations will be made once a week, throughout the study period, in a play room where the participants are used to having 'free play' sessions. The play room is equipped with a range of toys familiar to participants (this range will remain constant throughout the study as selection of toys is known to affect participant's play behaviour (Kaiser *et al*., 1995)); participants may choose whichever toys they wish (or none at all), subject to the sharing of resources with other participants. Support for learning workers, familiar to the participants, will attend to pupils' needs (if necessary) during the session, allowing me to concentrate on making and recording observations. Observations will be made during timed 'snapshot' moments throughout the play session and an assessment made of each participant's category of play. Resulting coded recordings will be written every thirty seconds; this allows fifteen seconds to observe each participant and fifteen seconds to record the code and find the next participant. Assuming the study is of around twenty participants, a recording of each one will occur every ten minutes or so. As

each play session will last around forty minutes, I aim to observe each participant on four occasions. This will provide further numeric data, with the aim of tracking any changes to levels of cooperative play that occur during the research period.

A parental questionnaire (see Appendix 6) (with accompanying cover letter – Appendix 7) will be sent to participants' families in the final week of the study. It is designed to include a range of questions, in order to obtain both qualitative *and* numeric data. Initial questions are general and innocuous, so that respondents may easily engage with the process (Cohen *et al*., 2011); these are followed by closed, dichotomous questions (although respondents may choose a 'don't know' option). The third section features a Likert scale with a seven-point range of responses; this was chosen as "most of us would not like to be called extremists" (Cohen *et al*., 2011, p388), the suggestion being that scales are thus emasculated by the outside two responses, leaving a five-point scale with only three comfortable choices. Responses alternate in each question to mitigate bias and allow for a greater mid-range (Cohen *et al*., 2018). The questionnaire ends with several open questions; these may offer the "gems" of qualitative information that would otherwise be absent (Cohen *et al.,* 2011, p392).

As Durrant and Holden (2006) contend that reliance on questionnaires is all too common in school-based research, I have also chosen to conduct pupil interviews with consenting participants. Giving them a voice in the process will strengthen commitment and learning for *all* participants (Ruddock and Flutter, 2000). However, I must be careful not to reveal any results from the ongoing observations during the interviews; although emerging data may inform questioning (Charmaz, 2000), the participants must be given the opportunity to share their views without being unduly influenced. I have drawn up a semi-structured interview schedule (see Appendix 8) based upon the 'funnel' model, which moves from general questions to the more specific (Cohen *et al.*, 2018). Audio will be recorded on my authority iPad (participants are accustomed to me using it in class in other contexts), in the play room (in order to avoid "Headmaster's study syndrome" (Woodhouse, 2012, p55)). Lastly, participants will be interviewed in pairs; for their comfort as well as to facilitate interactions between them (Cohen *et al.,* 2018).

I have chosen these particular of methods of data collection as they represent a broad yet manageable range, which will generate multiple types of data from different sources, thus helping support the quality of my findings (Brown *et al.,* 2017). Quality of research is usually measured in terms of *reliability* and *validity*.

4.5 STUDY RELIABILITY AND VALIDITY

Although there is a consensus that research studies must meet certain standards of quality (Heale & Twycross, 2015; Noble & Smith, 2015), even the terms with which this is measured have become contested. Golafshani (2003, p597) points out that reliability and validity, traditionally the means by which research findings are judged, are “rooted in the positivist perspective” and may not apply to qualitative research. Whilst quantitative researchers see reliability and validity as being based mainly upon the quality of the *research*, in qualitative studies the focus shifts to the ability of the *researcher* (Golafshani, 2003). Creswell and Miller (2000, p125) remind qualitative researchers that as they are participants in the research, “validity refers not to the data but to the inferences drawn from them”. As mixed methods research combines elements of both research approaches, it is surely incumbent upon researchers to apply a combination of interpretations. Quantitative data may require more traditional standards of reliability and validity, whereas for qualitative data, Lincoln and Guba (1985) propose a focus instead upon truth value, consistency, neutrality and applicability.

Zohrabi (2013) suggests four strategies to ensure greater reliability of quantitative data. Two of these (peer examination and involving multiple researchers) are not possible due to the nature of the study proposal. One (mechanically recorded data) is planned; however ethical considerations preclude retaining this data beyond the time taken to analyse it. The final strategy, that of using low inference descriptors, caused me to reflect upon my coding of observed play behaviours. As this is a high inference descriptor, involving subjective judgements of behaviour, I consider that there is a clear need to practice my observation of behaviours in the playroom *before* the study starts (Cohen *et al*., 2011). I also plan to keep a log *after* each observation session, recording descriptions of notable moments and behaviours, written within

an hour of the end of the play session. With these refinements I aim to improve the reliability of my quantitative data.

Creswell and Miller (2000) outline nine procedures for ensuring validity in qualitative research, suggesting that several should be used if possible. Of these strategies, this proposal can offer a degree of *triangulation*; Zohrabi (2003) argues that the collection of *both* quantitative and qualitative data (assuming that the findings from each corroborate the other) inherently strengthen the validity of a study. Creswell and Miller (2000) also suggest searching for *disconfirming evidence*; however, given my relative inexperience in analysing research findings, I would not want to rely upon this strategy. I have already (nominally) engaged in *researcher reflexivity*, by declaring my paradigmatic stance. Nevertheless, this is a reminder that I must continually focus on the need to accurately reflect participants' views, as a constructivist might be expected to do, and not lose sight of their importance in the drive to 'solve problems'; an accusation that might be levelled at a pragmatist. However, I consider that the most effective procedure for this study that Creswell and Miller suggest (ibid) is that of *member checking.* At the end of the period of research, once all data has been collected and analysed, I will arrange to meet participating pupils and discuss the findings with them, in order to seek assurance that they agree with my interpretation of the findings. This will open up the validity process to participants, in order that they may share the process (Creswell & Miller, 2000).

4.6 METHODS OF ANALYSIS

Closely related to questions of validity are the methods of data analysis. Nowell *et al*. (2017, p1) argue that trust can be gained through the "precise, consistent and exhaustive" analysis of data; and that this is the most complex, yet least well described, area of qualitative research. Nowell *et al*. (ibid) describe a process of thematic analysis which seems identical to that of Clarke and Braun (2013). I plan to follow the six non-linear, iterative steps they outline, in order to develop a credible representative narrative from the qualitative data derived from the questionnaires, and particularly from the pupil interviews. I fully expect to feel rather overwhelmed by

the quantity and range of data gained through these interviews; particularly if the subject of conversation in the pupil interviews veers off tangentially. The starting point will be an immersive, intimate and repeated engagement with this data (Marshall and Rossman, 2016); I will transcribe recordings of each interview, but also listen to them repeatedly, in order to pick up on any nuances of conversation that might be lost when simply written as text. After this a *coding* process begins: King (2004, p257) defines a code as "a label attached to a section of text to index it as relating to a theme or issue in the data which the researcher has identified as important". It is clear, even at this point, that the researcher may influence the process: Nowell *et al*. (2017) warn against omitting data that might seem contrary or irrelevant to the themes discussed. Following this, the third phase which Clarke and Braun (2013) describe is the search for *themes*. DeSantis and Ugarriza (2000, p362) define themes as abstract entities which "bring meaning and identity to a recurrent experience and its variant manifestations". Themes aim to coalesce the constituent atoms represented by the codes into concepts that connect portions of data (DeSantis & Ugarriza, 2000). This part of the process seems equally prone to the whims and assumptions a researcher might exhibit unless careful: King (2004) makes a point that is particularly pertinent to the pragmatic researcher; emerging themes that seem irrelevant to the research question must not be ignored. The next stage; that of reviewing the themes, offers an opportunity to check that they do in fact accurately reflect the meanings within the data (Nowell *et al*., 2017). Finally, each theme must be defined and analysed; only then can the report be written (Clarke & Braun, 2013). At this stage I must be careful not to anticipate which themes might emerge; the participants of the study will determine this, my job is simply to reflect their thoughts as honestly and accurately as I can.

4.7 LIMITATIONS

Although this study is unable to provide comparability, as all of the participants will receive the same input, there are serious ethical questions around denying a group what might be a potentially beneficial service (Conner, 1980); this therefore cannot be included as a limitation. However, I have identified several other points that might limit potential findings.

First, the scope of the study is relatively small in scale; this is not an issue that I can alter, as I cannot teach participants who are not within my class, nor would I have the opportunity to assess them. This is because of time constraints; participants' attendance is limited to the hours within a school day, during which I only have access to my class. Equally, other teachers are busy with their classes and therefore cannot contribute. Although Finlinson *et al.* (2000) state that involving a variety of teachers is itself a limitation, the converse must also be true; as already outlined, Zohrabi (2013) argues that when correctly trained and deployed, multiple researchers can increase the reliability of research studies.

Secondly, several similar studies have noted that teachers' behaviour may influence outcomes (Finlinson *et al*, 2000; Toppe *et al*., 2019). This is mitigated in the sense that I will be the only teacher participating within the research and intervention; however, it is a reminder that I will have to be *very* careful to maintain as constant a mood and enthusiasm for the games as possible throughout the study and not influenced by perceived progress of the project during ongoing observation. As mentioned earlier, I must also take care to ensure that the benefits of cooperation are outlined in a factual rather than eulogising manner. As Garaigordobil *et al*. (1996) noted, the teachers who had been invited and trained to participate in their study noted themselves that this very process could have changed the teachers' behaviour. I will address this issue directly and explicitly at the beginning of the study, explaining to my class that it is important that they decide for themselves how they choose to play, and that they must not behave in certain ways because they think that it is what I'm 'looking for'. The observer effect cannot be discounted, especially during interviews and observations. However, as Creswell and Miller (2000) point out, prolonged exposure in the field can build trust between participants. I have the advantage of having developed a strong relationship with the participants; whilst this does mean there is the danger that they might behave in ways that they think might please me (Cohen *et al*., 2011), they also are more likely to not feel self-conscious during observed play sessions, and thus behave more naturally.

Finally, some external variables exist which are difficult to eliminate entirely, such as peer dynamics amongst participants, family situations and the effect of interactions with non-participating peers (such as fights in the playground!). These may be mitigated to some extent if the events behind them are known; however, as in any study, they cannot be entirely prevented.

4.8 ETHICAL ISSUES

Ethical considerations are of paramount importance in any research study. Although my initial application for ethical approval was approved, this was only within the context of that particular moment; ethical considerations are of continuous concern, from the start to the end of any inquiry (SERA, 2005). Cavan (1977, cited in Cohen *et al.*, 2018, p.112)**,** describes ethics as the "matter of principled sensitivity to the rights of others". They have basis in international legislature (*e.g.*, Data Protection Act, 1998; Human Rights Act, 1998; UNICEF, 1989) and are governed by regulatory bodies (BERA, 2018; SERA, 2005). However, they are contextually specific; Simons and Usher (2000, cited in Cohen *et al.*, 2018) warn of the tendency for ethical concerns to arise unpredictably and situationally.

In addition to demonstrating ethical *responsibilities* such as respect, rigour and validity, studies are expected to enhance the standing of researchers (BERA, 2018). Researchers must also meet accepted ethical *principles*. I will evaluate my proposal through the lens of Beauchamp and Childress' four principles (2008, cited in Greig *et al*., 2013): *autonomy, non-maleficence, beneficence* and *justice*.

