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Cooperative Learning in Scotland. Perspectives on the role of cooperative learning in supporting curricular policy and innovation.

Abstract:

The stated aim of the new Curriculum for Excellence is to deliver an education system in Scotland that meets the demands of the 21st Century. The new curriculum has been the subject of controversy relating to its capacity to support learning and the approaches to learning and teaching it advocates. The changes in curriculum require developments, for some practitioners, in how learning and teaching takes place with a focus on active learning. This paper explores whether one active learning strategy, cooperative learning, can assist teachers in delivering the new curriculum. Cooperative learning is a pedagogy that has been the focus of significant research in the United States and Canada with developing interest in a variety of countries (Gillies 2000; Gillies & Boyle 2005; Johnson 1993; Johnson 1985; Kagan & Kagan 2009; Slavin 1984; Weigmann 1992) but to date the research in the UK is limited. This paper explores findings on cooperative learning in a global context and through a case study in Scotland.

The case study reported in this paper reflects on the responses of pupils to the introduction of cooperative learning in a secondary school in Scotland and the ways in which this approach appeared to support them in developing the four capacities of the new curriculum.

Introduction

Curriculum for Excellence (Curriculum Review Group 2004) is the term for the on-going reform of curriculum in Scotland bringing changes in the way schools are organised and the learning and teaching approaches within them. This development in curriculum policy was the result of widespread consultation and evidence from research into what makes learning effective. The views of stakeholders, including parents and teachers, were gathered and the new curriculum aims to develop *"…skills for learning, skills for life and skills for work"* (Scottish Government 2008, 8). This reflects the worldwide drive to develop employability for a changing future and a knowledge economy.

This curriculum emerges at a time when society requires individuals who can contribute fully and adapt to unpredictable work situations. This is not particular to Scotland as curricula around the world are developing to suit changing needs. The Scottish education system is one of the oldest in the world and the developments that have taken place over time reflect the changing needs of this society (Gatherer 1989). Over the last half of the 20th Century a theme that has permeated thinking in European curricula is that young people can engage in deeper learning through relevant activity and this is supported by the work of educational theorists (Bruner 1967; Dewey 1991; Gardner 1993; Moll 1990; Piaget 1950 and Skinner 1974). The need for more active and interdisciplinary learning in Scotland is supported by such research. The division of knowledge into subject areas and passivity of pupils in lessons were regarded as inappropriate as early as 1946 in Scotland (Paterson 2003, 110) and the new curriculum aims to address this.

The current curriculum is content driven and although active learning practices are advised within this they are not fully embedded. The new curriculum requires more active learning and for some practitioners this will require changes in their practice. The issues of learning and teaching approaches are not the only controversy over the curriculum, however, as some practitioners argue there is insufficient curricular direction provided.

The new curriculum has come under criticism from academics and teachers for being *"…confused and vague…"* (Paterson 2009). Guidance is provided on what learners should achieve, at different levels, but is not prescriptive on how that should occur. Where this curriculum differs is that it focuses on outcomes and provides a high degree of flexibility in content. Teachers are concerned about the advice provided on the curriculum and the variation in implementation across the country (EIS 2009). There are concerns from practitioners regarding lack of resources, the focus on skills development as well as subject knowledge, and the potential change to practice including interdisciplinary approaches. This curriculum supports teacher autonomy and professionalism by using a 'bottom-up' approach to curricular development rather than 'top-down' as has been experienced in the past. Practitioner confidence varies in managing the curriculum in this way due to access to training and a perception that exam results may flounder without definitive guidelines.

Not all teachers share all these concerns and some have already implemented aspects of the curriculum. Their findings are available to support curricular developments by other teachers (LTS online). Similarly, the Government has responded to practitioner concerns by extending the implementation date, increasing funding for teachers to support the curriculum and providing additional in-service days in schools (EIS 2009). This is regarded as a step in the right direction by practitioners although there are demands for additional resources and time to support curricular

development and change.

