# How do students regulate social-emotional reactions in collaborative learning? An empirical study of students enrolled onto a Foundation programme at a Business School.

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## Abstract

The social-emotional context to collaborative learning is recognised within Higher Education. As educators, we should reflect on how well do we understand its influence on students' learning? The discourse on collaborative learning draws from the theorisation of group work and the models of co-regulated and socially-shared regulated learning. These models of group regulation not only build on theories of self-regulated learning but link to the literature on academic emotions and social-emotional reactions. However, the corpus of published research is focussed on undergraduate students, and this therefore represents a gap in our understanding in relation to those who are enrolled onto pre-undergraduate study as in the case of Foundation programmes. This paper reports on a mixed methods study that investigated how Foundation programme students in a Business School managed their emotions in collaborative group work. The findings point to differences in gender and ability as possible factors for further research. In doing so, this paper makes an original contribution to the discourse on collaborative learning and addresses a gap in the literature in relation to Foundation programme students and



ISSN: 2044-3315

their emotions. In addition, this paper also offers a conceptual framework within which to theorise further about the nature of the collaborative learning journey.

**Keywords:** Collaborative learning; Co-regulation of learning; Socially-shared regulated learning; Social-emotional reaction; Socio-emotional culture.



ISSN: 2044-3315

# Introduction

Research into the regulation of learning is maturing and providing greater insight into the complex processes involved. Recent research has diversified from the original focus on individuals to a wider social context of collaborative learning (Alverez et al. 2010; Panadero and Jarvela, 2015; Malmberg et al. 2017; Bakhtiar et al. 2018). Interestingly, research has progressed beyond the traditional realm of the classroom to developing fora of learning including online and team-based study (Borge et al. 2018; Hadwin et al. 2018; Shum, et al. 2019). In particular, the literature has focussed on two conceptual approaches: the co-regulation and socially-shared models of learning of undergraduate students. This paper adds to the established body of knowledge by focussing on Foundation programme students and one aspect of their regulation of learning in particular- emotion. Research into how emotion influences collaborative learning is still in its early stages, both in terms of how we conceptualise it and undertake empirical research (Jarvenjo et al. 2013; Bakhtiar et al. 2018). This paper has two principal research questions. Firstly, what do Foundation programme students tell us about their social-emotional reactions in group work? Secondly, how do the findings on social-emotional reactions contribute to the theorisation of collaborative learning? This research adopted a mixed methods approach that involved the use of a structured questionnaire and group discussions of students enrolled onto a Foundation programme in Business. The findings report that the ways in which students interact and manage their social-emotional reactions approximates more closely to co-regulated rather than socially-shared forms of learning. A conceptual framework is provided to structure future discourse on the issue of collaborative learning.

# Literature review

The subject of how we regulate our learning continues to generate important research that provides a better understanding of the processes involved. A number



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of scholars have contributed to our understanding of managed learning through various conceptualisations of the processes involved (Zimmerman, 1989; Boekaerts et al. 2000; Hadwin et al. 2011; Panadero, 2017). Much of the early work on the regulation of learning sought to identify the phases within the process of regulation, with models of self-regulated learning containing three (Zimmerman, 1989) or four phases (Pintrich, 2000; Winne, 2011) that operate cyclically. In general, research into self-regulated learning (SRL) was concerned with identifying and explaining the cognitive, motivational and behavioural strategies used by students as they approached study. This early research focussed primarily on the psychological processes involved in learning and drew upon social cognitive theory (Zimmerman, 1989) and the socio-cultural literature that recognised the relevance of how humans learn in a social context (McCaslin and Burross, 2011). For Panadero and Jarvela (2015, p. 3), 'the premise of this research is that SRL is an internal process, assisted and influenced by social interaction'.

In the past decade, interest in researching how social interaction impacts on learning has led to the development of conceptual models of collaborative learning. Whereas co-operative learning is often associated with the devolution of specific tasks to individuals to perform separately, collaborative learning involves a higher level of interaction and inter-dependent working. Importantly, as Jarvela and Hadwin (2015, p. 559) recognise 'succeeding in collaborative contexts, requires the development and refinement of a range of regulatory skills and strategies for generating shared problem spaces, planning, monitoring, evaluating and adapting group processes'. The need for effective co-ordination of group members is relevant in several learning scenarios, especially where there may be particular inhibitors to collective activity, such as in asynchronous online learning, or when there are dysfunctional relationships in play. In order to facilitate effective collaborative learning, group members must not only share an understanding of their task but be able to co-construct their goals and engage in a manner that develops shared metacognition and an appreciation of how the group is functioning (Malmberg, et al. 2017). As a consequence, collaborative learning involves not just cognitive skills, such as task



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regulation and knowledge building but also those social skills associated with participation, responsiveness and negotiation (Camacho-Morles et al. 2019).

