Supporting Intercultural Collaborations In Blended And Online Settings: A Randomised Control Trial Of Internationalised Academic Content

Thesis

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Supporting intercultural collaborations in blended and online settings: A randomised control trial of internationalised academic content

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Abstract

There is a rising trend of international students studying at universities worldwide, with a substantial percentage enrolling each term in blended and online modules. This means that assignments such as online group work create unique spaces for intercultural learning and collaboration in ways unprecedented a mere ten to twenty years ago. Online intercultural group work stands to benefit students’ lives by allowing them to encounter new ideas and values, as well as challenge cultural stereotypes and biases. However, positive intercultural group work experiences do not occur easily or naturally. Indeed, previous work has highlighted that students encounter challenges when working with peers from different countries, including a lack of social relationships, cultural differences in behaviours and participation variations. These challenges limit the potential benefits of online intercultural collaboration. One gap in the current literature which this research has addressed is a bridge between student reflections and measurable behaviours in online intercultural group work in order to understand how complex variables interact and impact experiences. A second important gap is related to which evidence-based interventions can support positive collaborations. These issues were addressed by this research using a dynamic mixed methods approach across four empirical studies.

In the first half of the thesis, a holistic picture was sought of the interweaving variables and sociocultural challenges impacting online intercultural group work. A quantitative laboratory study incorporating learning analytics and social network analysis highlighted that social network diversity and cultural traits strongly impacted participation. This was next evaluated through in-depth interviews using a unique mediating artefact method. These findings provided a nuanced understanding of the importance of social relationship building in intercultural group work, with low-performing students particularly in need of additional support.

The second half of the thesis evaluated one potential support system for encouraging positive online group work experiences: the internationalisation of academic content by incorporating international elements into assignment tasks. Previous research and theoretical work have suggested that internationalisation can improve participation and encourage engagement. However, there are relatively few studies that have empirically tested this suggestion, particularly against a baseline of ‘local’ content to measure the added value of internationalisation. This thesis tested this notion through a rigorous randomised control trial study comparing student behaviours using local versus internationalised academic content. The findings indicated that internationalising the group work content led to small improvements in online participation. A follow-up mixed methods questionnaire outlined that students valued their diverse group members’ contributions higher when working with internationalised content, but that internationalisation added additional
complexities to their experiences and group dynamics. The findings also suggested that internationalisation is not ‘one size fits all’ and that international topics must be personally relevant to students’ backgrounds and experiences to elicit benefits.

Altogether, this research has unpacked student experiences when engaging with peers from different countries and when working with diverse academic content in blended and online settings. In doing so, a holistic picture of the complexities of internationalisation is provided, along with suggestions for improving and encouraging online intercultural collaboration.
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In terms of technical support, many thanks are deserved by the Surrey University IT department, the OU IT department, the Udio developers and Garron Hillaire. Their help and guidance have been invaluable in designing and setting up the technological tools used in this research. The laboratory assistants at Maastricht University were similarly supportive in the practical execution of Study 3.

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Special thanks are also most certainly warranted for my partner, Ross, for his practical and moral support throughout my doctoral journey. I am, as always, incredibly appreciative for his constant encouragement and for consistently being my biggest fan. To Mom and Jarred, thank you for your continued support of me and my work, even across a (very big) ocean. For Tessa, I hope this accomplishment can help show you that girls like us can be and do anything we want in the world. And finally, to my dog, Teddy, thank you for spending the last decade as my best study partner.
Declaration of Authorship

Much of the research outlined in this thesis has been published or is in the process of publication. No publications are given in their entirety or in place of particular chapters or sections. However, portions of the publications are adapted within the narrative, particularly in the analysis chapters (Chapters 4 through 7).

The publications adapted (outlined below) were created under my own initiation, development and writing up. My PhD supervisors are credited co-authorship due to their input into my research conceptualisation and design. Similarly, the module lecturers (i.e. Dr Héliot and Dr Tempelaar) in the corresponding studies are listed as co-authors due to their on-the-ground facilitation in making the research possible. Garron Hillaire is credited co-authorship on papers related to Studies 3 and 4 due to his technical contributions to the online communication system used for data collection. Although comments on full drafts were provided by co-authors, the research, analysis and writing are my own.