The change within the new curriculum, its potential impact in schools and the challenges identified by practitioners are extensive. Consequently, this paper focuses on the development of 'the four capacities' which are the purposes of the new curriculum (Scottish Government 2008, 25). The four capacities promote a more rounded approach to education where learners can become successful learners, confident individuals, responsible citizens and effective contributors. The focus is on more than exam results and aims to develop young people who can engage with others and contribute well to society. Schools currently develop aspects of each in learners, but every teacher now has the responsibility for developing these in all pupils and this may require changes in practice. The aim here is to explore what role cooperative learning may have in helping to develop the four capacities of Curriculum for Excellence and what this might mean for teachers and their continuing professional development (CPD).

This paper focuses on a case study approach in a school in Scotland and presents the views of pupils who were taught primarily through cooperative learning approaches in one subject area. Although this is a small sample, and therefore it must avoid over generalisation, there is evidence that this learning and teaching approach may be able to support the new curriculum. Data was collected from pupils on their perceptions of cooperative learning as a means of supporting the development of the four capacities over a four month period from February to May 2008. Participants had been involved in cooperative learning lessons for six months prior to data being gathered.

Why Cooperative Learning?

Cooperative learning is a learning and teaching approach that has been the subject of rigorous research in the United States and Canada. It is not the same as cooperative teaching which involves more than one teacher in a classroom but involves structured activities for learners. The structures are interchangeable in any subject area (Kagan & Kagan, 2009). Cooperative learning involves the use of small groups where *"... students work together to maximise their own and each other's learning"* (Johnson et al 1994, 4) where work is active, inclusive and supportive. In cooperative learning, students are organised into formal, informal and cooperative base groups. Base groups provide long term support, formal groups are together for shorter projects and informal groups may last only a matter of minutes (Johnson et al 1994). Each activity is structured to ensure all learners take part, developing knowledge, understanding and skills. Social skills are learned, with team and class building taking place. This approach focuses on what learners are engaged in and is gaining interest in Scotland as more teachers are trained in this pedagogy. Given the focus on active learning in Curriculum for Excellence, and on the broad development of learners through the four capacities, this study explored whether cooperative learning might help to develop pupils as successful learners, confident individuals, responsible citizens and effective contributors.

To gather data on pupils' perceptions of cooperative learning the key research question was:

What are the perceptions of pupils in relation to the ability of cooperative learning to support the four capacities?

Methodology and Sample

The case study school is in an inner city mixed catchment area where the pupils are predominantly of a lower socioeconomic background. The majority of pupils are white with a small number of Eastern European and Asian children. The school is near the bottom of the academic achievement level in Scotland with 37.7% of pupils receiving free school meals (Herald, 2009). The data in the case study school was gathered using qualitative and quantitative methods from pupils in S1-S4 (Key Stage 3&4 in England) using questionnaires, interviews and observations. The pupils who participated in this research were geography pupils in my classes. This did not affect the overall result however as the evidence from participants included negative responses.

A group of S5 pupils acted as a pilot for the study and their responses to the interview and questionnaire informed the final research instrument. The questionnaires provided the opportunity for choice and to make comments. The use of choice questions facilitated the results being analysed using SPSS. The group interviews for pupils provided a supportive atmosphere and stimulated response by pupils. The use of set questions, in group interviews, which were provided to pupils prior to the recording of interviews permitted an analysis of perceptions across year groups and gave participants the opportunity to think through answers they may wish to make. Observations of cooperative learning activities took place with all participants, these were timed and a tally kept. The sample size was 44 participants in total which represented at least 10% of each year group.

The participants were self selecting from geography for this study. In the S1 section the possible cohort was smaller due to timetable constraints with 6 pupils. In S2 a few classes were 'off rotation' at the time of data collection but 16 pupils took part. There was one S3 class (7 pupils) and two S4 classes from which 15 pupils took part. As this was open to all pupils there was the potential for only interested pupils taking part but this was not the case.

The sample size was smaller than anticipated due to my position as teacher and the ethical issues this presented. My relationship with the pupils caused me to over emphasise that there was no need to take part. Despite this a representative sample was established that had a mix of age, ability and gender.

The research approach supports participation by young people as they have a voice in relation to how they learn. Pupils participate through school councils, the Children's Parliament (online), Children's Charter (online) which have resulted in the development of agreed standards expected in schools and in interaction with adults. Young people are increasingly provided with the opportunity to develop their opinions and have an input into the wider world and as such their perceptions are important.