Hadwin, et al. (2011) describe two models of collaborative learning that supplement earlier work on SRL and are particularly relevant to a discussion of collaborative learning: co-regulation of learning (CoRL) and socially shared regulated learning (SSRL). The model of co-regulation of learning (CoRL), recognises that individuals do not learn in isolation but that they are influenced by the actions of others in a group. In particular, during CoRL some members of a group may assume a more active role than others in prompting activity or building consensus. For Alverez et al. (2010, p. 342), CoRL 'implies gradual comprehension of shared problems and tasks with the help of some mechanisms that intervene in cooperative tasks: establishment of psychological relations, positive interdependence and joint construction of meaning'. Although Saariaho et al. (2018, p. 539) consider that CoRL involves 'a high level of social regulation in which individuals make decisions and share thoughts together', CoRL does not infer an equitable distribution of roles and responsibilities within group-based learning.

In addition to CoRL, a second model of group-based regulated learning has influenced the development of research. Socially shared regulated learning (SSRL), originally conceived by Vaurus et al. (2003) and then further developed by Hadwin et al. (2011), offers a model of regulated learning in which there is a higher level of commitment to a common endeavour and shared understanding than in CoRL. Panadero (2017, p. 16) defines SSRL as 'deliberate, strategic, and transactive planning, task enactment, reflection and adaptation'. Importantly though, as Isolatala et al. (2017, p. 22) recognise 'SSRL does not emerge automatically but requires students to activate it in reciprocal interaction'. As such, SSRL requires a higher level of cohesion and collective consensus than is the case in CoRL. As a group-based activity, SSRL necessitates the strategic regulation of tasks. This form of collective regulation involves a shared understanding of a common endeavour, an agreed set of social norms and the mechanisms in place to resolve conflict. Underpinning the notion of SSRL is a recognition of the importance of shared



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metacognition in providing group members as sense of perspective and future purpose. Importantly, none of these three models of regulation should be seen in isolation as all three modes of activity are likely to occur in group work. Regulation takes places at different times by different people on differing levels for a variety of reasons. Such an understanding accentuates the highly social and complex nature of group-based collaborative learning.

Although Bakhtiar et al. (2018, p. 63) suggest that 'research examining emotion regulation in collaboration is limited, the role of affective sub-processes within the regulation of learning is widely recognised (Pintrich, 2000; Winne, 2011). For Saariaho, et al. (2018, p. 541) 'learning is more than a cognitive endeavour: the emotions are also strongly intertwined with regulated learning processes [and that]… 'highly demanding socially shared regulation of learning (SSRL) has been found to be emotionally challenging… and even seemingly favourable balance within a group as well as well-produced shared regulation can be easily disturbed'. This emotional dimension to collaborative learning can be conceptualised as operating on three levels. Firstly, in terms of how learners identify as being part of an institution. Won et al. (2018) in their discussion of institutional culture and the 'belongingness hypothesis' report that those groups of students who held positive views of their institution adopted more effective metacognition strategies, whereas those students who were disaffected were less effective in peer-based activities. Secondly, Bakhtiar et al. (2018) describe how those behaviours exhibited within a group may generate a socio-emotional climate that conditions how individuals position themselves and respond to others. And, finally at the level of the individual and the episodic dispositions adopted during group interaction.

The importance of emotions in influencing how learners interpret their environment and interactions within group work is widely reported in the literature (Bakhtiar et al. 2018; Borge et al. 2018, Jarvenoja, et al. 2013; Pekrun and Stephens, 2010; Pekrun, 2014; Saariaho et al. 2018). Emotions are recognised as stimulating the brain and cognition (Pekrun and Stephens, 2010). For Borge et al. (2018, p. 9), 'emotion may serve as the initial gateway… and can fundamentally shape what we pay attention



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to, as well as our awareness and interpretation of events and therefore what is remembered and learned.' Emotions may be viewed both as a condition and product that feed into a wider socio-emotional climate (Bakhtiar et al., 2018). As a condition, the learner's emotional state influences not only how they approach learning but also how they react to those stimuli presented by others. As a product, emotions provide a measure of self-efficacy and feed forward into future learning scenarios either in a positive or negative manner. Where positive emotions are generated through group interaction, these facilitate higher levels of enthusiasm and promote constructive critical discourse. In contrast, where negative emotions dominate lower levels of motivational are reported. A key concern within the literature is to ascertain what possible actions could trigger a particular emotional response during group work (Pekrun and Stephens, 2010; Watzek et al. 2019). So, for example, Saariaho et al. (2018) suggest that a challenging task may provoke negative reactions where learners possess low levels of self-efficacy, or that peer support and inspiring ways of learning may generate positive responses.

