Student Generated Content (SGC) Introduction

"Student-Generated Content is an educational strategy that represents a significant shift of student's role from content consumers to content producers, and result in products of lasting value to students individually, others students, a larger community, and society" (Sener, 2007; Lee & Mock, 2009, as cited by Lee, 2000).

Educational professionals encourage active student participation and generation of content in many different ways, and in students at different levels of their education. At the University of Glasgow SGC has been encouraged among students of different courses and across different levels. This has been in the form of projects aimed at, for example, advising students on how to give presentations; generate study aids; produce core course content; as well as producing unofficial supporting materials for specific courses. More information can be found in this power point (http://www.gla.ac.uk/media/media_197331_en.ppt%E2%80%8E).

It has been argued that through such activities, students can learn how their communication and literacy skills link with the application of novel information technologies and how this technology literacy effectively links with skills needed in student's potential future working environments (Lippincott, 2007).

Furthermore, generating content can increase students' engagement and the extent to which they will take ownership of their learning, an aspect of essential importance in higher education (Sener, 2007; Gehringer, 2011). Student will also gain the motivation of knowing they are creating work of real value and get used to the idea of a community of knowledge generation, mirroring the practice of a scientific community.

To answer the question of whether or not SGC is a good thing and should be used more, this article we will provide more insights into some of different areas of its use, whether or not the quality within SGC can be trusted, as well as potential social benefits.

If you only read one paper - A good place to start

One paper which presents a variety of thoughts of SGC and discusses to a great extent its efficacy and flaws is the aptly titled "The good, the bad and the wiki: Evaluating student-generated content for collaborative learning" (Wheeler, Yeomans and Wheeler, 2008). The full text can be viewed here (http://www.onlinelibrary.wiley.com/doi/10.1111/j.1467-8535.2007.00799.x/pdf).

Wheeler and colleagues' (2008) paper examined the potential use of student generated Wiki pages in order to promote collaborative learning among student peers. 35 students in their 1st to 3rd year in a B.Ed. Programme took part in the study. All students had been making generating wiki-type resources as part of their course along with the use of interactive discussion services during classes. Students presented a diverse set of opinions on the use of the wikis. Some students found the adjustment period difficult while others found it enjoyable but too unstructured. Other negative themes which emerged were problems with the lack of recognition and credit for individuals' specific contributions, lack of distinct ownership and its openness to editing, and the lack of contribution of students outside of class time. The positive themes which emerged included appreciation of the page's benefit to other learners, and improved writing and critical thinking skills. Wheeler and colleagues propose that collaboration should be encouraged over competition in such settings for the full potential of wiki-type pages to reach their full potential. Overall the study finds wiki pages and SGC to hold great potential within educational environments for the sharing of knowledge.

Areas of Use

Different methods have been devised to make student generated content as beneficial to learning as possible. In this section some background knowledge on the well debated jigsaw method will be summarised and the use of student generated assessment items will be further elicited and critiqued.

Summary of the Jigsaw Method

The Jigsaw method, first designed, tested, and published by Aronson in 1971, elicits several additional benefits to standard group work. To give you an overview we have briefly summarised some information from Steve Draper's wiki page on jigsaw design (click here (http://www.psy.gla.ac.uk/~steve/localed/#jigsaw) and here (http://www.psy.gla.ac.uk/~steve/localed/jigsawpresent.html) to view pages for more detail):

In Jigsaw design the teacher is not the subject matter expert and there is a mutual dependence of students on each other, as the majority of what a student can learn will depend on what other students teach. Furthermore, each learner is part of two different groups. A 'self-teach' group, which consists of individuals with the same product goal that help each other prepare material to teach other students and a 'cross-teach' group in which students with the same learning goal, teach each other about different topics of the overall subject.

For further views and findings on the jigsaw method, see the 'official' wiki page (http://en.wikipedia.org/wiki/Jigsaw_(teaching_technique)) and keep reading to learn about some of the findings on social integration benefits of jigsaw (one of the main attributed of jigsaw versus standard group work)!