This study analysed pupils' perceptions of cooperative learning and the potential it may have in developing the four capacities and did not measure the impact on attainment. It is worth noting however that exam results in geography were an improvement on the previous year.

Discussion

My introduction to cooperative learning was during a visit to a teacher's classroom in another school. I was impressed by the engagement of learners and interaction taking place and as a result was trained in cooperative learning through the University of Glasgow and a Local Authority in Scotland.

In the case study school cooperative learning was not used in any other subject area. The school had a strong tradition of assertive, well managed classes with group work and role play in some subjects, experimentation in the sciences and the active engagement of learners through the practical subjects of home economics, P.E., art, technical and music. Each practical subject has its own style and learners successfully engaged with these. Geography lessons were 'traditional' prior to the use of cooperative learning with pupils more passive in the classroom. The introduction of cooperative learning in this respect had a mixed response from pupils and colleagues. Some colleagues were surprised at the activities in the classroom although noting the active involvement of pupils recorded as being 'non group workers'. The developments in how learning was taking place in the classroom was, at times, unsettling for some pupils and challenged more able pupils to think about the process of learning.

Although this is a small sample it is interesting to note that the majority of pupils were positively disposed to cooperative learning, identifying active learning as their preferred way to learn. This is significant as active learning has not been a prominent methodology in all classrooms in Scotland and as it is a desirable approach in Curriculum for Excellence.

Successful learners

A successful learner is defined as having enthusiasm and motivation for learning, openness to new thinking, reaching high standards of achievement, using technology for learning, learning independently and in groups, thinking creatively and independently, making evaluations and using literacy, communication and numeracy skills (Scottish Government 2008, 25).

Participants were asked to identify what learning and teaching approaches made them a successful learner. This was a feature of the group interviews and the questionnaire. The results of the questionnaires show 75% (33) of the sample were able to identify active learning as the way they learned best. Only 25% (11) identified working on their own or with whole class teaching as the most effective way to learn. This supports the need for various approaches in the classroom including teacher led, individual and group activities to ensure all needs are met. From this sample the majority of learners believed working together helped them be more successful learners.

Literature in this area demonstrates that cooperative learning has been successful in raising attainment for learners although there is evidence of differences in gains for pupils of various abilities. Shachar (2003) concluded that all groups achieved more in cooperative learning lessons than in traditional (teacher led, individualistic or competitive) lessons. However the highest achievers did not make the same academic gains as other groups. Individuals who may not have achieved well in traditional settings (lower and middle ability) gain more through the process. The interaction that takes place in a supportive environment with more able peers assists their learning. This supports the general argument of Lev Vygotsky (1987, quoted in Pollard 2002: 112) where learners gain through interaction with more able peers.

The difference could be, as Shachar (2003) suggests, due to the preference of high achievers for traditional approaches in a classroom where they have achieved well and may wish to maintain the status quo. It is also possible however that there is scope for more significant gains for learners who may not respond well to traditional classroom approaches. Although concerns have been raised that higher achievers suffer in cooperative learning groups

this is not supported by research (ibid, Kagan & Kagan 2009). In the interviews more able students identified the benefit of working in different ways. This pupil understood thinking about ideas and concepts in detail, and explaining these to others, helped them learn material more effectively.

> You understand it better because you have had to explain it to someone else … because you don't learn anything if you are in your comfort zone, you don't stretch yourself. (S4 pupil)

As a contrast Weigmann (1992) argued that higher achievers gain more when taking on the role of learner in group settings. As the learner they were challenged to think in different ways which supports the notion of 'moving out of their comfort zone'. Hauserman (1992) has shown that students involved in cooperative learning achieved superior results in higher order thinking, adding to success in different areas. Gabbert et al (1986) state that those exposed to cooperative learning achieved most in higher learning tasks indicating the challenge and support this learning and teaching approach has for higher achieving students. This is partly due to the nature of the tasks that create a responsible approach but the sense of sharing of learning and understanding that is created with increased learner confidence as noted by an S2 pupil.