Interaction between learners in collaborative scenarios not only influences individuals' perceptions but also the dynamics within the group as a whole. SSRL is present when individuals combine to co-construct shared understandings of the task and how they should approach it (Isolatala et al. 2017), as well as when they develop socio-metacognitive expertise (Borge et al. 2018) in order to monitor and evaluate their performance. SSRL incorporates ideas contained within social information theory (van Kleef, 2009) that not only do affective behaviours have intrapersonal effects on those that experience them but also interpersonal effects on those who may observe events. In this manner, emotions can be seen as part of the social resources and strategies available to individuals, dyads or the entire group when engaged in complex forms of social management. Appraisal theory offers insights into how individuals respond to external stimuli. This approach is particularly useful when an event is perceived by an individual as congruent or not to their current emotional and cognitive state. Importantly, although emotions are often intense and may generate powerful reactions these tend to be transient in nature



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and related to specific events whereas moods are more durable (Watzek et al. 2019). As such, we should recognise that emotions are both event-responsive and time-limited and how this may impact of relationships within collaborative learning scenarios.

Although educators may aim to design a conducive environment for learning, there are limits to the effectiveness of such efforts. Although Bakhtiar et al. (2018, p. 58) acknowledge that 'theoretical frameworks describing regulation in the context of social learning are still at their nascent stage', an understanding of how learners interact with each other can be usefully approached through the concept of socio-emotional climate. Socio-emotional climate is fundamentally concerned with the development of micro-cultures through the interactions between group members. For groups that are maintained over a period over time, it is important that a positive climate is in operation and that it enables open discussion in a non-threatening atmosphere. So, for example, the development of trust and mutual support are indicators of a positive climate and also engender heightened levels of interaction. Together with individual emotions and socio-emotional interactions, socio-emotional climate is viewed as being a key factor in the calculations undertaken within groups on how they regulate their learning (Isolatala et al. 2017; Bakhtiar et al. 2018). Consequently, the idea of a socio-emotional climate should be interpreted as operating within all three modes of regulated learning.

How then can we conceptualise the regulation of emotions in small learning groups? That all three regulation modes of learning (SRL, CoRL and SSRL) are mutually reinforcing and integral to collaborative learning is recognised within the literature (Jarvela and Hadwin, 2015; Panadero et al. 2015; Malmberg et al. 2017). In addition, the importance of emotions in the social construction of how individuals view themselves, others and the group is increasingly recognised (Bakhtiar et al., 2018; Camacho-Morles et al., 2019). It is also acknowledged that a variety of conditioning factors, such as the environment within which the group is located, the task itself and the role of the teacher, do influence the approach adopted by learners. However, the idea of the regulation of learning is fundamentally focussed



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on the interplay between individual agency and collective consciousness. Within this interplay, we see the operation of intra-personal and inter-personal dynamics that determine the nature of group interaction. Shum et al. (2019) report on the importance of concepts such as 'agreeableness', 'conscientiousness' and 'transparency' in how individuals interact when engaged in group activity. As such, we should acknowledge that in addition to a functional relationship within groups, there exists an ethical context to behaviours and that this is conditioned by institutional values as well as personal outlook. This review of the literature has identified several dimensions to collaborative learning that can be reduced to a fundamental question that should inform research: how do learners view working with others in groups, both from a cognitive and emotional perspective?

## The context for the research

This research was undertaken at a Business School in the north-east of England. The research involved students who were enrolled onto a Foundation programme that is designed to facilitate entry onto a range of undergraduate degrees in business and related subjects within the Business School. The programme enrols between 120-150 students annually and is designed to provide a broad-based introduction to those who may have under-achieved in school or college, or those who may have non-standard qualifications. The Foundation programme is studied in one year and is designed to promote those skills deemed desirable in future graduates, such as commitment, team-working and critical insight. A particularly important feature of the curriculum is the development of team-working and interpersonal skills. Given this curriculum context, a research interest in exploring how students work collaboratively and the socio-emotional dimension to group learning informed this research exercise.



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# Research methodology

The research took place in two cycles over two years and followed on approval from the author's institutional ethics committee (reference 41630) in May 2022. The first cycle of the research took place during the academic year 2022-23. Students were not approached in person but rather through an announcement email that invited participation and provided an explanation of the nature of the research and a link to a JISC online survey. Additional documentation including informed consent documentation was deposited on the programme virtual learning environment for students to access. This approach was repeated in October 2023 in a second cycle for the following student cohort.