Using Student Generated Assessment Items

Besides the jigsaw method, academics have researched benefits of having students generate assessment items. Answering multiple choice questions (MCQs) has been associated with only low or surface level learning in the past, however, when students are asked to create an MCQ and provide explanations for why answers are right or wrong, deeper level learning occurs. Fellenz et al. (2010) developed such an assignment for their study with the goal of enabling and supporting higher level student learning. Creating MCQs leads students to gain a deeper level understanding of the material, critical analysis skills, and even student creativity (Arthur, 2006; Sanchez-Elez et al., 2014; Bates et al., 2011).

Additionally, there is much value in actually using the students' generated assessment work in graded class examinations as it makes students feel part of the evaluation process and most importantly adds motivation for the activity and therefore for autonomous critical learning and student interaction, all essential to academic results (Sanchez-Elez et al., 2014). The knowledge their work will be used to generate marks for themselves and other students will add motivation and quality to their work, as students feel their work will be valued, which adds an incentive.

Should Student Created Assessment Items be Marked?

Although designed to be first and foremost a teaching and learning tool, studies have developed several means of assessing the multiple choice development assignment, such as the identification and justification of correct and incorrect answer choices (Fellenz, 2010). This contrasts a recent study by Sanchez-Elez et al. (2014), who gave feedback without assigning grades, as it was most important for them to foster active student involvement. The evaluation of the student generated content will directly impact on the benefits that can be gathered from the assignment. This is nicely displayed by the similar nature of creating MCQs but different ways of giving feedback as briefly mentioned above. The clever design of Arthur et al. (2006) to determine part of the grade using the percentage of correct student answers (when used during the class exam), highlights the need for motivating the 'proper' use of the learning assignment. Such methods once again contrast Sanchez-Elez et al. (2014), who argue that not grading students for the quality of their work will make the assignment less threatening and further encourage participation, which will also be intrinsically motivated by the knowledge that questions will be added to their examination paper. However, incorporation into the assessment strategy of the course can be seen as essential to ensure participation of not only highly motivated students, but everyone in the class (Bates et al., 2011).

Technology

It is the teaching method and potentially the evaluation method of MCQ creation that leads to additional learning benefits for students and not necessarily the technology with which the teaching is delivered (Draper, 2009). However, there are noteworthy advantages to delivery of this teaching method via an online platform. Sanchez-Eles et al. directly link the MCQ assignment to promoting collaborative learning in an online learning environment. They emphasise this connection with the goal of encouraging the use of web forums for learning, as they have at times been viewed as negative, making students more passive learners, because they no longer take notes during class, knowing information will be available online later (Fried 2008). Studies that have made use of the assignment through more traditional mediums have also hinted that the use of online platform would enable students to produce work outside the classroom, saving time, and allow them to discuss, for example alternative answers to questions (Arthur, 2006).

Limitations of studies have included, for example, the fact the MCQs are not appropriate for all subject areas and the possibility of students sharing their MCQs with other students before the exam, although there are means of limiting such actions.

Two good Papers for 'Using Student Generated Assessment Items'

As described above:

Arthur, N. (2006). Using student-generated assessment items to enhance teamwork, feedback and the learning process. *Synergy: Supporting the Scholarship of Teaching and Learning at the University of Sydney, 24***, 21–23.**

Three page report provides a good way to ease into the topic and quickly delivers the key messages of how MCQ creation encourages, among other things, active learning and critical thinking skills and motivation that comes from knowing the assessment material created will be used.

Sanchez-Elez, M., Pardines, I., Garcia, P., Minana, G., Roman, S., Sanchez, M., and Risco, J. (2014). Enhancing Students' Learning Process Through Self-Generated Tests. *Journal of Scientific Educational Technology, 23,* **15-25.**

The aim of this study was to effectively improve students' motivation for active learning, as well as to promote collaborative learning and critical analysis skills through the use of new technologies. It effectively established these links and provides an alternative view on how to evaluate students' work.