References to Relevant Work


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Chapter 1 - Introduction

‘The essence of intercultural education is the acquisition of empathy - the ability to see the world as others see it, and to allow for the possibility that others may see something we have failed to see, or may see it more accurately.’
J. William Fulbright (The Price of Empire)

Over 4.5 million students were studying at a university located outside of their home country in 2016 (OECD, 2016), which is a substantial increase over the last two decades (Choudaha, 2017). Of these students, nearly one quarter will enrol in blended or online modules each term (UKCISA, 2016). These figures mean that, perhaps more so than any other time in history, blended and online modules have become truly unique spaces for intercultural interaction. One key example is the rising use of intercultural group work in higher education curricula (Zawacki-Richter & Naidu, 2016), which provides students with opportunities to collaborate with peers from around the world on educational assignments. J. William Fulbright (1989) suggested that the benefits of contact with such multivariate intercultural perspectives go beyond learning outcomes. Indeed, interaction with such new ideas and values stands to enrich and embellish the personal lives and worldviews of millions of students around the globe (Bliss & Lawrence, 2009; Chang, 2006; Denson & Zhang, 2010; Furnham, 2004; Kember, 2008; Lavy, 2017). Therefore, this PhD journey began with an assumption: that positive online intercultural group work experiences can open minds, and the opportunity to learn from peers from different countries can help make the world a better place.

At the same time, this research was grounded in reality. For many higher education students (myself included), attending university is the first opportunity to communicate with people from different countries. In this way, intercultural group work ‘forces’ students to interact with peers from cultures and backgrounds about which they may know very little (N. Harrison & Peacock, 2010). Within such intercultural environments, students, as all humans, bring preconceived notions and stereotypes of their diverse peers (Riek, Mania, & Gaertner, 2006). After all, comfort with diversity does not occur naturally, particularly for those new to interacting with people who are different from themselves (Dunne, 2009; N. Harrison & Peacock, 2010; Straus, U, & Young, 2011). As this research demonstrated, intercultural collaborations are engulfed with social, cultural and personal challenges and tensions. Interacting with people from different backgrounds can be uncomfortable, awkward and, at times, even anxiety-inducing (Stephan & Stephan, 2000).

A recent blog post by Vincenzo Raimo, Pro-Vice-Chancellor for Global Engagement at the University of Reading, stated that ‘by bringing students and scholars together from across the world we can share knowledge as well as developing a great understanding and mutual respect for our fellow citizens of this planet’ (Raimo, 2017). The findings outlined in this thesis support that, while there
is value in this perspective, it is not so easy or simple to accomplish. Rather, universities must pay attention to the sociocultural experiences that students have within these internationalised educational spaces. To illustrate this, the first half of this thesis highlighted the social and cultural challenges experienced by students when working with peers from different countries. In the second half, an empirical analysis and critical evaluation of internationalised academic content as a potential intervention for supporting online intercultural collaboration were undertaken. As a whole, the studies described in the chapters that follow unpacked and dissected the complex and multivariate experiences that students undergo when working within internationalised university environments, with a particular focus on blended and online settings.

In order to set the stage for the work undertaken, the introductory chapter outlines the overarching problems that were addressed by the research. In Section 1.1, background information related to the wider research context of intercultural group work in blended and online settings is provided. Next, Section 1.2 describes the research aims and contributions. Finally, Section 1.3 outlines the structure of the remaining chapters.

1.1 Background

This research aimed to understand student experiences throughout the process of intercultural group work in blended and online settings. Online intercultural group work, in this context, is defined as collaborative educational activities among students from different countries using online tools for communication. The focus on intercultural group work stemmed from the evidence that it can enhance the student learning experience (Bliss & Lawrence, 2009; Chang, 2006; Denson & Zhang, 2010; Kember, 2008; Lavy, 2017) and provide students with opportunities to encounter new ideas and values (P. Levin, 2005). Blended and online settings were chosen as a specific focus both due to their rapid diversification (UKCISA, 2016) and for suggestions that internationalisation has been found to increase student engagement and satisfaction in online settings (Bliss & Lawrence, 2009; Cress, Stahl, Ludvigsen, & Law, 2015; Cruickshank, Chen, & Warren, 2012; Hrastinski, 2006).