The research adopted a mixed methods 'explanatory sequential design' in which quantitative was collected prior to qualitative data (Fetters et al. 2013, p. 2136). The first stage of the research exercise involved the distribution of a highly structured questionnaire that was based on the categorisation of social-emotional reactions in group work identified by Watzek et al. (2019). In their categorisation of reactions, themes such as empathy, trust and apologising were interpreted by Watzek et al. (2019) as positive reactions that enhanced group solidarity and therefore featured in the questionnaire. Similarly, negative reactions such as anxiety and the need to ask for help were also included in the questionnaire. In adopting the same themes generated by Watzek et al. (2019), the intention was to provide some thematic triangulation in the research with the existing literature. The questionnaire comprised 16 statements to which participants were asked to respond to using a seven-point Likert scale. For example, the questionnaire included statements such as 'We empathise with each other', We trust each other', and 'We feel comfortable in making an apology'. The data was organised into four categories according to gender and qualifications (grades A and B, and grades C and below at A level or equivalent). The intention here was to explore whether there was any significant difference across gender or ability range. The data was collated and then analysed



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using the Kruskal-Wallis statistical test to identify possible divergences in the data across the research population.

The second stage of the research involved the elicitation of qualitative data from 7 focus groups across the two cycles. Each of the focus groups ranged in size between 4-5 students and of mixed gender, although there was a small majority of female students. In total, 32 students participated in this phase of the research. In order to facilitate discussion, a word cloud was used as a prompt. The use of a word cloud to present data and inform the analytic process is established in qualitative research (Cidell, 2010; Williams, Lloyd Parkes and Davies 2013). However, in this instance, instead of using a word cloud to provide a summary of data another approach was used in which a priori codes in the form of social-emotional words that are derived from the literature are used to prompt group discussion. This approach has been used in educational research to generate students' reflection and generate follow-on discussion (Hamm, 2011) and critical thinking in discussion (deNoyelles and Reyes-Foster, 2015; Joyner, 2012). In this research, 36 words such as *inadequate, stupid, lazy, help and trust* that were derived from Watzek et al (2019) were used to construct the word cloud. Students were asked to underline each word that they felt was important, and then they were asked to explain their thoughts. Students were also offered the opportunity of writing down their thoughts on the Word cloud sheet. This approach was intended to enable each student to gain confidence in the expression of their views, and together with a protocol for group interactions facilitated a structured and equitable format for participants to express their views. Once collected, the data was organised using a spreadsheet. All the responses from students were counted and then arranged into a hierarchy in which responses were ranked from 1 to 36 according to the frequency of responses to gain an insight into students' views. Students' comments were collected on the same spreadsheet.



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# Findings and analysis

## The quantitative data

In total, 115 students participated in the research, which represented a response rate of 46% over the two years. Quantitative data was organised into four data sets according to gender and educational attainment, with students divided into those who had attained a grade A or B in Business A Level and those that have a grade C or below, together with those students with BTEC or international qualifications (see Table 1). This demarcation of the data by gender and attainment enabled more detailed analysis of the findings.

| Gender | A-B grade | C-D-E- Other qualification | Total |
|---|---|---|---|
| Male | 26 | 38 | 64 |
| Female | 24 | 27 | 51 |

**Table 1. A statistical overview of the data by gender and educational attainment.**

The Kruskal-Wallis test was used to identify significant statistical difference between the four data sets, as it is deemed to be appropriate for the analysis of data generated by Likert scale questionnaires and where there are more than two data sets to analyse (Lanz, 2013; Ruxton and Beauchamp, 2008). There was one statement that produced a significant outcome (see Table 2). In relation to statement 12, *'some individuals undermine others in group work'*, the data implied that female C-D-E students felt some did not fully co-operate. This finding was evident across two comparative points: female C-D-E students compared with all male students, and all male students and female A-B students. These two outcomes infer those females in the C-D-E category had some concerns with the conduct of group work. None of the other 15 statements generated significant difference between the four categories of students, which suggests that statement 12 was an outlier to the norm. The most positive responses were generated by statement 3 'We cooperate with each other' (59/64 for all male students) and (47/51 for all female students) followed by Statement 10 'We understand what the task is



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collectively' (57/64 for all male students) and (47/51 for all female students), and Statement 11 'We actively listen to each other' (55/64 for all male students) and (47/51 for all female students). The statement that generated the least positive responses was Statement 12 'Some individuals undermine others in group work (25/64 for all male students) and (22/51 for all female students). Interestingly, the other statement that generated a low level of agreement was Statement 15 'We work to avoid being angry with another [student]' (41/64 for all male students) and (32/51 for all female students). It may be that these two findings are inter-related. Table 2 is presented on the next page.