Reliability and Criticism - In SGC We Trust

While SGC can be an incredibly versatile tool for the generation of ideas and the creation of a knowledge base among peers, questions may be raised regarding the trust that students place in material which they do not see coming from an academic source (e.g. the lecturer, a textbook, an academic journey) and also the trust and respect they have for their fellow group members when producing a collaborative PGC (peer generated content) project.

To fully theorise the extent to which this is a problem, it is necessary to look at theories surrounding cooperative learning in general, which apply to PGC. One particular theory which applies is Johnson and Johnson's (1999) four types of cooperative groups: 1) Pseudo learning groups which are composed of students who do not wish to work together and are only doing so due to their assignment. Their assignment is a competitive one and they are informed that they will be rated from best to worst. These students will intentionally mislead and hide important findings from each other, these students do not trust each other and will achieve more if allowed to work independently.

2) Traditional classroom learning groups which are made up of students who simply have been assigned to work together but are made aware they will be assessed as individuals rather than as a group. While they want to gain knowledge from those in their group, they will not likely share their own knowledge with others in their group. Some of the students will attempt to freeload on the work of their group members which in turn will result in those who feel taken advantage of doing less work. Overall the final collective product is greater than certain group member's individual effort but the stronger and more studious members of the group would perform better individually.

3) Cooperative learning group which is composed of students who work together in order to achieve a shared goal. They discuss material within the group in order to gain a further and deeper understanding among them while encouraging a strong individual effort which is monitored to ensure equal contribution. The overall result is that the final collective product is greater than all individual members' efforts.

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4) High-performance cooperative learning group is composed of members who meet all the criteria of group three but perform to a higher level than expected. Few groups reach this stage. While this theory primarily applies to the use of PGC in group work setting it can also apply to the use of PGC that students make use of. For full effectiveness the entire cohort of students involved would have to fill the criteria laid out in group 3.

It is worth noting though that students needing to verify information in PGC may actually be training students to critically engage with material and distinguish good quality information from bad quality information. Messer (2013) argues that even if students do not see content as valid due to its user-generated nature, it should still be used to go deeper than hard facts, and students can learn about interpretation and significance.

A solution to the issue of trust may be found in studies concerning the wider world's acceptance of non-expert information. These studies have found that users can be influenced based on other users' ratings of that information (e.g. how good a movie is) (Flanagin and Metzger, 2013). This logic can also be applied within SGC, meaning the addition of a rating system to SGC may signal to other students who wish to make use of the information, its strength and reliability (Wheeler, Yeomans and Wheeler, 2008). Naismith, Lee and Pilkington (2011).

It's Not Fair!

Within courses in which group SGC projects are examined, both students and lecturers alike have been found to be critical of the merit of individual contribution and take issue in the fairness overall (Wheeler et al., 2008; Naismith, et al., 2011). While not directly applicable to the efficacy of SGC, in a longterm setting, it may need to be investigated, what controls, if any, would need to be in place to ensure fairness and guarantee students exert their full potential in contributing to the group work within SGC.

SGC and Social Issues

While student generated content (SGC) learning practices have proven successful in increasing student learning and academic achievement, these techniques also have other benefits for the students involved. Indeed, the jigsaw method was originally developed to address social issues following the desegregation of schools in Austin, Texas in the 1970's (Aronson, 1979; 2000). The idea behind the policy change that enforced the desegregation was to reduce interracial tension and segregation in society; however, it had quite the opposite effect in these schools environments (Aronson & Patnoe, 1997; Stephan, 1999). In fact, Allport's Contact Hypothesis (1954) holds that while interracial interactions can serve to reduce prejudice and hostility between different racial/ethnic groups, these interactions need to meet four criteria in order to obtain a positive, successful result (Singh, 1991; Williams, 2004). If these criteria are not met in a given situation, interaction may instead increase hostility between groups (Aronson & Bridgeman, 1979; Singh, 1991; Walker, 1998). Thus, in a given situation aiming to improve any intergroup relations, there needs to be 1) cooperative interaction where participants are working toward a common, shared goal 2) equal status between all participants fostered by mutual interdependence 3) individualized/non-superficial contact between participants and 4) social norms that support the interactions (e.g. support from authority figures). While the policy-enforced desegregation of schools in Austin enabled more interaction between members of different racial/ethnic groups, it did not meet any of the other criteria, and consequently caused a deterioration of intergroup relations (Aronson, 2000).