It is also clear from research that the benefits of intercultural collaboration go beyond learning outputs. For example, Allport’s Intergroup Contact Theory (1954) highlighted that communication between ‘in-group’ members (i.e. those from one’s own social or cultural group) and ‘out-group’ members (i.e. those from outside one’s own social or cultural group) can help reduce biases or prejudices. To this end, R. Brown and Hewstone (2005) found that positive experiences with just one person from a different culture can alter perceptions about an entire cultural or ethnic group. In this sense, as outlined in the introduction to this chapter, the experiences that university students have interacting with peers from different countries and cultures can have profound impacts on
their perspectives and attitudes towards diversity. Reid and Garson (2016, p. 1) argued for reasons such as this that there is a need for research on this topic to ‘include the process of working with others rather than merely the product of group work.’ On the subject of transitions, such as student transitions to new and diverse environments, Crafter and Maunder (2012, p. 17) similarly highlighted that attention must be paid to ‘the process of transition, not just the output.’ As universities prepare students to become productive citizens within an increasingly globalised world, these micro-interactions between students are important influences on their lives and worldviews.

Online learning provides new opportunities and avenues to elicit such valuable collaboration between peers from different countries (Leask, 2004; O’Dowd & Lewis, 2016). The research focused for this reason on analysing the active process that students from different countries undertake to work effectively with one another in blended and online settings. Further, it sought to understand what supports are needed to encourage positive intercultural group work experiences through assignments that ‘cannot be completed satisfactorily without meaningful intercultural interaction’ (Leask & Carroll, 2011, p. 655). This idea of active engagement with diversity ‘can be construed as a project – a moral project – with the goal being to learn to live with diversity in ways that promote equality, justice, and expanded levels of social solidarity’ (Kivisto, 2012, p. 4).

This work, therefore, went beyond understanding the learning outputs produced as a result of online collaborative group work (although it is recognised that learning outcomes are, of course, an essential part of the higher education experience). The aims of this thesis were, instead, to understand the processes of student interaction in online intercultural settings. Diversity, in this sense, can be viewed as a verb, rather than a noun, as the research considered the process and experience by which diverse students can learn to positively work together. In doing so, this PhD provided evidence for unpacking the behavioural differences that exist within social networks and between students from different cultural backgrounds when interacting in online learning environments. It has also outlined one potential evidence-based intervention to support cohesion, which is the incorporation of internationalised academic content. Altogether, the findings have contributed new insights into online group work behaviours and experiences through an innovative use of mixed methods, including learning analytics, social network analysis, qualitative interviews, questionnaires and a randomised control trial.

This research has brought into the contexts of online learning the view of multiculturalism described by Hartmann (2015, p. 3) as ‘the project or movement of dealing with and incorporating multifaceted social differences that we see in modern nations.’ Hartmann and Gerteis (2005, p. 222) further described this as ‘a response – or a set of responses – to diversity that seeks to articulate the social conditions under which difference can be incorporated.’ With this in mind, the work viewed higher education, particularly in blended and online settings, as a unique space within
society for intercultural interaction, and focused on the benefits and challenges associated with that process when all members are expected to have a voice.

1.1.1 Problem Definition
This research stemmed from a wish to examine a contradiction in current knowledge. On the one hand, previous research has outlined educational and personal benefits from the experience of working with diverse peers in online intercultural group work (Bliss & Lawrence, 2009; Cress et al., 2015; Cruickshank et al., 2012; Giesbers, Rienties, Tempelaar, & Gijseelaers, 2014; Hrastinski, 2006). On the other hand, research has similarly highlighted that students experience challenges and tensions when they are ‘forced’ to work with peers from different backgrounds (Dunne, 2011; N. Harrison & Peacock, 2010; Strauss et al., 2011; Volet & Ang, 2012). For instance, the Integrated Threat Theory (Stephan & Stephan, 1985, 2000) described difficulties experienced during interactions between cultural groups and suggested that individuals are likely to perceive anxiety and negative stereotyping. In intercultural group work settings, this has led to ‘passive xenophobia’ from domestic students towards international students (N. Harrison & Peacock, 2010; Peacock & Harrison, 2009). Other work has supported this notion, as students have frequently reported a preference for working with peers from their own background or culture (Fozdar & Volet, 2012; P. Moore & Hampton, 2015; Rienties, Héliot, & Jindal-Snape, 2013; Rienties & Nolan, 2014; Singaram, van der Vleuten, Stevens, & Dolmans, 2011).