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| Statement | H statistic | P value | Significant at <0.5 | Significant at <0.1 | Positive / Negative |
|---|---|---|---|---|---|
| **1** We empathise with each other | 1.3224 | 0.25015 | No | No | Positive |
| **2** We trust each other | 0.4682 | 0.5229 | No | No | Positive |
| **3** We co-operate with each other | 0.4939 | 0.4822 | No | No | Positive |
| **4** We actively enhance each other's self-esteem | 1.8 | 0.17971 | No | No | Positive |
| **5** We express thanks with each other | 0.6898 | 0.40623 | No | No | Positive |
| **6** We help each other | 0.8 | 0.37109 | No | No | Positive |
| **7** We feel comfortable in making an apology | 1.8 | 0.17971 | No | No | Positive |
| **8** We demonstrate real interest in everyone's contribution | 1.3224 | 0.25015 | No | No | Positive |
| **9** We enjoy working with each other | 0.0041 | 0.94906 | No | No | Positive |
| **10** We understand what the task is collectively | 0.102 | 0.74939 | No | No | Positive |
| **11** We actively listen to each other | 0.4939 | 0.4822 | No | No | Positive |
| **12** Some individuals undermine others in group work *[females (C-D-E) compared with all male students]* | 4.1796 | 0.04091 | Yes | Yes | Negative |
| **12** Some individuals undermine others in group work *[females (C-D-E) compared with the three other student data sets]* | 5.8939 | 0.01519 | Yes | Yes | Negative |
| **13** We work to minimise disagreement | 0.2612 | 0.60928 | No | No | Negative |
| **14** We work to reassure when one has a problem | 0.0041 | 0.94906 | No | No | Positive |
| **15** We work to avoid being angry with another | 1.6327 | 0.20134 | No | No | Negative |
| **16** We feel comfortable in challenging an idea with others | 0.8 | 0.37109 | No | No | Positive |

**Table 2. The analysis of the four data sets (Male, A-B; Male C-D-E; Female, A-B; Female, C-D-E) using the Kruskal-Wallis test (n=115 students), with reference to social-emotional reactions as defined by Watzek et al. (2019).**



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## The qualitative data

The qualitative data was analysed in two ways. Firstly, data from the word cloud was organised into a hierarchy of responses, with those words featuring more often ranking higher. In total, there were 36 words in the word cloud but nine did not feature in the responses from students. These non-response words that students had not identified as important to them were: *interrupt*, *alone*, *stupid*, *lazy*, *anger*, *pessimistic*, *undermine*, *irritation* and *blame*. Interestingly, these were all regarded as negative social-emotional reactions and therefore inferred that collaboration was more likely to be viewed as a positive experience for respondents. This inference was reinforced by those words that appeared to be more frequent, with *contribution (19 times)* being the most common word followed by *collaborative (13)*, *ideas (12)*, *trust (12)*, *enjoyment (10)* and *self-worth (9)*. The highest ranking negative social-emotional word was *disagreement (10 times)* and the least frequently mentioned positive word was *caring (1)*. However, in large group discussion further elaboration on these negative social emotional reactions were voiced. Several comments were made by students about how they collaborated outside the formal environment of the seminar room. These comments included: time-management and leaving work to the last minute; lack of co-ordination within groups; the emergence of a domineering figure; lack of commitment on behalf of some group members, playing on a smartphone, and the existence of insider and outsider sub-groups. Collectively, these comments imply that the reality of group-work is more complex that that characterised by those behaviours observed in the seminar. In summary, although the qualitative data implies there are many positive social emotional reactions involved in collaboration, there are concerns that pertain to particular individuals and a lack of organisation within teams.

## Limitations of this research

This research exercise is not without limitations. The response-rate from students to the questionnaire could be higher and there is some bias within the data with 56%



ISSN: 2044-3315

of respondents being male, and 56% being categorised within the C-D-E attainment group. Future research would look to significantly extend the sample population, and possibly to involve other Foundation programmes in other subject areas within the host university. In addition, the reliability of the questionnaire was tested using Cronbach's alpha and produced an outcome of 0.98. This relatively high value implies that there was some data redundancy generated as a consequence of using a 7-point rather than a 5-point Likert scale.

# Discussion

Collaborative working can provide a range of cognitive, social and emotional challenges for Foundation programme students, especially as they make the transition from school to university study. This paper set out to address two research questions: what do students tell us about their social-emotional reactions in group work? How do the findings on social-emotional reactions contribute to the theorisation of collaborative learning?