Issues of *autonomy* will be addressed by eliciting informed consent from participants, on an ongoing and voluntary basis. They will be informed of their right to withdraw at any stage for any, or no, reason. All participants will receive an information sheet; separate versions will be given to adults and children (see Appendices 9 & 10). These will serve to explain procedures and offer assurances of confidentiality (Cohen *et al*., 2018). Written consent forms will also be differentiated for pupils and their guardians (Appendices 11 & 12); only pupils who return *both* consent forms as well as continuing to give oral consent throughout the study will participate (SERA, 2005).

In order to secure *non-maleficence***,** I have considered any potential situations that may put participants at risk of harm. Although disagreements may occur during the cooperative games, these would simply represent issues that might arise as part of planned learning and teaching; the games would occur irrespective of the research.

The primary concern will be the assurance of confidentiality for participants. To this end, data which is recorded digitally will be transcribed into untraceable or aggregated form and then eradicated. Documents will be shredded within School A. Audio and video will only be recorded on an iPad belonging to the education authority; this is protected by a passcode known only to me, which offers another level of security. The recording device will be kept in a locked drawer within school A; copies will not be made, and the recordings will be erased as soon as the data has been analysed and a transcription made. Gatekeepers have been assured that the recordings will only be viewed or listened to by me, or potentially my supervisor, and will be erased shortly afterwards.

The most important concern in this study is the interests of the child (UNICEF, 1989). Ensuring a positive and worthwhile outcome for them is *my responsibility.* I will therefore ensure that participants are made to feel valued and comfortable, especially during interviews (Morrison, 2012); treated with respect; appropriately thanked and acknowledged; and most importantly, listened to (Cohen *et al*., 2018).

Ultimately, the “fundamental purpose of research is the production of valid, relevant, worthwhile and significant knowledge” (Cohen et al., 2018, p121). It is through the application of this knowledge that participants ought to experience *beneficence*. This will require the dissemination of findings to participants (in suitable languages), other teachers in the school and if possible, beyond (BERA, 2018). If the findings lead to pedagogical improvement, participants might develop improved cooperative skills as a result; potentially resulting in higher achievement (Gauvain & Rogoff, 1989, enhanced communication skills, and better developed social skills (Deutsch, 2006). Furthermore, the findings may add to the relevant field of literature.

Justice is an educational imperative. One of the fundamental issues inherent in educational research is an asymmetry of power (SERA, 2005); this is clearly present within the twin relationship of pupil-teacher and participant-researcher (BERA, 2018). As such, educational research with young students is *particularly* complex and ethically sensitive (Brooks, et al., 2014). I must be aware of their potential naivety (Groundwater-Smith, 2007) and try to intuitively act in *their* interests. Fielding (2004) reminds researchers that their work must never be allowed to become an instrument

of control over students. This point is particularly relevant to this study; the cooperative skills it seeks to impart must not subjugate participants, but rather empower them. The primary function of this research is the advancement of learning and outcomes for the young people.

CHAPTER 5 – CONCLUSION

This paper began with the aim of assessing whether the teaching of cooperative games might have an effect on participants' levels of cooperative play. It considered the issues of cooperation and play within the context of contemporary Scottish education and government policy. This paper concluded that cooperative learning, despite being neither supported by policy nor widely practiced, would meet some of the stated major aims of the Scottish Government. The field of literature around play and cooperation was examined, and several relevant themes emerged, leading to critical analysis of assumptions implicit within the research question. Accordingly, this paper concludes that *cooperation is in general a more positive course of action than competition or individualism*; that there is a strong case for the need to *teach cooperative skills*; that *cooperative games are an effective means with which to teach these skills*; that the *capacity for cooperative play is a desirable outcome*; and that the *observation of play is an effective and appropriate means of assessment*. Beyond this, the study design was outlined; in a progression from broad philosophical, paradigmatic and theoretical concepts, through to the specific detail of methods of data collection and analysis.

I end by noting that if this study was able to establish a correlation between the teaching of cooperative games and the tendency to exhibit cooperative playtime behaviours, this might encourage the wider use of such games programmes, forming a desirable initial step towards the benefits of wholesale cooperative learning. As a result, due to the extent and range of ensuing positive outcomes for young people that this paper has outlined, a start might be made towards improving the lives of young people. However, this study would also – uniquely - offer insights into the participants' experience of this process, by allowing them to offer opinion and feedback. This vital component of the study offers the prospect of substantially improving similar games programmes in the future, with all the social and

cooperative benefits outlined above. It is a prospect which, following such a transformative period of study of these issues, I find exceptionally exciting.

(16446 words).

DISSERTATION LIST OF REFERENCES:

Alvesson, M. and Sandberg, J. (2011) Generating Research Questions Through Problematization. *The Academy of Management Review,* 36(2): 247-271.

Axelrod, R. (1980) Effective Choice in the Prisoner's Dilemma. *Journal of Conflict Resolution*, 24(1): 3-25.

Armstrong, T. (2003) Attention Deficit Hyperactivity Disorder in children: One Consequence of the Rise of Technologies and Demise of Play. In: S. Olfman (ed) *All Work and No Play: How Educational Reforms are Harming our Preschoolers*, pp.161-176. Westport: Praeger.

Arnott, L. (2016) An Ecological Exploration of Young Children's Digital Play: Framing Children's Social Experiences with Technologies in Early Childhood. *Early Years*, 36(3): 271-288.

Aronson, E. (1978) *The Jigsaw Classroom*. Beverley Hills: Sage.

Bacharach, S.B. (1989) Organizational Theories: Some Criteria for Evaluation. *The Academy of Management Review*, 14(4): 496-515.

Ballantine, J. and Larres, P.M. (2007) Cooperative Learning: a Pedagogy to Improve Students' Generic Skills? *Education+ Training* 49(2): 126-137.

Ballard, K.D. (1981) An Observation Procedure for Assessing Children's Social Behaviours in Free Play Settings. *Educational Psychology*, 1(2): 185-199.

Baumfield, V., Hall, E. and Wall, K. (2008) *Action Research in the Classroom*. London: Sage.

Bay-Hinitz, A.K., Peterson, R.F. and Quilitch, H.R. (1994) Cooperative Games: a Way to Modify Aggressive and Cooperative Behaviors in Young Children. *Journal of Applied Behavior Analysis*, 27(3): 435-446.

Behnke, C.J. and Fetkovich, M.M. (1984) Examining the Reliability and Validity of the Play History. *American Journal of Occupational Therapy*, 38(2): 94-100.

Bennett, R. (2002) Employers' Demands for Personal Transferable Skills in Graduates: A Content Analysis of 1000 Job Advertisements and an Associated Empirical Study. *Journal of Vocational Education and training*, 54(4): 457-476.

BERA (British Educational Research Association) (2018) Ethical Guidelines for Educational Research (Fourth Edition). Available at: file:///M:/BERA-Ethical-Guidelines-for-Educational-Research_4thEdn_2018.pdf (last accessed 17/01/20).

Biesta, G.J.J. (2007) Why 'What Works' Still Won't Work: From Evidence-Based Education to Value-Based Education. *Studies in Philosophy and Education*, 29(5): 491-503.

Biesta, G.J.J. (2010) Pragmatism and the Philosophical Foundations of Mixed Methods Research. In: A. Tashakkori & C. Teddlie (eds) *SAGE Handbook of Mixed Methods in Social & Behavioral Research,* pp.95-117. Thousand Oaks: Sage.

Biesta, G.J.J., Allan, J. and Edwards, J. (2011) The Theory Question in Research Capacity Building in Education: Towards an Agenda for Research and Practice. *British Journal of Educational Studies*, 59(3): 225-239.

Black, C. and Martin, C. (2015) Mental Health and Wellbeing Among Adolescents in Scotland: Profile and Trends. Report produced by Ipsos MORI. Available at: file:///Users/gerardbell/Downloads/00488358.pdf (last accessed 7/7/2020)

Blatchford, P., Hallam, S., Ireson, J., Kutnick, P. and Creech, A. (2008) The Primary Review: Research Survey 9/2. Classes, Groups and Transitions: Structures for Teaching and Learning. University of Cambridge. Available at: https://cprtrust.org.uk/wp-content/uploads/2014/06/research-survey-9-2.pdf (last accessed 30/6/20)

Blatchford, P., Kutnick, P., Baines, E. and Galton, M. (2003) Toward a Social Pedagogy of Classroom Group Work. *International Journal of Educational Research*, 39(1-2): 153-172.

Bledsoe, N.P. and Shepherd, J.T. (1982) A Study of Reliability and Validity of a Preschool Play Scale. *American Journal of Occupational Therapy*, 36(12): 783-788.

Bowen, C.W. (2000) A Quantitative Literature Review of Cooperative Learning Effects on High School and College Chemistry Achievement. *Journal of Chemical education*, 77(1): 116-119.

Britton, A., Schweisfurth, M. and Slade, B. (2019) Of Myths and Monitoring: Learner-centred Education as a Political Project in Scotland. *Comparative Education*, 55(1): 30-46.

Broadhead, P. (2009) Conflict Resolution and Children's Behaviour: Observing and Understanding Social and Cooperative Play in early years Educational settings. *Early Years*, 29(2): 105-118.

Broadhead, P. (2010) Cooperative Play and Learning from Nursery to Year One. In: P. Broadhead, J. Howard & E. Wood (eds) *Play and Learning in the Early Years* pp.43-60. London: Sage.

Brody, C. (1998) The Significance of Teacher Beliefs for Professional Development and Cooperative Learning. In: C. Brody & N. Davidson (eds) *Professional Development for Cooperative Learning: Issues and Approaches* pp.25-48. Albany: New York State University.

Brooks, R., te Riele, K., and Maguire, M. (2014) *Ethics and Education Research*. Sage: London.

Brown, C., Schildkamp, K. and Hubers, M.D. (2017) 'Combining the Best of Two Worlds: a Conceptual Proposal for Evidence-informed School Improvement', *Educational Research*, 59(2): 154-172.

Bruner, J. (1983) Play, Thought, and Language. *Peabody Journal of Education*, 60(3): 60-69.

Bryman, A. (2006) Integrating Quantitative and Qualitative Research: How is it Done? *Qualitative Research*, 6(1): 97-113.

Buchanan, Y. and Redford, M. (2008) Undertaking Professional Enquiries. In: J. Reeves and Fox (eds) *Practice-Based Learning: Developing Excellence in Teaching*, pp. 28-37. Edinburgh: Dunedin academic Press.

Buchs, C., Filippou, D., Pulfrey, C. and Volpé, Y. (2017) Challenges for Cooperative Learning Implementation: Reports from Elementary School Teachers. *Journal of Education for Teaching*, 43(3): 296-306.

Carlson, J.M., (1999) Cooperative Games: A Pathway to Improving Health. *Professional School Counseling*, *2*(3): 230-236.

Carson, S.H., Peterson, J.B. and Higgins, D.M. (2003) Decreased Latent Inhibition is Associated with Increased Creative Achievement in High-functioning Individuals. *Journal of Personality and Social Psychology*, 85(3): 499-506.

Centre for Excellence and Outcomes in Children's and Young People's Services (C4EO) (2011) Effective Classroom Strategies for Closing the Gap in Educational Achievement for Children and Young People Living in Poverty, Including White Working-class Boys. Available at: https://www.york.ac.uk/media/iee/documents/Closing%20the%20Gap.pdf (last accessed 24/08/20).

Charmaz, K. (2000) Grounded Theory: Objectivist and Constructivist Methods. In: N.K. Denzin and Y.S. Lincoln (eds) *Handbook of Qualitative Research*. (Second Edition, pp. 509-535). Thousand Oaks: Sage.