Thus in 1971 Aronson and his PhD students developed 'The Jigsaw Classroom' – a learning technique drawing on lessons from Social Psychology (e.g. Realistic Group Conflict Theory, Sherif, 1961) about the

benefits of co-operation and interdependence based on shared goals in hostile group-relations, whilst also meeting Allport's (1954) criteria for successful intergroup interactions (Aronson, Blaney, Stephen, Sikes,& Snapp, 1978). The jigsaw model (like other similar models) requires not only cooperation between members to reach a common goal, but also interdependence where each member makes a crucial contribution to the group as a whole needed for individual success, meaning that each member Is equally, and uniquely, important in the group. Furthermore the model requires non-superficial communication between members to reach these goals, and is practiced with the support of teachers or tutors (Slavin 1995, Stephan & Stephan, 2001). The idea behind the jigsaw classroom is that competition within the classroom, especially between groups of different status, is incompatible with positive interactions, as it leads to a motivation of individual success without regard for other students (Aronson & Patnoe, 1997).

Empirical Evidence for the Social Benefits of SGC Methods

Aronson's first interventions with fifth-graders in the Austin classrooms showed striking results (Aronson, 2000). Teachers reported a drastic change in students' attitudes toward each other, and formal research findings supported these observations by showing a significant difference in jigsaw groups compared to control groups in different domains. The jigsaw students reported higher liking of both the school and other students, demonstrated higher self-esteem scores, and most relevantly, less self-reported prejudice toward students of other racial/ethnic backgrounds, as well as less negative stereotyping of these groups. Furthermore behavioural data showed that the jigsaw students were absent from class less (Aronson, 2000). These findings of improved interracial intergroup relations have been found across different school settings, using both the jigsaw method and other, similar SGC learning methods (e.g. 'Learning Together', Johnson & Johnson, 1975) (Cook, 1978; Slavin, 1978; Slavin, 1985; Perkins & Saris, 2001, Stephan & Stephan, 2001; Aronson, 2007). These techniques all foster powerful non-superficial intergroup interactions in different classroom settings by putting students into mixed racial/ethnic groups where they are mutually dependent on each other with the mentality that they 'sink or swim' as a team (Slavin, 1995; Stephan, 1999; Stephan & Stephan 2001; Slavin & Madden, 1979). More recent studies have also supported these findings; Walker (1998) showed that students in jigsaw groups demonstrated reduced racial prejudice toward out-groups and increased liking of peers in general. Importantly, the study also demonstrated that techniques that rely on cooperation alone does not produce these beneficial results, and can serve to damage relations rather than improve them. The students that used interdependent and cooperative methods (=Jigsaw groups) showed a decrease in the perceived social distance to members of out-groups, as well as negative traits attributed to these out-groups. However, these scores showed the opposite pattern in students in the cooperation-only conditions.

How does it Work?