Overall, the findings imply that in general students enjoy collaboration and find it both productive and enjoyable. There are, however, some concerns that centre on individuals who do not contribute to the collective effort or look to wield excessive influence. In particular, the female C-D-E category identified these issues through the questionnaire and the follow-up discussions further explored these issues. The discussions infer that a lack of organisation within groups enable dominant figures to emerge and where there is an absence of collective consensus about protocols and processes, the potential for dysfunctional working behaviours can develop (Panadero, et al., 2015). Attending such observations is the relevance of maturity and the ways in which Foundation programme students demonstrate inter-personal skills in negotiating working relationships. This research reinforces the importance of a positive social-emotional climate (Borge et al. 2018) within which students are able



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to interpret and respond purposefully to the physical and emotional signals from others. As such, students' social-emotional reactions correspond to the 'individual in context perspective' (Jarvenoja et al. 2013) in which they continuously interpret and manage their intra-personal emotions.

Social information theory (van Kleef, 2009) offers an insight into the complexities of social-emotional reactions and behaviour within collaborative learning. The findings from this research exercise report that students behaviours correspond more closely to CoRL than SSRL. The lack of consensus within groups and the emergence of dominant figures is inconsistent with SSRL. Instead of developing a consensual meta-cognitive approach (Borge et al. 2018) that is inclusive and co-constructed (Isolatala, et al. 2017), the findings imply that students do not engage in sophisticated forms of collective meta-cognition and tend to act as individuals. This highlights the complexities inherent within collaborative learning both for students and educators. Setting up learning groups represents a challenge for educators in knowing how individuals will interact with others, many of whom may have not met previously. This observation raises questions relating to what priorities are established when setting groups and the degree of autonomy allotted. In promoting collaborative learning, educators should understand how self-efficacy and fear of failure which are associated with SRL can also condition an individual's approach in CoRL (Zimmerman, 1989). Ultimately, collaborative learning should be viewed as a complex social construction in which individuals bring their own self-identity and personal history to a collective enterprise. It is within this context that we need to understand that the efficacy of collaborative learning is a combination of conditioning factors as described in Table 3.



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| | **Task-orientation** | **Process** | **Identity-formation** |
|---|---|---|---|
| *Cognition* | Understanding how *'I as an individual could tackle the task'* | Understanding of *'us and our task'* | Understanding that it is important to develop a consensus about what *'we are doing to tackle the task'* |
| *Motivation* | Intrinsic motivation in order to enhance *'my own self-esteem'* Extrinsic evaluation of what *'I need to do in order to succeed*. | Engaging with others to decide how *'I can contribute to our collective effort and how we will work'* | Thinking of how *'we will identify and celebrate our achievement as a collective'* |
| *Behaviour* | Display *my emotional intelligence in engaging with others* | Looking to engage to others as equals as *'we work together'* | Acting as a team member *'as we support each other'* |

**Table 3. A representation of conditioning factors in collaborative learning.**

In a development of the work on levels of engagement through institutional belonging (Won et al. 2018), group-based and individual commitment (Bakhtiar et al. 2018), Table 3 displays a framework of those conditioning factors that facilitate collaborative learning. To achieve SSRL, all the conditioning factors should be realised in collaborative work, especially in terms of identity-formation and the transition of identity from 'I', through to 'us' and ultimately to 'we'. This original conceptualisation of collaborative learning provides a framework to analyse the nature of student interaction and its efficacy. This research recommends that the lead-up to group formation and the establishing of protocols are vital to the creation of a collective identity and a sense of belonging. The findings from this investigation imply that collaborative learning can be achieved best through preparatory framework of goal-setting and social interaction within which purposeful social relationships are formed.

# Conclusion

This paper reports on how students feel about collaborative learning and the ways in which they regulate their social-emotions. The findings point to a generally positive view of collaboration, especially in terms of developing inter-personal trust, task



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enjoyment and self-worth. These findings highlight the positive aspects of collaborative group-work for many. Importantly, however, the research also points to uneven levels of engagement in collaborative learning. SSRL requires a higher level of collective engagement than is inferred in the data generated through this research exercise. Importantly, the findings tease out concerns from those female students with A Level grades C-D-E that relate to disruptive team members. The data leads to this concluding observation- that CoRL is a more representative theorisation of collaborative learning between Foundation programme students.