Children's Play Policy Forum (2019) Play Builds Children: CPPF Statement. Available at: https://www.playscotland.org/wp-content/uploads/Play-Builds-Children-CPPF-Statement-2019-1.pdf (last accessed 27/11/19).

Christie, J.F. (1980) The Cognitive Significance of Children's Play: A Review of Selected Research. *The Journal of Education*, 162(4): 23-33.

Clark, N.M. and Gakuru, O.N. (2014) The Effect on Health and Self-confidence of Participation in Collaborative Learning Activities. *Health Education & Behavior*, 41(5): 476-484.

Clarke, V. and Braun, V., 2013. Teaching Thematic Analysis: Overcoming Challenges and Developing Strategies for Effective Learning. *The Psychologist*, 26(2): 120-123.

Cohen, E.G., Lotan R.A., Scarloss, B.A. and Arellano, A.R. (1999) Complex Instruction: Equity in Cooperative Learning Classrooms. *Theory Into Practice*, 38(2): 80-86.

Cohen, L., Manion, L. and Morrison, K. (2011) *Research Methods in Education*. (Seventh edition) London: Routledge.

Cohen, L., Manion, L. and Morrison, K. (2018) *Research Methods in Education*. (Eighth edition) London: Routledge.

Cole-Hamilton, I. (2012). Getting It Right for Play. The Power of Play: An Evidence Base. Roslin: Play Scotland. Available at: http://www.playscotland.org/wp-content/uploads/assets/Power-of-Play.pdf (last accessed 27/11/19).

Conner, R.F. (1980) Ethical Issues in the Use of Control Groups. *New Directions for Program Evaluation*, Volume *7*: 63-75.

Convery, A. (2017) 'There Is No Alternative: Scotland's Curriculum for Excellence and its Relationship with High Culture.' *Scottish Affairs*, 26:2, 176-193.

Cooper, L., Johnson, D.W., Johnson, R. and Wilderson, F. (1980) Effects of Cooperative, Competitive, and Individualistic Experiences on Interpersonal Attraction Among Heterogeneous Peers. *Journal of Social Psychology*, 111(2): 243-252.

Cosma, A., Rhodes,G., Currie,C., Inchley,J. and HBSC team (2016) HSBC Briefing Paper 25. Self-confidence and Social Wellbeing in Scottish Adolescents. Child and Adolescent Health Research Unit (CAHRU), St Andrews. Available at: http://shine.sphsu.gla.ac.uk/wp-content/uploads/2019/01/bp25-self-confidence-and-social-wellbeing.pdf (last accessed 7/720).

Creighton, S. and Szymkowiak, A. (2014) The Effects of Cooperative and Competitive Games on Classroom Interaction Frequencies. *Procedia-Social and Behavioral Sciences*, Volume 140: 155-163.

Creswell, J.W. and Creswell, J.D. (2018) *Research Design: Qualitative, Quantitative & Mixed Methods Approaches.* (Fifth Edition). Sage: Thousand Oaks.

Creswell, J.W. and Miller, D.L. (2000) Determining Validity in Qualitative Inquiry. *Theory intoPpractice*, 39(3): 124-130.

Creswell, J.W. and Plano Clark, V.L. (2018) *Designing and Conducting Mixed Methods Research* (Third Edition). Sage: Thousand Oaks.

Crotty, M. (1998) *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London: Sage.

Curry, O., Whitehouse, H. and Mullins, D. (2019) Is it Good to Cooperate? Testing the Theory of Morality-as-cooperation in 60 Societies. *Current Anthropology*, 60(1): 47-69.

Davis, M.S. (1971) That's Interesting! Towards a Phenomenology of Sociology and a Sociology of Phenomenology. *Philosophy of the Social Sciences*, 1(2): 309-344.

DeSantis, L. and Ugarriza, D.N. (2000) The Concept of Theme as Used in Qualitative Nursing Research. *Western Journal of Nursing Research*, 22(3): 351-372.

Deutsch, M. (1949) An Experimental Study of the Effects of Co-operation and Competition upon Group Process. *Human relations*, 2(3): 199-231.

Deutsch, M (2006) Cooperation and Competition. In: M. Deutsch, P.T. Coleman, E.C. Marcus (eds) *The Handbook of Conflict Resolution: Theory and Practice,* pp. 23-42*.* San Francisco: Jossey-Bass.

DeVries, D.L. and Edwards, K.J. (1973) Learning Games and Student Teams: Their Effects on Classroom Process. *American Educational Research Journal*, 10(4): 307-318.

DeVries, D.L., Edwards, K.J. and Wells, E.H. (1974) Teams-Games-Tournament in the Social Studies Classroom: Effects on Academic Achievement, Student Attitudes, Cognitive Beliefs, and Classroom Climate. Report number 173.

Dewey, J. (1920) Reconstruction in Philosophy. In: J.A Boydston (ed) John Dewey: *The Middle Works, 1899-1924*. (Volume 12: 1920), pp. 77-201. Carbondale and Edwardsville: Southern Illinois University Press.

DfE (2018) Employer Skills Survey 2017: Research Report. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746493/ESS_2017_UK_Report_Controlled_v06.00.pdf (last accessed 10/7/20).

DfES (2006) Excellence and Enjoyment: Learning and Teaching in the Primary Years. Creating a Learning Culture : Classroom Community, Collaborative and

Personalised Learning. Available at: https://www.lancsngfl.ac.uk/curriculum/assessment/download/file/09%20Classroom%20community,%20collaborative%20personalised%20learning.pdf (last accessed 1/7/20)

Durrant, J. and Holden, G. (2006) *Teachers Leading Change: Doing Research for School Improvement*. London: Paul Chapman.

Earl, L.M. and Katz, S. (2006) *Leading schools in a data-rich world: harnessing data for school improvement*. Thousand Oaks, California: Corwin Press.

Education Endowment Foundation (EEF) (2016) Teaching and Learning Toolkit: Collaborative Learning. Available at: https://educationendowmentfoundation.org.uk/pdf/generate/?u=https://educationendowmentfoundation.org.uk/pdf/toolkit/?id=152&t=Teaching%20and%20Learning%20Toolkit&e=152&s= (last accessed 24/08/20).

Etel, E. and Slaughter, V. (2019) Theory of Mind and Peer Cooperation in Two Play Contexts. *Journal of Applied Developmental Psychology*, Vol 60: 87-95,

Farmer-Dougan, V. and Kaszuba, T. (1999) Reliability and Validity of Play-Based Observations: Relationship Between the PLAY Behaviour Observation System and Standardised Measures of Cognitive and Social Skills. *Educational Psychology*, 19(4): 429-440.

Fawcett, L.M. and Garton, A.F. (2005) The Effect of Peer Collaboration on Children's Problem-Solving Ability. *British Journal of Educational Psychology*, 75(2): 157–169.

Fehr, E. and Fischbacher, U. (2004) Social Norms and Human Cooperation. *Trends in Cognitive Sciences*, 8(4): 185-190.

Fetters, M.D. and Freshwater, D. (2015) Publishing a Methodological Mixed Methods Research Article. *Journal of Mixed Methods Research*, 9(3): 203-213.

Fewell, R.R. and Rich, J.S. (1987) Play Assessment as a Procedure for Examining Cognitive, Communication, and Social Skills in Multihandicapped Children. *Journal of Psychoeducational Assessment*, 5(2): 107-118.

Fielding, M. (2004) Transformative Approaches to Student Voice: Theoretical Underpinnings, Recalcitrant Realities. *British Educational Research Journal*, 30(2): 295-311.

Finlinson, A.R., Berghout Austin, A.M. and Pfister, R. (2000) Cooperative Games and Children's Positive Behaviors. *Early Child Development and Care*, 164(1): 29-40.

Finn, D.M. and Fewell, R.R. (1994) The Use of Play Assessment to Examine the Development of Communication Skills in Children who are Deaf-blind. *Journal of Visual Impairment & Blindness*, 88(4): 349-356.

Fisher, C. (2005) Team-Building Challenge Games. *RE:view*, 37(2): 79-84.

Flavell, J.N. (1963) The Developmental Psychology of Jean Piaget. New York: Van Nostrand Reinhold.

Fluegelman, A. (1976) *The New Games Book*. New York: Dolphin.

Friend, M. and Cook, L. (1992) The Ethics of Collaboration. *Journal of Educational and Psychological Consultation*, 3(2): 181-184.

Gage, N.L. (1989) The Paradigm Wars and Their Aftermath: A "Historical" Sketch of Research on Teaching Since 1989. *Educational Researcher* 18(7): 4-10.

Garaigordobil, M., Maganto, C. and Etxeberría, J. (1996) Effects of a Cooperative Game Program on Socio-affective Relations and Group Cooperation. *European Journal of Psychological Assessment*, 12(2): 141-152.

Gauvain, M. and Rogoff, B. (1989) Collaborative Problem Solving and Children's Planning Skills. *Developmental Psychology*, 25(1): 139-151.

Gillies, R.M. (2007) *Cooperative Learning: Integrating Theory and Practice.* Thousand Oaks: Sage.

Gillies, R.M. and Ashman, A.F. (1996) Teaching Collaborative Skills to Primary School Children in Classroom-based Work Groups. *Learning and Instruction*, 6(3): 187-200.

Gillies, R.M. and Ashman, A.F. (1998) Behavior and Interactions of Children in Cooperative Groups in Lower and Middle Elementary Grades. *Journal of Educational Psychology*, 90(4): 746-757.

Gillies, R.M. and Ashman, A.F. (2000) The Effects of Cooperative Learning on Students with Learning Difficulties in the Lower Elementary School. *The Journal of Special Education*, 34(1): 19-27.

Gillies, R.M. and Ashman, A.F. (2003) An Historical Review of the Use of Groups to Promote Socialization and Learning. In: R. Gillies and A. Ashman (eds) *Co-operative Learning: The Social and Intellectual Outcomes of Learning in Groups*, pp.1-18. London: Routledge Farmer.

Golafshani, N. (2003) Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4): 597-607.

Goldstein, A.P. and McGinnis, E. (1997) *Skillstreaming the Adolescent: New Strategies and Perspectives for Teaching Prosocial Skills*. Champaign: Research Press.

Goodwin, M.W. (1999) Cooperative Learning and Social Skills: What Skills to Teach and How to Teach Them. *Intervention in School and Clinic*, 35(1): 29-33.

Gray. P (2013) Definitions of Play. Scholarpedia, 8(7): 30578. Available at: http://www.scholarpedia.org/article/Definitions_of_Play (last accessed 27/12/19).

Greig, A., Taylor, J., and MacKay, T. (2013). *Doing research with children*. London: Sage.

Groundwater-Smith, S. (2007) Student Voice: Essential Testimony for Intelligent Schools. In: A. Campbell and S. Groundwater-Smith (eds) *An Ethical Approach to Practitioner Research: Dealing with Issues and Dilemmas in Action Research*, pp. 113-128. Abingdon: Routledge.

Guba, E.G. (1987) What Have We Learned About Naturalistic Evaluation? *Evaluation Practice*, 8(1): 23-43.

Hake, D.F. and Vukelich, R. (1972) A Classification and Review of Cooperation Procedures. *Journal of the Experimental Analysis of Behaviour*, 18(2): 333-343.

Hancock, D., 2004. Cooperative Learning and Peer Orientation Effects on Motivation and Achievement. *The Journal of Educational Research*, 97(3): 159-168.

Hart, C (2001) *Doing a Literature Search: A Comprehensive Guide for the Social Sciences.* London: Sage.