> I learn better because when I'm in a group, I know I've got to dae* [sic] something and that means I'm learning something like all the time instead of just sitting watching … you understand more if you see it from other people's point of view … if you get stuck you've got somebody else to ask. *(dae = do)

Individual developments in learning are possible as learners feel more confident with the material and subject area. Through sharing learning a climate was created where learners felt safe and secure. Pupils felt more confident in their knowledge and ability to retain their learning.

> you get to hear what other people think so no* [sic] oh I've read it you've got tae* [sic] know what you have read and then you are talking to people about it so you are no* [sic] just reading it … you don't forget it straight away. (S3 pupil) *(no = not; tae = to)

Being active, rather than passive, was regarded as a way to engage more with learning. Activities which engage learners and promote shared understanding develop knowledge and understanding for pupils.

> You can cooperate with other people better … because you are getting all different answers … you can look at it from a different point of view. (S1 pupil)

All of this is not to proclaim that all learning should be cooperative as learners must be able to work independently and be prepared in all ways for society, however the inclusion of cooperative practices builds the confidence and ability in many learners, who may previously have found independent learning challenging, to achieve in this way.

Pupils' perceptions of their own success in the study relates to the opportunity provided through cooperative learning to interact in a structured setting. Pupils identified the ways cooperative learning challenged them to be a successful learner and the support that aided this. The perceptions of pupils here are supported by evidence from previous research such as Johnson (1993), Slavin (1984) and Yager (1986) who all stress the success of cooperative learning approaches in raising attainment. Kagan & Kagan (2009) give case study examples from schools where all have raised attainment due to cooperative learning. There are different philosophies

with respect to how the improvements take place where Slavin (1984) would argue the use of rewards promotes success and Yager (1986) for group processing with learners discussing what they have learned and how effectively their interaction has taken place. This is an important element of cooperative learning activities as it builds group responsibility, awareness of strengths and areas where improvements can be made to develop effectiveness. This is reflected in pupil comments about being responsible to other group members. Yager (ibid) stresses that group processing needs to be learned and my experience of implementing this in the classroom supports that. Pupils need to develop a language to explore their own success and ability to work together. Kagan & Kagan (2009) would stress that the structures within cooperative learning and the engagement of learners this develops is what raises attainment.

The pupils in the case study school were challenged to work in a new way in geography and the benefits they identified of doing so included a feeling of success. Cooperative learning can be rewarding as an experience for learners and this promotes intrinsic motivation. The likelihood is that this will promote achievement over the longer term (Bandura 1986; Bruner 1967; Kohn 1992; McLean 2003).

Confident individuals

The motivating factors of cooperative learning suggest it has benefits beyond improving academic learning. Many studies have been completed on the psychological impact of cooperative learning and the evidence shows it has a positive impact on self-esteem and confidence. Confident individuals have self-respect, a sense of well being, secure values, beliefs and ambition. They are able to relate to others, be self aware, develop their own beliefs and views and communicate these (Scottish Government 2008, 25). The organisation of cooperative learning groups into mixed ability, gender and race creates a more inclusive classroom. Pupils who previously may have been socially excluded can be involved in activities with a variety of peers (Johnson & Johnson 1994). The literature reviewed provided no evidence that cooperative learning had a negative impact on confidence or self esteem. In the case study 65.9% (29) of participants felt more confident working in cooperative learning groups but only 6.8% (3) pupils said they felt confident when asked a question by the teacher.

Teacher led questioning works well for some pupils but it can be a daunting experience and have a negative impact on others. Confidence develops when discussion is permitted among teams.

Learners were asked what made them lack confidence and 40.9% (18) said they lacked confidence when the teacher asked them a question. Only 11.4% (5) said they lacked confidence when they could discuss ideas in their groups. This stresses the improvements that can be made in a pupils' confidence when interacting with peers. By answering for the group, or individually following discussion, security develops in learners. In some classrooms the opportunity to discuss learning is not regularly provided and pupils may lack the confidence to answer.

Craigen & Ward (2006) identify working in teams, through cooperative learning approaches, as a means of building confidence. Clark (1988) identified a sense of equality in a classroom as a result of cooperative learning with the development of self worth in some pupils which has an impact on achievement. Jules (1992) supported the notion of equality through cooperative learning activities and states that cooperative learning enhances self-esteem. What this shows is that cooperative learning activities are positive in building confidence in learners. In the example

below the pupil identifies the strength of a shared response.