As mentioned, the success of the jigsaw model, and similar SGC methods, relies on establishing both cooperation and interdependence between members of equal status in a group (Aronson, 2000; Singh, 1991 Walker, 1998). The important element in these models is that, within the groups, each member is dependent on every other members to succeed academically and consequently, each member becomes important, and eventually, as research shows, well-liked (Aronson & Patnoe, 1997). Thus, social bonding can occur because of successful cooperation and interdependence, and not necessarily the other way around (Sherif, 1961).Gaertner and his colleagues (1990) attribute these beneficial effects to a re-categorization of cognitive categories where members of out-groups become integrated in the in-group due to the nature of their interactions. In other words, the underlying mechanism that leads to improved

due to the nature of their interactions. In other words, the underlying mechanism that leads to improved interracial intergroup relations occurs when members of in-groups start viewing members of out-groups as part of 'us' rather than part of 'them' and a group identity is created (Gaertner, Mann, Dovidio, Murrell, & Pomare 1990; Dovido, Gaertner, Isen, Rust & Guerra, 1998). This re-categorization process is fuelled by increased perceptions of shared belief with the previous 'out-group' members, increased interpersonal attraction, and enhanced memory for positive information within the groups (Anastasio, Bachman, Gaertner, & Dovidio, 1997). Aronson, in turn, refers to this process as empathy development (Aronson , 2000).

Other Benefits (Beyond Improved Interracial Intergroup Interactions)

While the jigsaw classroom technique was originally developed to improve interracial intergroup relations it has also been found to positively influence self-esteem, student liking for school, and reduce harmful competitiveness among students (Aronson & Bridgeman, 1979; Blaney, Stephen, Rosenfield, Aronson & Sikes, 1977; Stephen & Rosenfield, 1978; Aronson & Patnoe, 1997; Aronson, 2000). Similarly, 'Learning together', which is a general and varied interdependent classroom model developed by Johnson and Johnson (1975), has also been found to increase self-esteem. Sing (1991) suggest that the independent, cooperative environment fostered by these methods counters cycles of negative self-fulfilling prophecies and self-attributions in those students that consider themselves untalented in academic settings. Indeed, the highest gains in self-esteem have been found in those students who considered themselves "the losers" of the classroom (Stephen & Rosenfield, 1978). However, research has not been completely clear cut on the matter of benefits of SGC practices beyond improved cross-cultural relations; Walker (1998), for example, found no changes in self-esteem and liking for school between jigsaw, cooperative and control groups. However, their study did show that general liking of peers was increased in the jigsaw condition compared to the other conditions. They speculate that enhanced perspective-taking skills, aided by teacher facilitation, mediate this change, relating to Aronson's postulation that these learning models increase empathy (Aronson, 2000). Aronson (2000) theorizes that perspective-taking is increased through jigsaw procedures as students must put themselves in each other's shoes to overcome weaknesses and obstacles that might reduce the speed or quality of learning, and thereby reach the goal of academic success. Indeed, in experiments of perspective-taking abilities, jigsaw students perform better than controls (Bridgeman, 1981).

Jigsaw, Social Effects, and Higher Education

While the Jigsaw model has been shown to have powerful benefits for improving intergroup relations, as well as other social/personal domains, it has almost exclusively been tested for these purposes in school-aged children. Williams (2004) argued that the jigsaw method should be used widely in higher education institutions, and that courses offered by educational departments at universities, consisting only of jigsaw and other SGC techniques should be mandatory to increase positive relations between students. This argument is based on the finding that increases in learning and student achievement in higher education students mirror those found in school children following jigsaw implementations, indicating that other benefits might follow a similar pattern. Thus, while jigsaw implementation studies have not addressed potential social effects in higher education students, they have shown remarkable success in increasing academic achievement, and satisfaction of learning practices in these students (Aronson et al. 1978; Brown 1992; 1994; Perkins & Saris, 2001; Jurgen-Lohmann, Borsch & Giesen, 2001; Honeychurch, 2012). Furthermore, a study by Slagie (2007), using high-school students (15 years)

2001, Honeychurch, 2012). Furthermore, a study by Slagle (2007), using high-school students (15 years), demonstrated positive results in terms increased self-esteem, and improved intergroup relations following a jigsaw strategy implementation. These findings further indicate that that older students (at higher education institutions) might reap similar benefits from SGC techniques, however there are admittedly major differences between school-aged children and university students in attitudes and experiences with students of different races and ethnicities. Further research is necessary to determine whether these personal and social effects of implementing jigsaw/other SGC learning methods are relevant and useful for university students.