Hart, C (2018) *Doing a Literature Review: Releasing the Research Imagination*. London: Sage.

Hattie, J. (2009) *Visible Learning: A Synthesis of Over 800 Meta-analyses Relating to Achievement*. London: Routledge.

Heale, R. and Twycross, A. (2015) Validity and Reliability in Quantitative Studies. *Evidence-based Nursing*, 18(3): 66-67.

Hedge, N. and MacKenzie, A. (2016) Scotland's Curriculum for Excellence: a Defence of Autonomy and Personhood. *Oxford Review of Education*, 42(1): 1-15.

Hill, T. and Reed, K. (1990) Promoting Social Competence at Preschool: The Implementation of a Co-operative Games Programme. *Early Child Development and Care*, 59(1): 11-20.

Hooper, S., Temiyakarn, C. and Williams, M.D. (1993) The Effects of Cooperative Learning and Learner Control on High-and Average-ability Students. *Educational Technology Research and Development*, 41(2): 5-18.

Johnson, D.W. and Johnson, R.T. (2002) Cooperative Learning and Social Interdependence Theory. In: R.S. Tindale, L. Heath, J. Edwards, E.J. Posavac, F.B. Bryant, J. Myers, Y. Suarez-Balcazar, E. Henderson-King (eds) *Theory and Research on Small Groups*, pp. 9-35. Springer, Boston, MA.

Johnson, D.W. and Johnson, R.T. (1979) Conflict in the Classroom: Controversy and Learning. *Review of Educational Research*, 49(1): 51-69.

Johnson, D.W. and Johnson, R.T. (2009) An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning. *Educational Researcher*, 38(5): 365-379.

Johnson, D.W., Johnson, R.T. and Maruyama, G. (1983) Interdependence and Interpersonal Attraction Among Heterogeneous and Homogeneous Individuals: A Theoretical Formulation and a Meta-analysis of the Research. *Review of educational research*, 53(1): 5-54.

Johnson, D.W., Johnson, R.T. and Smith, K.A. (1991) *Cooperative Learning: Increasing College Faculty Instructional Productivity. ASHE-ERIC Higher Education Report No. 4, 1991*. ASHE-ERIC Higher Education Reports, George Washington University. Available at: https://files.eric.ed.gov/fulltext/ED343465.pdf (last accessed 4/08/20).

Johnson, D.W., Johnson, R.T. and Smith, K.A. (1998) Cooperative Learning Returns to College: What Evidence is There That it Works?. *Change: The Magazine of Higher Learning*, 30(4): 26-35.

Johnson, D.W., Johnson, R.T. and Stanne, M.B. (2000) *Cooperative Learning Methods: A Meta-Analysis*. The Cooperative Learning Centre: University of Minnesota.

Johnson, D.W., Johnson, R.T. and Taylor, B. (1993) Impact of Cooperative and Individualistic Learning on High-ability Students' Achievement, Self-esteem, and Social Acceptance. *The Journal of Social Psychology*, 133(6): 839-844.

Johnson, D.W., Maruyama, G., Johnson, R., Nelson, D. and Skon, L., (1981) Effects of Cooperative, Competitive, and Individualistic Goal Structures on Achievement: A Meta-analysis. *Psychological Bulletin*, 89(1): 47-62.

Johnson, R.B., Onwuegbuzie, A.J., Turner, L.A. (2007) Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research*, 1(2): 112-133.

Kellum, R. (1983) The Influence of Francis Wayland Parker's Pedagogy on the Pedagogy of John Dewey. *Journal of Thought*, 18(1): 77-91.

Kaiser, J., Snyder, T.D. and Rogers, C.S. (1995) Adult Choice of Toys Affects Children's Prosocial and Antisocial Behavior. *Early Child Development and Care*, 111(1): 181-193.

Kelly, A.V. (2009) *The Curriculum: Theory and Practice*. London: Sage.

Kelly-Vance, L. and Ryalls, B.O. (2005) A Systematic, reliable Approach to Play Assessment in Preschoolers. *School Psychology International*, 26(4): 398-412.

Kelly-Vance, L. and Ryalls, B.O. (2008) Best Practices in Play Assessment and Intervention. In: A. Thomas and J. Grimes (eds) *Best Practices in School Psychology V*, pp. 549-559. Bethesda: National Association of School Psychologists.

Kéri, S. (2011) Solitary Minds and Social Capital: Latent Inhibition, General Intellectual Functions and Social Network Size Predict Creative Achievements. *Psychology of Aesthetics, Creativity, and the Arts*, 5(3): 215-221.

Kerr, K. and West, M. (2010) Social Inequality: Can Schools Narrow the Gap? Macclesfield: BERA. Available at: https://www.bera.ac.uk/publication/social-inequality-can-schools-narrow-the-gap (last accessed 24/08/20).

King, N. (2004) Using Templates in the Thematic Analysis of Text. In C. Cassell & G. Symon (eds.), *Essential Guide to Qualitative Methods in Organizational Research* (pp. 257–270). London: Sage.

Kohn, A. (1986) *No Contest: The Case Against Competition.* Boston: Houghton Mifflet.

Korthals, M. (1992) Morality and Cooperation. *Journal of Moral Education*, 21(1): 17-27.

Köse, S., Şahin, A., Ergü, A. and Gezer, K. (2010) The Effects of Cooperative Learning Experience on Eighth Grade Students' Achievement and Attitude Toward Science. *Education*, 131(1): 169-180.

Kuhn, T.S. (1962) *The Structure of Scientific Revolutions.* Chicago: University of Chicago Press.

Kuhn, T.S. (1996) *The Structure of Scientific Revolutions* (Third Edition). Chicago: University of Chicago Press.

Kukla, A. (1972) Foundations of an Attributal Theory of Performance. *Psychological Review*, 79(6): 454-470.

Kyndt, E., Raes, E., Lismont, B., Timmers, F., Cascallar, E. and Dochy, F. (2013) A Meta-analysis of the Effects of Face-to-face Cooperative Learning. Do Recent Studies Falsify or Verify Earlier Findings? *Educational Research Review*, 10: 133-149.

Lee, H., Tamminen, K.A., Clark, A.M., Slater, L., Spence, J.C. and Holt, N.L. (2015) A Meta-Study of Qualitative Research Examining Determinants of Children's

Independent Active Free Play. *International Journal of Behavioral Nutrition and Physical Activity*, 12(5): 1-12.

Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Inquiry*. Beverly Hills: SAGE.

Lincoln, Y.S., Lynham, S.A. and Guba, E.G. (2018) 'Paradigmatic Controversies, Contradictions, and Emerging Confluences, Revisited.' In: N.K. Denzin and Y.S. Lincoln (eds) *The SAGE Handbook of Qualitative Research* (Fifth Edition, pp. 108-151). Thousand Oaks: Sage.

Linder, T.W. (1993) *Transdisciplinary Play-based Assessment: A Functional Approach to Working with Young Children*. Baltimore: Paul Brookes.

Lou, Y., Abrami, P.C., Spence, J.C., Poulsen, C., Chambers, B. and d'Apollonia, S. (1996) Within-class Grouping: A Meta-analysis. *Review of educational research*, 66(4): 423-458.

MacKinnon, D.W. (1962) The Nature and Nurture of Creative Talent. *American Psychologist*, 17(7): 484-495.

Marcus, G., 2016. Closing the Attainment Gap: What Can Schools Do? *SPICe Briefing*. Available at: https://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB_16-68_Closing_The_Attainment_Gap_What_Can_Schools_Do.pdf (last accessed 24/08/20).

Marshall, C. and Rossman, G.B. (2016) *Designing Qualitative Research*. Thousand Oaks: Sage Publications.

Marwell. G. & Schmitt, D.R., (1975) *Cooperation: An Experimental Analysis*. New York: Academic Press.

Masterman, M. (1970) The Nature of a Paradigm. In: I. Lakatos and A. Musgrave (eds) *Criticism and the Growth of Knowledge: Proceedings of the International Colloquium in the*

Philosophy of Science, London, 1965, volume 4, pp. 59-89. London: Cambridge University.

Matsui, T., Kakuyama, T. and Onglatco, M.U. (1987) Effects of Goals and Feedback on Performance in Groups. *Journal of Applied Psychology*, 72(3): 407-415.

May, M.A. (1937) A Research Note on Co-operative and Competitive Behavior. *American Journal of Sociology*, 42(6): 887-891.

McAlister, Clare M. (2010) Cooperative Learning in Scotland. Perspectives on the Role of Cooperative Learning in Supporting Curricular Policy and Innovation. Unpublished: presentation at The European Conference on Educational Research 2010, Helsinki. Available at: https://strathprints.strath.ac.uk/20164/1/strathprints020164.pdf (last accessed 12/01/20).

McKechan, S. and Ellis, J. (2014) Collaborative Learning in the Scottish Curriculum for Excellence: The Challenges of Assessment and Potential of Multi-touch Technology. *Education 3-13*, 42(5): 475-487.

Melis, A.P. and Semmann, D (2010) How is Human Cooperation Different? *Philosophical Transactions: Biological Sciences*, 365(1553): 2663–2674.

Mertens, D. (2012) What Comes First? The Paradigm or the Approach? *Journal of Mixed Methods Research,* 6(4): 255-257.

Mertens, D. (2015) *Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative, and Mixed Methods* (Fourth Edition). Thousand Oaks: Sage.

Miranda, N., Larrea, I., Muela, A. and Barandiaran, A. (2017) Preschool Children's Social Play and Involvement in the Outdoor Environment. *Early Education and Development*, 28(5): 525-540.

Moore, R. and Young, M. (2010) Reconceptualizing Knowledge and the Curriculum in the Sociology of Education. In: K. Maton and R. Moore (eds) *Social Realism, Knowledge and the Sociology of Education,* pp. 14-34. London: Continuum.

Morgan, D.L. (2007) Paradigms Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research,* 1(1): 48-76.

Morrison, K. (2012) Interviewing Children in Uncomfortable Settings: 10 Lessons for Effective Practice. *Educational Studies*, 29(3): 320-337.

Morse, J.M. (1991) Approaches to Qualitative-Quantitative Methodological Triangulation. *Nursing Research*, 40(2): 120-123.

Myers, C.L., McBride, S.L. and Peterson, C.A. (1996) Transdisciplinary, Play-based Assessment in Early Childhood Special Education: An Examination of Social Validity. *Topics in Early Childhood Special Education*, 16(1): 102-126.

Nebesniak, A.L. and Heaton, R.M. (2010) Student Confidence and Student Involvement. *Mathematics Teaching in the Middle School*, 16(2): 96-103.

Nelson, R. and Dawson, P. (2017) Competition, Education and Assessment: Connecting History with Recent Scholarship. *Assessment & Evaluation in Higher Education*, 42(2): 304-315.

Newmann, F.M. and Thompson, J.A., 1987. Effects of Cooperative Learning on Achievement in Secondary Schools: A Summary of Research. Available at: https://files.eric.ed.gov/fulltext/ED288853.pdf (Last accessed 21/7/20).

NHS Digital (2017) Mental Health of Children and Young People in England 2017. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-of-children-and-young-people-in-england/2017/2017 (Last accessed 24/08/20).

Noble, H. and Smith, J. (2015) Issues of Validity and Reliability in Qualitative Research. *Evidence-based Nursing*, 18(2): 34-35.

Nowell, L.S., Norris, J.M., White, D.E. and Moules, N.J. (2017) Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, 16(1): 1-13.

OECD (2006) Social Disadvantage and Education Experiences. Available at: http://www.oecd.org/social/soc/36165298.pdf (Last accessed 24/08/20).