> …your no [sic] put on the spot like a teacher asks some question and you don't know it and you feel everybody's looking at me and I don't know the answer. (S4 pupil)

As the class teacher, I monitored the interactions taking place in groups and the workmanlike approach of learners. Pupils were focussed on their own working groups rather than other individuals in the classroom. This provided a situation that was normally very easy to manage, resulting in me being much more aware of misconceptions and challenges that learners were facing. The positive interactions taking place meant that pupils who were normally 'cowed' by others in the classroom were able to have their voice heard. In one S1 class there was a marked improvement amongst the class and pupils were aware of the benefits of this in a broader sense. S1 pupils said cooperative learning gave them

> …good confidence…raise our confidence when it actually comes to maybe doing a class discussion.

Classrooms have traditionally been environments where pupils work alone and in competition with one another where only a few can attain the required standard (Johnson et al 1990). This is not a positive experience for some learners. Independent work is essential, but learners need the confidence to do that effectively and working in cooperative groups develops that confidence (Kagan & Kagan 2009).

> You don't feel as if it's just yourself and you can share like what you're thinking so you feel confident in the group. (S2 pupil)

The opportunity to share and discuss not only develops learners' ideas but provides the confidence to share their thoughts with others beyond their cooperative learning groups.

> The more you talk in the groups the more you get used tae [sic] talking to other people so you feel that confident that you want to talk to other people outside your group … like in English I had my solo talk thing and it kind of builds up confidence to just go out and talk instead of hiding away like you don't really want to dae [sic] this, it just feels normal after talking in groups tae [sic] people. (S3 pupil)

Curriculum for Excellence identifies confident individuals as having amongst other things self respect, a sense of well-being, ambition, the ability to relate to others, manage themselves and be self aware (Scottish Government 2008, 25). The confidence that is built through cooperative learning is supported in various studies and shown here through pupils' awareness of their learning needs, ability to relate and the well-being that comes from shared understanding. In the case study pupils had the ability to engage with others, answer questions and feel positive about their learning because of the cooperative learning they had experienced.

Responsible citizens

Responsible citizens are committed to participating in political, economic, social and cultural life, they show respect for others, make informed choices and understand different beliefs and cultures (ibid). The heterogeneous groupings of cooperative learning can improve relationships and understanding between different cultural groups. The inclusion of small group skills teaching as advocated by Johnson & Johnson (1994) assists this. Kagan & Kagan (2009) argues that learning social skills in schools is essential as these are employability skills and increasingly at the top of

employers' lists of what they require in staff.

Gillies (2007) supports the need for social skills as a means of ensuring young people are aware of the importance of taking turns, listening to and supporting one another. This leads to more effective working relationships with peers. Johnson (1982) was able to show that greater spontaneous and positive ethnic interaction took place between pupils, beyond the classroom setting, following cooperative learning activities in the classroom highlighting increased cultural awareness. The structure of cooperative learning tasks promotes individual responsibility and there was awareness of this among pupils.

It can be argued that the positive impact of cooperative learning is in large part due to the supportive nature of this pedagogy and the social skills that are learned. This happens in particular when employing the methodologies of Kagan & Kagan (2009) or Johnson & Johnson (1994) and Johnson et al (1994) which involve five key areas that must be included in every cooperative learning lesson. These are: positive interdependence; individual accountability; face-to-face interaction; small group skills and group processing (Johnson & Johnson 1994). The inclusion of each of these elements creates responsibility to the task and team. As a contrast 'traditional' classroom groups can show *"... little commitment to each other's learning... teamwork skills ...ignored...no group processing of the quality of its work"* (ibid, 78). This can result in a poorer outcome and limited engagement for learners and no shared responsibility when completing tasks.