In addition to the contribution to the discourse on collaborative learning, this paper offers a conceptual framework to structure future research. In providing a continuum aligned to "I-Us-We", the framework acknowledges the importance of individual and collective identity in collective endeavour. This original contribution to the literature can provide future research reference points to evaluate the degree of cohesion and solidarity across groups, which could be applied to other learning and work-based contexts beyond Foundation programmes. This paper also recommends that greater care be undertaken in the preparation of group-based learning. A more effective way of facilitating collaborative learning would be to view it more holistically in three stages. Prior to the task-based stage, students should be presented with protocols as to what is expected and be inducted into effective ways of collaboration. Once, these ground rules have been internalised, students may the undertake the task set. Once the task is completed, then students should be provided the opportunity to reflect on the process of collaborative learning in order to engage reflexively on how they approached intra and inter-personal emotional regulation. In this way, students may learn to appreciate that collaborative learning is a learning journey that is not simply an exercise in cognition but one that involves and exploration of themselves and how they interact with others.



ISSN: 2044-3315

## Disclosure statement

There is no funding or conflict of interest to report for this paper. This original paper is entirely the work of the author and has not been published previously. The reference list details all sources referred to in the paper.

## References

Alverez, I. M., Cerrato, M., and Fuentes, M. (2010) 'Proposal of indicators to evaluate regulated learning strategies in a cooperative task: An exploratory study'. *The International Journal of Learning,* 16(12), pp. 341-353.

Bakhtiar, A., Webster, E.A., and Hadwin, A.F. (2018) 'Regulation and socio-emotional interactions in a positive and a negative group climate', *Metacognition and Learning,* 13(1), pp. 57-90.

Boekaerts, M., Pintrich, P. R., and Zeidner, M. (2000) *Handbook of self-regulation*. San Diego: Academic Press.

Borge, M., Ong, Y.S. and Rose, C. P. (2018) 'Learning to monitor and regulate collective thinking processes', *International Journal of Computer-Supported Collaborative Learning,* 13, pp. 61-92. doi: https://doi.org/10.1007/s11412-018-9270-5

Camacho-Morles, J., Slemp, G., R., Oades, L., G., Morrish, L. and Scoular, C. (2019) 'The role of achievement emotions in the collaborative problem-solving performance of adolescents', *Learning and Individual Differences*, 70, pp. 169-181. doi: https://doi.org/10.1016/j.lindif.2019.02.005

Cidell, J. (2010) 'Content clouds as exploratory qualitative data analysis', *AREA*, 42(4), pp. 514-523.



ISSN: 2044-3315

deNoyelles, A., and Reyes-Foster, B. (2015) 'Using word clouds in online discussions to support critical thinking and engagement', *Online Learning*, 19 (4), pp. 1-10.

Fetters, M. D., Curry, L.A., and Creswell, J. W. (2013) 'Achieving integration in mixed methods designs- principles and practices', *Health Services Research*. 48(6), pp. 2134-2156.

Hadwin, A.F., Bakhtiar, A., and Miller, M. (2018) 'Challenges in online collaboration: Effects of scripting shared task perceptions'. *International Journal of Computer-Supported Collaborative Learning,* 13, pp. 301-329. doi: https://doi.org/10.1007/s11412-018-9279-9

Hadwin, A. F., Jarvela, S. and Miller, M. (2011) 'Self-regulated, co-regulated, and socially shared regulation of learning', in Zimmerman, B. J. and Shunck, D.H. (eds.) *Handbook of self-regulation of learning and performance*. New York: Routledge, pp. 65-84.

Hamm, S. E. (2011) 'Using word clouds for reflection and discussion in an online class', *Teaching Theology and Religion*, 14(2), p. 156.

Isolatala, J., Jarvenoja, H. and Jarvela, S. (2017) 'Socially shared regulation of learning and participation in social interaction in collaborative learning', *International Journal of Education Research.* 81, pp. 11-24.

Jarvela, S., and Hadwin, A. F. (2013) 'New frontiers: regulating learning in CSCL'. *Educational Psychology,* 48, pp. 25-39.

Jarvenoja, H. and Jarvela, S. (2009) 'Emotion control in collaborative learning situations: Do students regulate emotions evoked by social challenges?' *British Journal of Educational Psychology,* 79, pp. 463-481.

Jarvenoja, H., Volet, S. and Jarvela, S. (2013) 'Regulation of emotions in socially challenging learning situations: an instrument to measure the adaptive and social nature of the regulation process', *Educational Psychology,* 33(1), pp. 31–58. doi: https://dx.doi.org/10.1080/01443410.2012.742334



ISSN: 2044-3315

Joyner, F. (2012) 'Increasing student interaction and the development of critical thinking in asynchronous threaded discussions', 1(1), pp. 35-41.