OECD (2015) Improving Schools in Scotland: An OECD Perspective. Available at: https://www.oecd.org/education/school/Improving-Schools-in-Scotland-An-OECD-Perspective.pdf (Last accessed 24/11/08).

OECD (2020) OECD Economic Outlook, June 2020. Available at: http://www.oecd.org/economic-outlook/june-2020/ (last accessed 23/7/20).

Ogilvy, C.M. (1994) Social Skills Training with Children and Adolescents: A Review of the Evidence on Effectiveness. *Educational Psychology*, 14(1): 73-83.

Orlick, T.D. (1981a) Cooperative Play Socialization Among Preschool Children. *Journal of Individual Psychology*, 37(1): 54-63.

Orlick, T.D. (1981b) Positive Socialization via Cooperative Games. *Developmental Psychology*, 17(4): 426-429.

Orlick, T.D. (1982) *The Second Cooperative Sports and Games Book*. New York: Pantheon.

Orlick, T.D. (2006) *Cooperative Games and Sports: Joyful Activities for Everyone*. (Second edition). Champaign: Human Kinetics.

Parten, M.B. (1932) Social Participation among Pre-school Children. *The Journal of Abnormal and Social Psychology*, 27(3): 243-269.

Paterson, L. (2018) Scotland's Curriculum for Excellence: the Betrayal of a Whole Generation? *British Politics and Policy at LSE*. Available at: http://eprints.lse.ac.uk/88472/1/politicsandpolicy-curriculum-for.pdf (Last accessed 25/08/20).

Paulus, M. (2014) The Emergence of Prosocial Behavior: Why do Infants and Toddlers Help, Comfort, and Share? *Child Development Perspectives*, 8(2): 77-81.

Piaget, J. (1962) *Play, Dreams and Imitation in Childhood.* London: Routledge and Kegan Paul.

Piaget, J. (1960). *The Language and Thought of the Child* (Third edition). London: Routledge and Kegan Paul.

Phillips, B.N. and DeVault, M.V. (1957) Evaluation of Research on Cooperation and Competition. *Psychological Reports*, 3(3): 289-292.

Pramling Samuelsson, I. and Johansson, E. (2006) Play and Learning—Inseparable Dimensions in Preschool Practice. *Early Child Development and Care*, 176(1): 47-65.

Priestley, M. (2011) Whatever Happened to Curriculum Theory? Critical Realism and Curriculum Change. *Pedagogy, Culture and Society*, 19:2, 221-237.

Priestley, M., (2012) Curriculum for Excellence: Transformational Change or Business as Usual?. *Interacções*, 8(22): 178-195.

Priestley, M. and Humes, W. (2010) 'The Development of Scotland's Curriculum for Excellence: Amnesia and Déjà Vu.' *Oxford Review of Education*, 36:3, 345-361.

Punch, K.P. (2014) *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: Sage.

Putnam, J.W., Rynders, J.E., Johnson, R.T. and Johnson, D.W. (1989) Collaborative Skill Instruction for Promoting Positive Interactions Between Mentally Handicapped and Nonhandicapped Children. *Exceptional Children*, 55(6): 550-557.

Qin, Z., Johnson, D.W. and Johnson, R.T. (1995) Cooperative Versus Competitive Efforts and Problem Solving. *Review of educational Research*, 65(2): 129-143.

Randall, V. (1999) Cooperative Learning: Abused and Overused?. *Gifted Child Today*, 22(2): 14-16.

Rata, E. (2012) 'The Politics of Knowledge in Education.' British Educational Research Journal, 38:1, 103–124.

Ridley. D. (2012) *The Literature Review: A Step-by-Step Guide for Students* (Second Edition). London: Sage.

Robinson, A. (1990) Cooperation or Exploitation? The Argument Against Cooperative Learning for Talented Students. *Journal for the Education of the Gifted*, 14(1): 9-27.

Ruddock, J. and Flutter, J. (2000) 'Pupil Participation and Pupil Perspective: Carving a New Order of Experience'. *Cambridge Journal of Education*, 30(1): 75-89.

Sale, J.E.M., Lohfeld, L.H., Brazil, K. (2002) Revisiting the Quantitative-Qualitative Debate: Implications for Mixed-Methods Research. *Quality and Quantity* 36(1): 43-53.

Sandy, S.V. (2006) The Development of Conflict Resolution Skills: Preschool to Adulthood. In: In: M. Deutsch, P.T. Coleman, E.C. Marcus (eds) *The Handbook of Conflict Resolution: Theory and Practice*, pp. 356-388. San Francisco: Jossey-Bass.

Sapon-Shevin, M. (1986) Teaching Cooperation. In: G. Cartledge and J.F. Milburn (eds) *Teaching Social Skills to Children: Innovative Approaches* (2nd edition) pp270-302. Oxford: Pergamon.

Schmuck, R. (1985) Learning to Cooperate, Cooperating to Learn: Basic Concepts. In: R. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb and R. Schmuck (eds) *Learning to Cooperate, Cooperating to Learn*, pp.1-4. New York: Plenum.

Schön, D.A (1983) *The Reflective Practitioner: How Professionals Think in Action.* London: Temple Smith.

Schwarzmueller, G. & Rinaldo, V. (2013) The Importance of Self-Directed Play, *Kappa Delta Pi Record*, 49:1, 37-41.

Scottish Association for Mental Health (SAMH) (2016) Going to be All Right? A Report on the Mental Health of Young People in Scotland. Available at: https://www.samh.org.uk/documents/Going_to_Be_All_Right_Jacki_Gordon_Report_2017.pdf (last accessed 24/08/20).

Scottish Executive (2004) *A Curriculum for Excellence: Ministerial Response.* (Edinburgh, Scottish Executive). Available at: https://www.webarchive.org.uk/wayback/archive/20180519032516/http://www.gov.scot/Publications/2004/11/20175/45849 (Last accessed 13/04/19).

Scottish Government (2006) *A Curriculum for Excellence: Progress and Proposals*. (Edinburgh, Scottish Government). Available at: https://www2.gov.scot/resource/doc/98764/0023924.pdf (Last accessed 24/08/19).
Scottish Government (2007) *Building the Curriculum 2: Active Learning in the Early Years.* (Edinburgh, Scottish Government). Available at: https://www.education.gov.scot/Documents/btc2.pdf (Last accessed 24/08/20).

Scottish Government (2008) *Building the Curriculum 3: A Framework for Learning and Teaching*. (Edinburgh, Scottish Government). Available at: https://education.gov.scot/Documents/btc3.pdf (Last accessed 13/04/19).

Scottish Government (2013a) Play Strategy for Scotland: Our Vision. Edinburgh, Scottish Government. Available at: https://www2.gov.scot/resource/0042/00425722.pdf (last accessed 27/12/19).

Scottish Government (2013b) Play Strategy: Our Action Plan. Edinburgh, Scottish Government. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2013/10/play-strategy-scotland-action-plan/documents/00437132-pdf/00437132-pdf/govscot%3Adocument (last accessed 27/12/19).

Scottish Government (2016) Delivering Excellence and Equity in Scottish Education: a Delivery Plan to Scotland. Available at: https://www.gov.scot/publications/delivering-excellence-equity-scottish-education-delivery-plan-scotland/ (Last accessed 24/08/20).

Scottish Government (2017) The Scottish Survey of Literacy and Numeracy. 2011-2016 Pupil and Teacher Questionnaire Analysis. Available at: https://www2.gov.scot/Topics/Statistics/Browse/School-Education/SSLN/SSLNAnalysis/PQTQ20112016 (last accessed 10/7/20)

Scottish Government (2018) Progressing the Human Rights of Children in Scotland: A Report 2015-2018. Edinburgh, Scottish Government. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2018/12/progressing-human-rights-children-scotland-report-2015-2018/documents/00544569-pdf/00544569-pdf/govscot%3Adocument/00544569.pdf (last accessed 12/01/20)

Scottish Government (2019a) Children and Young Peoples' Mental Health Task Force: Recommendations. Edinburgh, Scottish Government. Available at: https://www.gov.scot/publications/children-young-peoples-mental-health-task-force-recommendations/ (Last accessed 25/08/20).

Scottish Government (2019b) Scotland's Future Skills Action Plan. Edinburgh, Scottish Government. Available at: https://www.gov.scot/publications/future-skills-action-plan-scotland-evidence-analysis-annex/pages/7/ (last accessed 10/7/20).

Scottish Government (2020a) Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS): Mental Wellbeing Report 2018. Available at: https://www.gov.scot/publications/scottish-schools-adolescent-lifestyle-substance-use-survey-salsus-mental-wellbeing-report-2018/ (last accessed 24/08/2020).

Scottish Government (2020b) Scottish Budget 2020-21. Edinburgh, Scottish Government. Available at: file:///Users/gerardbell/Downloads/scottish-budget-2020-21.pdf (last accessed 23/7/20).

SERA (Scottish Educational Research Association) (2005) Ethical Guidelines for Educational Research. Available at https://c.ymcdn.com/sites/www.weraonline.org/resource/resmgr/a_general/sera.pdf (last accessed 18/01/20).

Shachar, H. (2003) Who Gains What From Co-operative Learning? In: R.M. Gillies and A.F. Ashman (eds) *Co-operative Learning: The Social and Intellectual Outcomes of Learning in Groups*, pp103-118. London: Routledge Falmer.

Sharan, S. (2002) Differentiating Methods of Cooperative Learning in Research and Practice. *Asia Pacific Journal of Education*, 22(1): 106-116.

Sharan, S. and Sharan, Y. (1976) *Small-group Teaching.* Englewood Cliffs: Educational Technology Publications.

Sharan, Y. (2010) Cooperative Learning for Academic and Social Gains: Valued Pedagogy, Problematic Practice. *European Journal of Education*, 45(2): 300-313.

Shields, D.L. and Bredemeier, B.L. (2010) Competition: Was Kohn right?. *Phi Delta Kappan*, 91(5): 62-67.

Slavin, R.E. (1978) Student Teams and Comparison Among Equals: Effects on Academic Performance and Student Attitudes. *Journal of Educational Psychology*, 70(4): 532-538.

Slavin, R.E. (1983) When Does Cooperative Learning Increase Student Achievement?. *Psychological bulletin*, 94(3): 429-445.

Slavin, R.E. (1985) An Introduction to Cooperative Learning Research. In: R. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb and R. Schmuck (eds) *Learning to Cooperate, Cooperating to Learn*, pp.5-16. New York: Plenum.

Slavin, R.E. (1990) Point-counterpoint: Ability grouping, Cooperative Learning and the Gifted. *Journal for the Education of the Gifted*, 14(1): 3-8.

Slavin, R.E, (1995) Cooperative Learning: Theory, Research and Practice (2nd edition) Boston: 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.

Slocombe, K.E. and Seed A.M. (2019). Cooperation in children. *Current Biology*, 29(11): 470-473.

Smilansky, S. (1968) The Effects of Sociodramatic Play on Disadvantaged Children: Preschool Children. New York: Wiley.

Smiley, P.A. (2001) Intention Understanding and Partner-Sensitive Behaviors in Young Children's Peer Interactions. *Social Development*, 10(3): 330-354.

Smith, H.J., Tyler, T.R., Huo, Y.J., Ortiz, D.J. and Lind, E.A. (1998) The Self-relevant Implications of the Group-value Model: Group Membership, Self-worth, and Treatment Quality. *Journal of Experimental Social Psychology*, 34(5): 470-493.