The sense of responsibility goes further where relationships are improved and respect is shown for others. Gillies (2000) looked at the long term impact of cooperative learning activities on social support and found that young people were more supportive over time of other individuals. It was found that pupils who had been *"... trained to cooperate and help each other were able to demonstrate these behaviours in reconstituted groups without additional training a year later"* (ibid, 97). Clark (1988) identified the need to help young people cooperate with one another as it may not be a part of family life, a similar concern shared with Kagan & Kagan (2009). Gabbert et al (1986) identify the ability of cooperative learning approaches as a means of aiding social and personal development, and consequently more responsible behaviour. They also state the importance this can have on long term academic achievement. Johnson (1985) argues that the more cooperative learning in lessons the more positive the climate of the classroom is over time with more social support evident for learners.

In the case study there was a sense of responsibility among pupils as participants engaged through the use of heterogeneous groups. Every participant was developing the learning of the group and was responsible for ensuring all were confident with the work. Any group member may be asked to answer and every student is therefore responsible for their team.

In the questionnaire most students rated themselves highly as responsible citizens, through multiple responses, however not all pupils were responsible at all times.

Of the sample 50% (22) said they listened carefully to others and 61% said they were respectful of other's opinions and beliefs. Overall participants saw the benefit of working together and could identify when individuals had been responsible when participating.

In interviews a few participants made negative comments regarding being responsible. One participant said they did not contribute at all as they believed their ideas should be

heard above others.

> I don't think I contribute well with teamwork cause I tend to try and get my point across a lot more than others and I tend to argue my point so I don't really like group work a lot. (S4 pupil)

This pupil later said she was 'in a place' at the time and now thought cooperative learning was helping her understand more challenging coursework. The participant said she felt a sense of responsibility to the group and more confident about her work. This serves as a reminder that all pupils do not instantly engage cooperatively and teacher vigilance is required along with social skills teaching (Logan 1986).

Some pupils identified the challenges that can take place by pupils 'not pulling their weight'. The need for group processing at the end of activities is a means of challenging this lack of effort as is developing social skills and clear instructions from the teacher (ibid). In the interviews pupils were given the opportunity to explore responsibility as they experienced it and this ranged from *"... not fighting over an answer..."* to fulfilling their role in the group (S1 pupil). An example of the interdependence and responsibility that is created through cooperative learning structures is shown below.

> ... you've got to report back and tell them what you're doing so if you don't research it you can't tell them what they need to know for their section. (S3 pupil)

The teaching of social skills helps learners to interact positively in small groups, therefore reducing the need to argue over answers. Group processing promotes responsibility and working more effectively together as all group members have to assess whether they are working well and what can they do more effectively next time. The sense of responsibility for shared learning is highlighted by a pupil below.

> …because you are all being marked as one and you think that you should just try and contribute to it and just try and help the other people ... (S2 pupil)

The joint marking exercise was structured to be as fair as possible but normally the cooperative learning lessons supported learning rather than assessment (Kagan & Kagan 2009). Although the actions in a cooperative learning classroom cannot emulate the expectations of a responsible citizen in society they can support respect for others, participation, developing informed views and help learners to evaluate environmental, scientific and technological issues. The shared responsibility that develops through cooperative learning structures can start to model the expectations of a responsible citizen in the wider sense.

Effective contributors

Effective contributors take part and communicate in partnerships and teams. They are self-reliant, have resilience, an enterprising attitude, solve problems and can apply critical thinking (Scottish Government 2008, 25). As Kagan & Kagan (2009) has already noted the ability to communicate and work in a team is rated highly by employers. If we are creating 'skills for life and work' the ability to work in this way is essential.

A significant attraction of cooperative learning was the ability to engage all learners. All pupils contributed through role allocation and management of resources and this was very different to previous experience of group work where some pupils do not take part and 'allow' others to take

the lead and complete tasks.

The results regarding this in the questionnaire were therefore a surprise as during observations all pupils took part. Pupils' perceptions varied with respect to their contribution to active learning although they were on task and less aware of 'time'. The group interviews did reflect the positive contributions observed so it is possible that some pupils answered in relation to traditional group work in the individual questionnaire. In the questionnaires only 43% (19) said they always took a full part in activities, 57% (23) that they always completed their role and 78% (33) that they gave ideas to their groups. As a contrast in the group interviews pupils identified the benefits of cooperative learning over traditional group work activities.