Lanz, B. (2013) 'Equidistance of Likert type scales and validation of inferential methods using experiments and simulations', *The Electronic Journal of Business Research Methods.* 11(1), pp. 16-28.

McCaslin, M. and Burross, H.L. (2011) 'Research on individual differences within a socio-cultural perspective: Co-regulation and adaptive learning', *Teachers College Record,* 113(6), pp. 325-349.

Malmberg, J., Jarvela, S., Jarvenoja, H., and Panadero, E. (2015) 'Promoting socially shared regulation of learning in CSCL: Progress of SSRL among high- and low-performing groups', *Computers in Human Behavior,* 52, pp. 562-572.

Malmberg, J., Jarvela, S., and Jarvenjo, H. (2017) 'Capturing temporal and sequential patterns of self-, co-, and socially shared regulation in the context of collaborative learning', *Contemporary Educational Psychology,* 40*,* pp. 160-174.

Panadero, E. (2017) 'A review of self-regulated learning: Six models and four directions of research', *Frontiers in Psychology,* 8(422), pp. 1-11.

Panadero, E., and Jarvela, S. (2015) 'Socially shared regulation of learning: A review', *European Psychologist*. 2(3), pp. 190–203. doi: https://doi.org/10.1027/1066-9040/a000226

Panadero, E., Kirschner, P. A., Jarvela, S., Malmberg, J., and Jarvenoja, H. (2015) 'How individual self-regulation affects group regulation performance: A shared regulation intervention'., *Small Group Research,* 46(4), pp. 431-454. doi: https://doi.org/10.1177/1046496415591219

Pekrun, R. (2014) '*Emotions and learning'*, Educational Practices Series 24, *International Academy of Education/International Bureau of Education.* Available at: http://www.iaoed.org/downloads/edu-practices_24_eng.pdf (Accessed: 14 March 2023)



ISSN: 2044-3315

Pekrun, R., and Stephens, E., J. (2010) 'Achievement emotions: A control-value approach', *Social and Personality Psychology Compass,* 4(4), pp. 238-255.

Pintrich, P. R. (2000), 'The role of goal orientation in self-regulated learning', in Boekaerts, M., Pintrich, P.R., and Zeidner, M. (eds.) *Handbook of Self-Regulation,* San Diego: Academic Press, pp. 452-502.

Ruxton, G. D., and G. Beauchamp, G. (2008) 'Some suggestions about appropriate use of the Kruskal-Wallis test', *Animal Behaviour*, 76, pp. 1083-1087. doi: https://doi.org/10.1016/j.anbehav.2008.04.011

Saariaho, E., Anttila, H., Toom, A., Soini, T., Pietarinen, J., and Pyhalto, K. (2018) 'Student teachers' emotional landscapes in self- and co-regulated learning', *Teachers and Teaching,* 24(5), pp. 538-558. doi: https://doi.org/10.1080/13540602.2018.1430565

Shum, C., Gatling, A., Brook, L., and Bai, B. (2019) 'The moderating roles of follower conscientiousness and agreeableness on the relationships between peer transparency and follower transparency'. *Journal of Business Ethics,* 154, pp. 483-495. doi: https://doi.org/10.1007/s10551-017-3471-0

Van Kleef, G.A. (2009) 'How emotions regulate social life: The emotions as social information (EASI) model', *Current Directions in Psychological Science,* 18(3), pp. 184-188.

Vaurus, M., Iiskala, T., Kajamies, A., and Lehtinen, E. (2003) 'Shared regulation and motivation of collaborating peers: A case analysis', *Psychologia,* 46(1), pp. 19-37. doi: https://dx.doi.org/10.2117/psysoc.2003.19

Watzek, V., Anselmann, V. and Mulder, R.H. (2019) 'Team learning and emotions during teamwork: A qualitative study', *Research Papers in Education*, 34(6), pp. 769–789. doi: 10.1080/02671522.2019.1568525.



ISSN: 2044-3315

Williams, W., Lloyd Parkes, E., and Davies, P. (2013) 'Wordle: A method for analysing student induction', *The International Journal of Management Education*, 11(1), pp. 44-53.

Won, S., Wolters, C. A., and Mueller, S. A. (2018) 'Sense of belonging and self-regulated learning: Testing achievement goals as mediators' *The Journal of Experimental Education*, 86(3), pp. 402-418. doi: https://doi.org/10.1080/00220973.2016.1277337

Zimmerman, B. J. (1989) 'A social cognitive view of self-regulated academic learning', *Journal of Educational Psychology,* 81(3), pp. 329-339.



ISSN: 2044-3315