Sommerlad, E.A. and Bellingham, W.P. (1972) Cooperation-competition: A Comparison of Australian European and Aboriginal School Children. *Journal of Cross-Cultural Psychology*, 3(2): 149-157.

Springer, L., Stanne, M.E. and Donovan, S.S. (1999) Effects of Small-group Learning on Undergraduates in Science, Mathematics, Engineering, and Technology: A Meta-analysis. *Review of educational research*, 69(1): 21-51.

Stagnitti, K. and Unsworth, C. (2004) The Test–retest Reliability of the Child-initiated Pretend Play Assessment. *American Journal of Occupational Therapy*, 58(1): 93-99.

Stevens, R.J. and Slavin, R.E. (1995) The Cooperative Elementary School: Effects on Students' Achievement, Attitudes, and Social Relations. *American Educational Research Journal*, 32(2): 321-351.

Stokes, T.F. and Baer, D.M. (1977) An Implicit Technology of Generalization. *Journal of Applied Behavior Analysis*, 10(2): 349-367.

Street, H., Hoppe, D., Kingsbury, D. and Ma, T. (2004) The Game Factory: Using Cooperative Games to Promote Pro-social Behaviour Among Children. *Australian Journal of Educational & Developmental Psychology*, Volume 4: 97-109.

Strom, R.D. (1976) The Merits of Solitary Play. *Childhood Education*, 52(3):149-152.

Swindells, D. and Stagnatti, K. (2006) Pretend Play and Parents View of Social Competence: The Construct Validity of the Child-Initiated Pretend Play Assessment. *Australian Occupational Therapy Journal*, 53(4): 314-324.

The Talmud. Sefaria. William Davidson Talmud. Available at: https://www.sefaria.org/Taanit.7a?lang=bi (Last accessed 24/08/20).

Tan, I.G.C., Sharan, S. and Lee, C.K.E. (2007) Group Investigation Effects on Achievement, Motivation, and Perceptions of Students in Singapore. *The Journal of Educational Research*, 100(3): 142-154.

Tashakkori, A. and Teddlie, C. (1998) *Mixed Methodology: Combining Qualitative and Quantitative Approaches*. Thousand Oaks: Sage.

Taylor, M. (1987) *The Possibility of Cooperation*. Cambridge: University of Cambridge Press.

Thanh, P.T.H., Gillies, R. and Renshaw, P. (2008) Cooperative Learning (CL) and Academic Achievement of Asian Students: A True Story. *International education studies*, 1(3): 82-88.

Thomas, G. (1997) What's the Use of Theory? *Harvard Educational Review,* 67(1): 75-104.

Thurston, A., Cockerill, M. and Craig, N. (2019) Using Cooperative Learning to Close the Reading Attainment Gap for Students with Low Literacy Levels for Grade 8/Year 9 Students. International Journal of Educational Research, vol 94: 1-10.

Toppe, T., Hardecker, S. and Haun, D.B. (2019) Playing a Cooperative Game Promotes Preschoolers' Sharing with Third-parties, But Not Social Inclusion. *PloS One*, 14(8) no page numbers.

Tracey, L. and Homer, M. (2012) 'Research on Teaching: How Teachers Can Use Data to Reflect on Their Practice'. In: N. Mitchell and J. Pearson (eds) *Inquiring in the Classroom: Asking the Questions That Matter About Teaching and Learning*, pp.29-44. London: Continuum.

Trnavsky, P. (1997) Play and Cooperation: A Longitudinal Study of Chinese Children. *Early Child Development and Care*, 138(1): 41-56.

UNICEF (1989) United Nations Convention on the Rights of the Child (UNCRC) Available at: https://www.unhcr.org/uk/4d9474b49.pdf (last accessed 9/01/20).

United Nations (2009), United Nations General comment No. 12 on the Right of the Child to be Heard. Available at: https://www2.ohchr.org/english/bodies/crc/docs/AdvanceVersions/CRC-C-GC-12.pdf (last accessed 23/7/20).

Vaish, A., Carpenter, M. and Tomasello, M. (2016) The Early Emergence of Guilt-motivated Prosocial Behavior. *Child Development*, 87(6): 1772-1782.

Van Ryzin, M.J. and Roseth, C.J. (2018) Cooperative Learning in Middle School: A Means to Improve Peer Relations and Reduce Victimization, Bullying, and Related Outcomes. *Journal of educational psychology*, 110(8): 1192-1201.

Vygotsky, L.S. (1978) The Role of Play in Development. In: L.S. Vygotsky, M. Cole, V. John-Steiner, S. Scribner, E. Souberman (eds) *Mind in Society*, pp.92-104. Massachusetts: Harvard University.

Warneken, F. and Tomasello, M. (2006) Altruistic Helping in Human Infants and Young Chimpanzees. *Science*, 311(5765): 1301-1303.

Watchman, T. and Spencer-Cavaliere, N. (2017) Times Have Changed: Parent Perspectives on Children's Free Play and Sport. *Psychology of Sport & Exercise*, Volume 32: 102-112.

Watkins, C., Carnell, E. & Lodge, C. (2007). *Effective learning in classrooms.* London: Sage.

Webb, N.M. (1985) Student Interaction and Learning in Small Groups: A Research Summary. In: R. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb and R. Schmuck (eds) *Learning to Cooperate, Cooperating to Learn*, pp.147-172. New York: Plenum.

Wintre, M.G. and Webster, C.D. (1974) A Brief Report on Using a Traditional Social Behavior Scale with Disturbed Children. *Journal of Applied Behavior Analysis*, 7(2): 345-348.

Wittrock, M.C. (1978) The Cognitive Movement in Instruction. *Educational Psychologist*, 13(1): 15-29.

Wood. E.A. (2013) Free Choice and Free Play in Early Childhood Education: Troubling the Discourse. *International Journal of Early Years Education* 22(1): 4-18.

Woodhouse, F. (2012) 'Research in Teaching: How to Harness Everyday Teaching Activities as Teacher Inquiry Methods'. In: N. Mitchell and J. Pearson (eds) *Inquiring in the Classroom: Asking the Questions That Matter About Teaching and Learning*, pp. 45-60. London: Continuum.

Xu, Y. (2010) Children's Social Play Sequence: Parten's Classic Theory Revisited. *Early Child Development and Care*, 180(4): 489-498.

Yarrow, M.R., Scott, P.M. and Waxler, C.Z. (1973) Learning Concern for Others. *Developmental Psychology*, 8(2): 240-260.

Young, M. (2008) *Bringing Knowledge Back In: From Social Constructivism to Social realism in the Sociology of Education.* Abingdon: Routledge.

Zakaria, E., Chin, L.C. and Daud, M.Y. (2010) The Effects of Cooperative Learning on Students' Mathematics Achievement and Attitude Towards Mathematics. *Journal of Social Sciences*, 6(2): 272-275.

Zhang, J. and Cui, Q. (2018) Collaborative Learning in Higher Nursing Education: A Systematic Review. *Journal of Professional Nursing*, 34(5): 378-388.

Zohrabi, M. (2013) Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings. *Theory & Practice in Language Studies*, 3(2): 254-262.

APPENDIX 1: CATEGORIES OF PLAY.

Code letters and definitions; adapted from Parten's (1932) play categories.

U: UNOCCUPIED BEHAVIOUR. This child apparently is not playing but is occupied with watching anything that happens to be of momentary interest. When there is nothing exciting taking place, s/he plays with her/his own body, gets on and off chairs, just stands around, follows the teacher, or sits in one spot glancing around the room. The child does not choose play equipment.

S: SOLITARY INDEPENDENT PLAY. The child plays alone and independently with toys that are different from those used by the children within speaking distance and makes no effort to get close to other children. S/he pursues her/his own activity without reference to what others are doing. The child chooses play equipment.

O: ONLOOKER. The child spends most of her/his time watching the other children play. S/he often talks to the children whom s/he is observing, asks questions, or gives suggestions, but does not overtly enter into the play her/himself. This type differs from the unoccupied in that the onlooker is definitely observing particular groups of children rather than anything that happens to be exciting. The child stands or sits within speaking distance of the group so that s/he can see and hear everything that takes place. The child does not choose play equipment

P: PARALLEL ACTIVITY. The child plays independently, but the activity s/he chooses naturally brings her/him among other children. S/he plays with toys that are like those which the children around her/him are using but s/he plays with the toy as s/he sees fit and does not try to influence or modify the activity of the children near her/him. S/he plays beside rather than with the other children. There is no attempt to control the coming or going of children in the group.

A: ASSOCIATIVE PLAY. The child plays with other children. The conversation concerns the common activity; there is borrowing and loaning of play material; following one another; mild attempts to control which children may or may not play in the group. All the members engage in similar if not identical activity; there is no divisions of labour, and no organisation of the activity of several individuals around any material goal or product. The children do not subordinate their individual

interests to that of the group; instead each child acts as s/he wishes. By her/his conversation with the other children one can tell that her/his interest is primarily in her/his associations, not in her/his activity.

C: COOPERATIVE OR ORGANISED SUPPLEMENTARY PLAY. The child plays in a group that is organised for the purpose of making some material product, or of striving to attain some competitive goal, or of dramatising situations of adult and group life, or of playing formal games. There is a marked sense of belonging to the group. The control of the group situation is in the hands of one or two of the members who direct the activity of the others. The goal as well as the method of attaining it necessitates a division of labour, taking of different roles by the various group members and the organisation of activity so that the efforts of one child are supplemented by those of another.

(Descriptions and codes adapted by Ballard; 1981, p.188).

APPENDIX 2: AVERAGES OF PUPIL RESPONSES TO QUESTIONS IN SSLN SURVEYS, 2011-2016.

Responses to the question: “In your classes, how often do you…”

Primary 4 responses	Mean	Standard deviation
Work through a book or worksheet on your own?	44.67%	4.15
Listen to the teacher talk to the class about a topic?	63.83%	0.9
Work with other pupils?	31.5%	2.06
Work on your own?	59%	1.15
Give other pupils feedback on their work?	21.83%	1.21

Primary 7 responses	Mean	Standard deviation
Work through a book or worksheet on your own?	44.67%	3.5
Listen to the teacher talk to the class about a topic?	66.17%	1.95
Work with other pupils?	40.83%	1.77
Work on your own?	57%	1.91
Give other pupils feedback on their work?	22.17%	0.91

Secondary 2 responses	Mean	Standard deviation
Work through a book or worksheet on your own?	42.33%	2.81
Listen to the teacher talk to the class about a topic?	65%	2.08
Work with other pupils?	30%	3.11
Work on your own?	56.5%	3.73
Give other pupils feedback on their work?	8.17%	1.07

All data aggregated from Scottish Government (2017).

APPENDIX 3: SAMPLE OF TABULAR LITERATURE REVIEW.

A Sample of Literature Review Framework

Author	Year	Type	Country	School Context	Method	Key Findings/Discussion	Note
Fawcett + Garton	2005	Emp	Aus.	P2	Observational. Pair task, Card sort. Cognitive - Piaget/Vyg.	HA + LA collaboration → better results than individuals.	
Ashley + Tomasello	1998	Emp	?	Nursery	Observational. Cognitive - Ch'n collaborate w/ mechanism to attain reward.	Only by 3·5 yrs old do ch'n engage proficiently in cooperative tasks and are able to teach another.	
Gauvain + Rogoff	1989	Emp	USA.	P1 + P4.	Observational. Pair tasks - Grocery shop model! Cognitive.	Planning before a task → more efficient outcomes. Cognitive gains more pronounced when tasks shared.	
Smiley.	2001	Emp	USA.	Nursery.	Video shown to ch'n. Observational / interview. Socio / cognitive. Theory of Mind.	Assessed understanding of others' intention. Development related to T of M - Sally Anne Test!	
Travsky	1997	Emp	China + USA.	Nursery.	Longitudinal Observation Social development PARTEN SCALE.	Social play in ch'n at Nursery age correlated to ability to cooperate in later life.	Interesting use of observation w/ Parten Scale.