Other Considerations and Criticisms

It is of relevance to note that the interracial intergroup benefits of jigsaw techniques are limited to members of the particular racial/ethnic groups that are represented in a given group, but not to those that are not represented in that group. For instance, it might extend to improve attitudes that black students hold against white students in general, if these racial groups are represented, but unless Hispanic students are also represented in the group, it will not affect attitudes or relations toward these students. Thus, while a greater harmony may be established between students in a given class using these techniques, this does not necessarily extend beyond the classroom and the specific, represented groups, to a school or community level (Walker & Crogan 1998; Singh, 1991). However, it does succeed at lowering prejudice and negative attitudes beyond the group-setting between students of different races/ethnicities that are represented in the jigsaw groups. Furthermore, it is also important to note that most of the research done has used measures of overt prejudices through self-report, which may not be conveying the whole truth as they are subject to both conscious and subconscious biases.

However, of greatest concern for the continued validity, relevance and usefulness of the mentioned findings is that up-to-date research within the field of social and personal implications of jigsaw and similar SGC learning methods is scarce; almost all empirical evidence is very dated, and the many critical points that have been raised in relation to past research have not been addressed (e.g. the conflicted research on self-esteem, or the generalizability of positive findings in jigsaw classrooms). Most importantly, the lack of longitudinal research on the long-term effects of jigsaw implentation on interracial relations and prejudices has not yet been addressed (Williams, 2008)

Conclusions

The research on the social effects of student generated content techniques such as the jigsaw method is clear; there are significant benefits of using these methods in terms of improving interracial intergroup relations (e.g lowering negative stereotyping of out-groups). These benefits are mediated by a re-categorization process of cognitive categories in terms of in-groups and out-groups, and increases in empathic skills, brought on by the cooperation and interdependent components of these methods (Gaertner et al. 1990; 1998, Aronson, 2001; 2007). Furthermore, while other social and personal benefits have been found, suggesting that self-esteem, and student liking of school are positively influenced by these techniques, these findings are less extensively supported in more recent research and require further investigation. Indeed there is a general need within the field for more recent, as well as varied (in terms of design and target groups) research, to support and add on to the dated evidence.

Two Recommended Articles for a Quick Understanding of this Field

See references for full article details

Williams, 2004 - The most relevant information starts about half-way through, but it is one of the few fairly recent, easy-to-read, short papers reviewing and summarizing some of the theoretical framework for the social effects of the jigsaw method, and is therefore useful for understanding the basics of intergroup interactions in relation to the jigsaw model. However the article does not specifically discuss empirical evidence for the theoretical framework described.

Singh, 1991 –This paper, again a review, has a more general focus of cooperative/interdependent learning techniques and their wider social/personal effects on students. It also addresses specific studies in more detail than the Williams paper, although it has less of a pleasant information structure.