> I think it's better because instead of one person doing all the work everybody is contributing so nobody is getting left out ... everybody's got to do something so nobody can just sit back and relax. (S4 pupil)

In cooperative learning contributions are required through the nature of the tasks set. Taking on a 'role' such as a speaker, reader, encourager or materials handler allows for differentiation in particular tasks and provides engagement for all. Roles will be varied for different tasks and sharing resources requires learners to contribute. The quotes from interviews reflect this.

> I liked when you got jobs and different bits to learn, but I think some people were less contributing to the group than others with the bits they had to learn. (S2 pupil)

> ... we all take turns in the group and see if we can come up with an answer ... I also ask questions so like with certain people they might not understand some things then you can help them understand it better. (S1 pupil)

If pupils did not contribute effectively to their group this could be challenged through group processing. The need for skilled management of activities by the teacher is essential as is organisation to include all learners. The 'roles' allocated to pupils present an opportunity to build confidence and capacity in learners of different abilities where pupils may start with less challenging roles such as a 'materials handler' and move onto a 'speaker' in a gallery type presentation with similar peers. Mixed ability groups provide a supportive means of introducing more challenge to pupils of lower ability. Cooperative learning is a complex pedagogy that requires practice and skill, but when managed well creates a situation where all learners contribute.

A recent study in England suggests cooperative learning appears to bring benefits to pupils, and teachers, as behaviour and motivation improve. Pell et al (2007) found teachers identified cooperative learning as a means of addressing the problem of difficult pupils in the classroom where previously group work had been cited as a source of disruption. The implementation of cooperative learning was noted as *"... the solution to low motivation and poor behaviour..."* (ibid, 329). Johnson (1985) noted that students were engaged effectively and motivated by the activity rather than external factors which can reduce motivation in learners.

Pupils should feel valued in a classroom and able to take part in activities. Cooperative learning is effective in engaging all learners through individual accountability (Johnson & Johnson 1994). This can be managed by interconnected role allocations. Cooperative learning provides an opportunity for learners to share their understanding, explore thinking and work as a team *"... providing each other with efficient and effective help and assistance"* (ibid, 89). Therefore each

pupil has the opportunity to contribute and build effective team skills.

Although evidence from Scotland into the potential impact of cooperative learning is limited there are aspects of the literature reviewed that are relevant in this context. Cooperative learning has been shown to improve achievement for all and therefore develop successful learners. The confidence gained in supportive groups is evident in the literature and from the study. Responsible citizens show respect for others and understand different cultures and beliefs and this is supported by cooperative learning through greater ethnic mix and understanding. Cooperative learning ensures all learners take part through the roles given and thus effective contributors can be developed.

Conclusions

This paper has explored the positive impact of cooperative learning in the USA and Canada and increasingly in the United Kingdom. The findings presented suggest this pedagogy could support the development of the four capacities which are the purposes of Curriculum for Excellence.

This classroom based research suggests that learners can engage effectively, gain insight in their learning and develop skills in engaging with one another through the inclusion of small group skills teaching. When cooperative learning is managed well the quality of the classroom climate is improved since learners feel safe, confident and willing to share their ideas. There is responsibility in groups and enthusiasm for learning. Students who prefer traditional approaches are challenged to develop additional skills.

Cooperative learning does not undermine the need for independent learning but supports and enhances it as learners feel more able to engage in this way through increased self esteem, confidence and trust in their own abilities.

The challenges that face Scotland in fully, and successfully, implementing Curriculum for Excellence are significant. Teachers are concerned about resources, guidance and the provision of CPD. CPD needs to support alternative approaches to learning and teaching. Changing practice is never easy and it is short-sighted 'to tell' teachers to implement alternative strategies without full, experiential training. Cooperative learning is an approach that engages learners and promotes achievement and training needs to be in depth.

Practitioners require time to reflect on their practice and a supportive framework to help develop the necessary skills to support the new curriculum. From pupils' perspectives cooperative learning supports the development of aspects of the four capacities of Curriculum for Excellence and enhances learning. This is supported by published research on different aspects of cooperative learning. The research provided in this study suggests that cooperative learning can be an appropriate pedagogy to support the four capacities of Curriculum for Excellence.

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