1

APPENDIX 4: CATEGORIES OF COOPERATIVE COORDINATION AND COMMUNICATION.

Coordinated behaviours

Behaviour	Definition	Example	Numeric code
Giving	Handing puzzle piece to peer	To the hand or in front of peer	1
Taking	Taking and using	Taking and using piece that peer gives	2
Position changing	Changing location to engage in task related activity	Moving next to peer	3
Turn taking	Contributing to shared aim after waiting for peer's contribution	Adding piece after peer's direction	4
Imitation	Looking at peer and copying same action within 10 seconds	Following peer's action	5

Communicative behaviours

Behaviour	Definition	Example	Numeric code
Attention directing	Obtaining or directing attention of peer	Name! Pointing to object	6
Directive	Indicating what peer should or should not do specifically	Don't do that! Put that there!	7
Demonstration	Showing actively and explaining to peer how to do something	Turn that one around.	8
Statement	Explaining to peer what s/he is planning to do	I'm taking that one I'm putting that one over here	9
Question	Asking peer a task related question	Is that one over there?	10
Request	Giving a suggestion or request related to the task	Can you pass that bit? Can I have that?	11
Positive responsiveness	Responding positively to peer's comments or actions	Yes, that's mine Thank you	12

All categories and examples from Etel and Slaughter (2019).

Total time spent on each category, recorded in seconds, will be aggregated for both the pre-test and post-test observations. Comparisons will be made for each participant in each category of coordinated and communicative behaviour.

APPENDIX 5: SAMPLE OF COOPERATION-BUILDING ACTIVITIES.

Obstacle Course

Equipment:

• Items found in the typical therapy or adapted physical education gym (i.e., mats, cones, barrels, beams, large balls, wedges).
• A long cane
• A blindfold
• A stopwatch
• A mark or object that represents the finish line

Directions: Organisers set up an obstacle course using items gathered from the gym. The team chooses one member who will travel through the obstacle course while blindfolded. Other team members work collectively to coach or verbally direct the blindfolded team member successfully and safely through the obstacle course to the finish line. No physical contact is allowed between the blindfolded traveller and the other team members. The blindfolded person can choose to use a cane to assist in traveling the course.

Fast Draw

Equipment:

• Envelope containing a previously prepared simple line drawing
• Clipboard
• Pen or crayon (attached with string to the clipboard)
• Piece of blank paper, for the clipboard

Directions: Participants line up in single file. The first person in line receives a clipboard, paper, and a pen or a crayon. The last person in line will be shown the simple line drawing, which, using her finger, she draws on the back of the person in front of her. That person, using his finger, tries to replicate the picture he received onto the back of the person in front of him. Continue the drawing down the line to the first person, who then tries to draw the picture on the paper.

The Wave

Equipment: A hula hoop

Directions: Participants form a circle, standing hand-in-hand with one member's arm through the hula hoop. Participants move the hula hoop around the circle (over or under each team member) back to its starting place, without breaking their handholds or using their hands to move the hoop. Using hands or breaking handholds requires starting over with the clock running.

Ring Pass Relay

Equipment:

• Two long canes
• Plastic ring

Directions: The challenge is for two players at a time to move the ring from one cane to the other without touching the ring with their hands or letting it fall. The first person in the line of players has a cane with a plastic ring on it and the second person in line has an "empty" cane. They work together to move the ring from the first cane to the second. When the ring is on the second player's cane, Player #1 hands the now-empty cane to Player #3, and Players #2 and #3 work to transfer the ring. This ring pass continues down the line until the last player holds a cane with the ring on it. If a

player touches the ring with his or her hand, players must start at the beginning with the clock still running.
Note: For auditory feedback, you can tie a small bell on the ring.

Bubble Gum Relay
Equipment:
• A pair of thin garden-style or medical gloves suitable for men or women
• Two packs of stick gum
• A middle-sized cardboard box or shallow plastic bin without a lid
• Packing peanuts or other filler material
• A blindfold
• A pair of hearing protectors (over-the-ear style)
• A table top
Directions: One person competes actively in this event; the other team members offer verbal and manual directives and guidance. Wearing gloves, a blindfold, and hearing protectors, the chosen person races to find a piece of gum hidden in the box of packing peanuts. After finding the gum, the person unwraps it and places it in his or her mouth.
Hint: Place only one or two pieces of gum in the box at a time, depending on container size and depth.

Amoeba
Equipment:
• 15–20 feet of nylon-cotton rope with the ends tied together
• Tape or cone markers to identify relay distance
Directions: Mark the starting and finishing lines for the relay with tapes or cones. The team for this game should consist of a leader and a sufficient number of other people to fit inside the rope circle. The leader then divides the group in half: one group stands behind the starting line and the other behind the finish line. The leader stands in front of the starting line and, holding the rope, steps inside the rope circle. At the start signal, the leader runs to the finish line and gathers one member of that group inside the rope. Those two run together to the starting line and collect another group member. The collected group runs back and forth between the starting and finishing lines until everyone is inside the rope and the team crosses the finish line together.

(All games from Fisher, 2005, pp. 79-84)

Taketak tie.
Two or more players. Players each spin a bottle, all beginning at the same time. The objective is simply to have all spinning objects stop at the same time. Players can try as many times as they like by coordinating and adjusting their spins so that they match.

Co-op golf.
Pairs or small groups of players work together to draw a nine-hole golf course on a large piece of paper, indicating greens and holes. Then, one at a time, each ‘golfer’ closes his eyes and tries to draw a line from one hole to the next. Partners help by directing the route of the golfer’s pencil (ball). Each player uses a different colour of pencil to keep track of his ‘ball’.

Frozen shoes.
Each player walks, hops, spins, runs or dances around while balancing an upside-down shoe on their head. If the shoe falls off, the child is 'frozen' and a friend must pick up the shoe and replace it on the frozen child's head- upside down- to unfreeze them. This can also be played in groups of two or three players, linked together, moving around as a unit, in order to increase the challenge. If one shoe falls off, the whole group is 'frozen' and needs another whole group to bend down to rescue them.

Tug of peace.
A large group of people (ten or more) sit in a circle, holding on to a rope placed inside the circle in front of their feet. The ends of the rope are tied to create a loop. If everyone coordinates their pull at the same time, the entire group should be able to come up to a standing position.

Magic number 11.
A group of three people stand or sit in a small circle facing one another. Each holds one clenched hand in front of them, which they shake up and down three times as all three chant, "One, two, three." On the count of three, each player puts out any number of fingers, from none to five. The object is for the three players to extend a total of exactly eleven fingers, without talking to one another. The magic number, and number of participants, may be increased to add challenge.

(All games from Orlick, 1982).

Long, long, long jump.
The objective is for a group of children to jump collectively as far as possible. The first player begins at a starting line and makes one jump. The next player starts their jump where the previous person landed. The players can attempt to better their total collective distance on successive tries.

Box ball.
One football and one long skipping rope are required. The game is played by groups of four, working as a unit to keep a rope taut in the shape of a square while moving a ball from one base to another. First, they practice just moving the ball along the floor with their feet while walking and holding the rope taut in a square. After that, the real game involves teams of four scattered around at different 'bases'. Each team takes its ball to the next base, leaves the ball there, then runs back to its original base to get the ball that was dropped off by another team. The ropes must be kept taut, in the shape of a square. The game continues until each team gets its original ball back.

Silent birthday lineup.

Ask everyone to line up according to the month and date of their birthday, from Jan 1st to Dec 31st. without talking. The players will have to develop their own non-verbal cues. For added difficulty, the game can be played on a row of benches; various criteria can be used instead of birthdays.

All on one side.
One balloon and a volleyball net or rope is required for each team. Four or five players start on only one side of the net. Each player taps the balloon to another and then ducks under the net to the other side. The last player on one side taps the balloon over the net. This is repeated on each side; the objective is to get your team back and forth across the net as many times as possible.

Collective rounders.
Five bases and a ball that can be kicked or thrown are needed. One person starts at the 'home' base and kicks or throws a ball into the field. They then run around the bases as quickly as possible; the runner has to circle each base rather than just touch it. One of the fielders takes the ball and passes it to every other fielder in turn; when the last fielder touches it they yell, "Freeze!". The runner must stop then. Another player then takes the ball to the home base and throws or kicks it into the field; any frozen runners can then continue until they are next 'frozen'. The game continues until everyone has run one complete circuit of the bases.

(All games taken from Orlick, 2006).

Infinity ball.
Similar to traditional volleyball, including only three touches of the ball for a team before the ball must be put over the net. The score, kept track of by both teams chanting in unison, is the number of times the ball is hit by any player, without hitting the ground. Teams can only *win* if everyone in both teams has touched the ball.

(Adapted from Fluegelman, 1976).

APPENDIX 6: PARENT/ CARER QUESTIONNAIRE.

PARENT/CARER QUESTIONNAIRE

1) About your child:

Child's name_____ Child's age_____

What does your child enjoy doing in their spare time? _____

_____

2) Playing. (Please circle the best answer to each of the following questions).

Before receiving this questionnaire, were you aware of the 'team-building' games your child has been taught in school? Yes No Don't know

Has your child ever talked to you about any of these games? Yes No Don't know

Outside of school, does your child prefer to play alone or with friends? Alone With friends Don't know

3) Cooperation. (Please circle the best answer to each of the following questions).

How would you describe your child's ability to cooperate with others?

Extremely low	Very low	Quite low	Don't know	Quite high	Very high	Extremely high

Since the start of 2020, have you noticed any change in your child's tendency to cooperate?

A great deal higher	A lot higher	Slightly higher	No change	Slightly lower	A lot lower	A great deal lower

Do you think that playing team-building games in school has increased your child's ability to cooperate with others?

Almost certainly not	Unlikely	Possibly not	Don't know	Possibly	Likely	Almost certainly

4) General comments.

What sort of games does your child like playing when they are with friends?

What do you think are the most effective ways to encourage your child to cooperate?

Are there any other points you would like to make?

Thank you very much for your time and effort in completing this questionnaire.

APPENDIX 7: QUESTIONNAIRE COVER LETTER.

Dear (Name of parent),

I am sending the enclosed questionnaire to several parents/ carers of children in my class in order to help me research how effective the teaching of 'team-building' games this term has been. The aim of this process is to increase children's cooperative skills. The research forms part of my Masters of Education degree at Glasgow University, although I am also interested in this process because it is in all of our interests to find effective ways of increasing children's cooperative skills. Recent studies suggest that this generation will face social and employment challenges that are quite different from past generations; I believe teachers have a responsibility to adapt to these new challenges in order to support the children in our care.

This questionnaire will ask you general questions about your child, your awareness of the team-building games taught in school as well as your impressions of your child's tendency to cooperate. Please answer the questions as honestly as possible. The completed questionnaire can be replaced in the envelope provided in order to protect any sensitive information. Your answers will be completely confidential; the results of this questionnaire will be recorded as the views of anonymous parents (*e.g.* Parent A., Child C. *etc.*). I will use the results of this questionnaire in my University essay, however no names will be used or identities traceable. The school will *not* be identified.