Overall Conclusion

Student generated learning can, and has been used as a powerful tool for increasing student learning, motivation, achievement and engagement with learning material (Aronson, 2000; Aronson et al. 1978; Brown 1992; 1994; Jurgen-Lohmann, Borsch & Giesen, 2001; Honeychurch, 2012). The most commonly used SGL method is the 'Jigsaw Classroom' which was developed by Aronson in the 1970's and relies on mechanisms of both cooperation and interdependence (Aronson, 2007). Other SGC techniques include the production of assessment methods by students, such as multiple choice questions. Creation of MCQs by students has been shown to lead to greater understanding of the material, greater motivation for learning and acquisition of skills for critical analysis (Arthur, 2006; Sanchez-Elez et al., 2014; Bates et al., 2011). There has, however, been a debate in recent literature regarding whether or not these students generated assessment methods should be graded/marked in order to obtain the best results for student learning (Bates et al., 2011; Sanchez-Elez et al., 2014). There are also potential limitations of student generated assessment, such as the fact that MCQs are not appropriate assessment methods for all subject areas. Furthermore, a wider limitation of SGC methods in general is the possibility of students (voluntarily or involuntarily) producing inaccurate learning material, as they are non-experts within the fields they are learning/teaching about. The issue of reliability and trust within SGL projects can be reflected in the different types of cooperative groups that can arise using these methods (Johnson & Johnson, 1999). However, there may be ways of overcoming these reliability issues, e.g. using rating systems. Finally, while trust issues may arise in some SGL contexts, the benefits of these methods for intergroup interactions have been far more researched and supported. Models using both cooperative and interdependent elements, such as the jigsaw method, have been shown to increase positive interracial intergroup interactions and decrease prejudice between these groups (Aronson, 2007; Walker, 2001) Other social/personal benefits include increased self-esteem and liking of school, however further research is needed to assess the relevance of these methods for social cohesion in higher education environments (Stephen & Rosenfield 1978; Aronson, 2000; Williams 2004).

Thus, student generated content methods have many benefits, both for learning, social cohesion, and personal development, and these benefits seem to outweigh the relatively few issues that may arise from using SGC (as reflected by the current available research in the field), many of which have been discussed, and addressed while developing these models.

Examples of links to other topics in the CERE course

Below are some very brief descriptions of ideas on how to link this topic to other topics that have been discussed during this course. There are more associations to be made, and with more topics, so bear in mind these are only a few examples.

Learning as participation, not acquisition/peer-assisted learning – This is the addressed topic. Clearly SGL methods, such as the jigsaw method, draw on active participation and peer-assisted learning through co-operation and interdependence between students, and the success of these methods rely on these processes (Aronson, 1978; 2000)

Deep and surface learning – Learning by doing, teaching and engaging with the material has been shown to lead to a deeper understanding of a given topic, thus it can be argued that SCG techniques lead to more deep learning (Arthur, 2006; Sanchez-Elez et al., 2014; Bates et al., 2011)

The role of a teacher (the importance of having a teacher) – Perhaps one of the important roles of a teacher, beyond the traditional role as 'a source/conveyor of knowledge', is to provide the right social setting/support for processes that are important in drawing on the social/learning benefits of SGC methods. As mentioned, for the positive interracial intergroup interactions to occur, the right social norms need to exist, supporting these efforts, and these norms can be installed in classrooms/schools by authority figures such as teachers (Singh, 2001). SGC methods such as jigsaw also highlights the role of a teacher as a facilitator; an organising agent that can structure the process of learning in groups, and make sure everything is working smoothly and that the students have the support and material needed to carry out their group work, whether it be expert knowledge or organisational/structural support.

Learner Motivation – Motivation for learning, in general, has shown to be increased through SGC techniques, and these techniques can be argued to be related to both extrinsic and intrinsic motivation (Aronson & Patnoe, 1997; Hänze & Berger, 2007). Jigsaw methods, for example, promote a depper engagement with the learning material and bring about an increased sense of ownership of the produced work, which might serve to generate more interest and care for the studied topic (partly because time has already been invested in it), which in turn may lead to a desire to further engage with and understand the material (Hänze & Berger, 2007; Sener, 2007; Gehringer, 2011) Thus, SGC techniques might start a cycle of positive engagement with learning material which promotes a more intrinsic and voluntary, yet deeper, motivation for actually learning the material, possibly fuelled by increases in self-esteem. Furthermore, because each student is dependent on other students for learning the appropriate material, and in turn responsible for teaching some of that material, this interdependency leads to a motivation to serve the group in order to personally and collectively succeed, and thus there is high extrinsic motivation to contribute to the group. Moreover the students also develop relationships with their fellow group-mates and identify more with them, as well as like them more, over the course of the group work, which adds to the motivation to do well to keep the group happy. Thus extrinsic and intrinsic motivations may exist, and be provoked, side by side by these SGC exercises/methods.

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Introduction

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