If you could return the completed questionnaire to me by ….. I would be extremely grateful. If you wish to discuss any aspects of this questionnaire or have any other questions, please don't hesitate to contact me at the email address below. Lastly I'd like to thank you very much for your valuable cooperation.

Yours sincerely,

Gerard Bell.
Email:

APPENDIX 8: SEMI-STRUCTURED INTERVIEW QUESTIONS.

1) (Statement) In our school, we get a chance to play almost every day.
   Do you think that's important?
   Probe – Is it a good thing or not? Why?
2) Tell me about what kind of things you like to do when we get a chance to play in school.
   Probe – What are your favourite games?
   Do you like to play with friends? Or do you prefer to do things on your own?
3) (Statement) Now I'd like to ask about cooperation. I have heard some people say that they think being cooperative is important. What do you think about that?
4) Do you think that people can *change* - do you think that they can become more, or less, cooperative?
5) Do you think *you've* become more, or less, cooperative this year?
   Probe – Can you think of an example of a time you've shown that recently?
   What things do you think have had an effect on that?
6) Do you think playing the team games this term has had an effect?
   Probe- Why? What makes you say that?
7) What about other people in the class- do you think that playing these games has had an effect on how cooperative they have been?
   Probe- What makes you say that?
8) Having played these games for some time now, you must be quite used to them. What do you think about them?
   Prompts- Do you think they're useful? Not really?
   Probe- Why do you say that?
9) If *you* were in charge of teaching these games, what would you do differently?
10) Can you think of any other way that we might get people in the class to cooperate more?
11) Is there anything else you'd like to tell me about, to do with cooperation, or playing, or *anything* else?

APPENDIX 9: PARENT/ CARER INFORMATION SHEET.

University of Glasgow | School of Education

Participant Information Sheet – Parents/Guardians

1. Study title and researcher details

Title: Exploring the link between teaching 'team-building' games and children's cooperative skills.

Researcher: Mr. Bell.

Role in school: Class teacher.

Course: Masters in Education at the University of Glasgow.

University tutor: Dr Nguyen.

2. Invitation to take part in a study.

Your child is being invited to take part in a research study. Before you decide if you wish for your child to take part it is important for you to understand why the research is being undertaken and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask me if there is anything that is not clear, or if you would like more information. Take time to decide whether or not you wish for your child to take part.

3. What is the purpose of the study?

The study is to investigate the effect on children's cooperative skills of teaching team-building games in school.

4. Why has my child been chosen?

Your child has been chosen because they are in P5/4; as a result, I will have a greater opportunity to both teach the 'team-building' games (and observe any effects) as well as discussing any issues arising from these.

5. Does my child have to take part?

Your child ***does*** have to take part in the teaching and learning that will be going on in the class; however, your child ***does not*** have to take part in the research if you or they do not wish to do so; taking part is entirely voluntary. In addition, if you decide to allow your child to participate you (or they) can choose to withdraw at any point without giving a reason. If you (or they) decide to decline or withdraw, at any point in time, then this will have no impact on your child's grades or the pupil/teacher relationship.

6. What will happen to my child if they take part?

The research will involve the following:

- I will ask your child, together with one other friend from the class, to complete a short puzzle lasting no more than 10 minutes, which will seek to measure how much the two pupils cooperate with each other. This activity may be filmed in order to help calculate the exact time each child spends completing particular aspects of the puzzle. ***No one other than me will view the video***, and it will be erased as soon as the precise timings have been noted down.

- I may ask your child to participate in an interview, lasting no more than 15 minutes, to ask them about their views on play and cooperation, as well as give them an opportunity to say anything they would like about the process. I hope to record the audio (not video) from this interview, in order to ensure I have a complete record of every point your child makes. Once again, no one else will have access to these recordings, and they will be erased once notes have been taken from them. This recording is only being made because I can't take written notes as quickly as the children talk!
- Over the course of the study (approximately 7 weeks), I will watch the class playing on one or two occasions a week. I will take very brief written notes about what *type* of games the children are playing and whether they are playing with friends or alone. These notes will not be seen by anyone else and will be shredded once the study is over.
- In addition, I may ask you to fill in a short questionnaire towards the end of the study.

7. Will my child's contribution to this research be kept confidential?

All data gathered, as part of the research, will be stored in a secure environment. The only person outside of the school community who will have access to the data will be my University tutor, Dr Nguyen. In addition, your child will *not* be mentioned by name and I will ensure that any contributions that they make which are used will be through the use of a pseudonym (Child A, Child C *etc*.) so that they cannot be recognised. The school will be also not be named.

Confidentiality will be respected unless during our conversation I hear anything which makes me worried that your child may be in danger of harm. If this were to happen, as is always the case, I would inform the head teacher as they will need to know about this. I would also inform you and your child of any decisions that might limit confidentiality.

8. What will happen to the results of the research study?

The results of the research will be included in an assignment submitted to the University of Glasgow in August 2020. Neither your child nor the school will be identified by name in the assignment. A summary of the findings will also be made available to parents and children in ********** Primary in order for them to determine if it adds value to what we already do with a view to implementing teaching cooperative skills in other classes.

9. Who is organising and funding the research?

This research is being entirely organised by me, within ********* Primary. There is no funding attached to this research project. The research forms part of my studies towards a Master of Education degree at the University of Glasgow.

10. Who has given permission for the research to take place?

The University of Glasgow, Glasgow City Council and the Headteacher have all granted me permission to carry out the research.

11. Contact for Further Information

If you would like to discuss any aspects of this, please contact me at the school or by email:

Name: Mr. Bell.

Address: **********

Email:

Many thanks for your time in considering this

APPENDIX 10: PUPIL INFORMATION SHEET.

University of Glasgow | School of Education

Information Sheet – Pupils

I'm inviting you to take part in some research. Research helps us find out about things. Mr Bell is trying to find out if teaching team-building games will help you cooperate with each other.

It's important that you understand why I'm doing this and what it's about. Ask me if there is anything that you're not sure about or don't understand. You can talk to your friends and family about it too. Take time to decide whether you want to take part or not.

- What's the study for?

I am trying to find out whether teaching team-building games will help children cooperative with each other more easily. Cooperation is an important skill and I want to find the best way of teaching it. I am going to spend six weeks teaching you these skills and trying to find out if this makes any difference.

- Why are you being asked?

I am inviting everyone in this class to join in. I have asked you because I will be teaching you these games anyway.

- Can you say no?

You *do* have to take part in the lessons, but you *don't* have to agree to take part in the research. If you don't want me to ask you any questions about this, or you don't want me to write down whether you play differently over the six weeks, you can just tell me so.

I won't treat you any differently if you decide not to be part of the research. Also, you can change your mind at any time- that won't be a problem.

- What happens if you say yes?

If you decide to take part, I will take some short notes about how you're playing over the six weeks. I'll also film you and a friend doing an easy jigsaw puzzle, and I'll ask you and a friend some questions, which I'll record on my iPad. The jigsaw and the questions shouldn't take more than about 10 minutes each.

- Will anyone know what you've said or done?

Everything you tell me will be private. I will delete the recordings of you doing a jigsaw and answering my questions soon afterwards. No one else will see or hear them, unless my University teacher asks if they can. Your name won't be used so nobody can know it's you.

The only reason I would tell anyone about anything you say is if you tell me something that makes me think you could be in danger of harm. Then I'd tell Mr Coogan. But that's what I'd always do if you told me something that really worried me: it's our job to keep you safe.

- What happens next?

I will write a very long essay about what I find out from this research. You won't be named in this essay, and neither will the school. This is so nobody can know you were involved, so everything you say to me will be private. This is important because it keeps you safe and means that you can be honest with me when I ask you questions.

I will also tell the parents and teachers at this school about what I find out. This is because if I can find useful ways to teach you how to be cooperative, I want the other teachers to have the chance to do the same with their classes too.

Thank you for reading this.

APPENDIX 11: PUPIL CONSENT FORM.

University of Glasgow | School of Education

Consent Form – Pupils.

Title of Project: Exploring the link between teaching 'team-building' games and children's cooperative skills.
Name of Researcher: Mr Bell.

1. Mr Bell has told me about this project, and he has answered any questions I had about it.

2. I understand that I can choose to take part or not.

3. I understand that I can change my mind about taking part at any time.

4. I understand that Mr Bell won't mind, or behave any differently to me, if I decide not to take part.

5. I understand that my name won't be used in this project and nobody will be able to tell who I am.

5. I agree / do not agree to take part in this project.

6. I agree / do not agree for Mr Bell to record me in an interview and short game.

_____	_____	_____
Name of pupil	*Date*	*Signature*
_____	_____	_____
Researcher	*Date*	*Signature*

APPENDIX 12: PARENT/ CARER CONSENT FORM.

University of Glasgow | School of Education

Consent Form – Parents for child.

Title of Project: Exploring the link between teaching 'team-building' games and children's cooperative skills.
Name of Researcher: Mr Bell.

1. I confirm that I have read and understand the Participant Information Sheet for the above study and have had the opportunity to ask questions.

2. I understand that my child's participation is voluntary and that I or they are free to withdraw at any time, without giving any reason.

3. I understand that my child will be referred to by a pseudonym and not identified by name in any publications arising from the research.

4. I understand that my child's participation or non-participation in the research will have no impact on their grades or assessment.

5. I understand that my child's participation or non-participation in the research will have no impact on their relationships with any staff in the school.

6. I agree/ do not agree (delete as applicable) to complete a questionnaire.

7. I agree / do not agree (delete as applicable) for an activity and an interview, which form part of the research as outlined in the Participant Information Sheet, to be recorded.

8. I agree / do not agree (delete as applicable) for my child to take part in the above study.

_____
Name of pupil

_____	_____	_____
Name of Person giving consent (Parent / Guardian	*Date*	*Signature*
_____	_____	_____
Researcher	*Date*	*Signature*

APPENDIX 13: DECLARATION OF ORIGINALITY

University of Glasgow | School of Education

Declaration of Originality Form

This form **must** be completed and signed and submitted with all assignments.

Please complete the information below (using BLOCK CAPITALS).

Name GERARD BELL .....

Student Number .....

Course Name: **MEd Professional Learning and Enquiry Dissertation**

Title Can the teaching of cooperative skills have a positive effect on playtime behaviours in a Scottish primary school?.....

An extract from the University's Statement on Plagiarism is provided overleaf. Please read carefully THEN read and sign the declaration below.

I confirm that this assignment is my own work and that I have:

Read and understood the guidance on plagiarism in the Undergraduate Handbook, including the University of Glasgow Statement on Plagiarism	x☐
Clearly referenced, in both the text and the bibliography or references, **all sources** used in the work	x☐
Fully referenced (including page numbers) and used inverted commas for **all text quoted** from books, journals, web etc. (Please check the section on referencing in the 'Guide to Writing Essays & Reports' appendix of the Graduate School Research Training Programme handbook.)	x☐
Provided the sources for all tables, figures, data etc. that are not my own work	x☐
Not made use of the work of any other student(s) past or present without acknowledgement. This includes any of my own work, that has been previously, or concurrently, submitted for assessment, either at this or any other educational institution, including school (see overleaf at 31.2)	x☐
Not sought or used the services of any professional agencies to produce this work	x☐
In addition, I understand that any false claim in respect of this work will result in disciplinary action in accordance with University regulations	x☐

DECLARATION:

I am aware of and understand the University's policy on plagiarism and I certify that this assignment is

my own work**,** except where indicated by referencing, and that I have followed the good academic practices noted above

Signed Gerard Bell.....