There are several explanations for why students might experience challenges when working with peers from different countries. For example, Rienties, Héliot, et al. (2013) highlighted a lack of social relationship building (i.e. forming connections or friendships and getting to know peers) between assigned small group members. At the same time, cultural differences in learning behaviours and expectations may also impact upon the ways in which students approach group work activities (Al-Harthi, 2005; Arenas-Gaitan, Ramirez-Correa, & Rondan-Cataluna, 2011; Cronje, 2011; Rienties & Tempelaar, 2013; Tempelaar, Rienties, Giesbers, & van der Loeff, 2013). In this way, cultural traits (i.e. characteristics that distinguish one group of people from another group) may impact experiences and behaviours (Hofstede, 1986). Further, research has documented that students’ top complaint of intercultural group work is the perception of unequal contributions to the assignment (Popov et al., 2012). These issues (explored in depth in Chapter 2) add more complexities to understanding group work processes and create challenges for supporting students when working with diverse peers.

One important gap in research on intercultural group work is that findings tend to focus solely on student reflections and perceptions of these issues, using methods such as questionnaires or
interviews. It has been argued that this has led a reliance on anecdotal evidence about such complex issues, as noted by Kimmel and Volet (2012), whereby more attention is needed on understanding measurable behavioural differences between students. In this sense, it has been suggested that a mixed methods approach can provide a more well-rounded understanding of intercultural group work processes (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004). Indeed, there are relatively few studies that have considered actual, measurable student behaviours when students work with peers from different countries in online settings, such as levels of participation (for notable exemptions, see: S. Knight et al., 2017; Rienties, Beausaert, Grohnert, Niemantsverdriet, & Kommers, 2012; Rienties, Tempelaar, Van den Bossche, Gijselaers, & Segers, 2009). Therefore, substantial questions remain around whether reflections about intercultural group work match the actual lived experiences and behaviours of students during these activities.

To this regard, methods such as learning analytics, which is characterised by the analysis of student-generated data (Long & Siemens, 2011), can provide unique insights. The first part of this thesis, then, sought to unpack the sociocultural challenges experienced by students in online intercultural group work using mixed methods tools, including learning analytics, to triangulate student behaviours and reflections.

One additional gap is the lack of understanding about how to best support students during intercultural group work experiences. Indeed, much research has focused on defining and outlining the challenges without providing tangible suggestions for changes to practice. Therefore, it was important for this work to move beyond simply establishing issues faced by students in online intercultural group work and, instead, move towards identifying an evidence-based support that could encourage positive experiences. One such intervention explored in the second part of this thesis is the incorporation of internationalised academic content, which is described next.

**1.1.2 One Potential Solution: Internationalised Academic Content**

One suggested intervention for supporting students in online intercultural group work is the incorporation of internationalised academic content. Curriculum internationalisation is characterised by the holistic encompassing of international dimensions into the higher education experience (Leask, 2009), both within the module and through wider university support services and informal university-related activities. This research focused specifically on aspects related to internationalisation of academic content and materials, which is defined according to previous work (Bodycott, Mak, & Ramburuth, 2014; Leask, 2009; Leask & Carroll, 2011) as the incorporation of international themes or perspectives into the learning materials and scope of academic assignments. For example, a statistics module might ask students to analyse data and case studies
from international contexts in addition to their standard work using content from within the country where the university is located.

Internationalised academic content was chosen as a potential support because related research has suggested that internationalising the academic content used for collaborative activities can encourage participation and engagement (Arkoudis et al., 2013; de Haan & Sherry, 2012). For example, Tran and Pham (2016) found across 25 Australian vocational schools that engagement with internationalised content and diverse peers was key to the co-creation of ‘mutual learning’ and development of intercultural competencies. Middleton (2014) similarly found in an introductory statistics module that students were more engaged when collaborating with peers from different countries after internationalised academic content was embedded within the module design.

Despite these potential benefits, few empirical studies have tested the perceived positive results from incorporating internationalised content, particularly against a baseline condition of ‘local’ content with materials from within the host country context. Therefore, it is difficult to measure the true added value of internationalisation beyond anecdotal assumptions. There is also a reliance on anecdotal evidence and researcher intuitions obtained solely through ‘subjective’ methods such as interviews, case studies and observations, potentially limiting the transferability of findings to other institutional contexts. At the same time, relatively few studies have considered the effects within blended and online contexts (De Wit, 2016; Yemini & Sagie, 2016), despite suggestions that online group work provides a unique platform for supporting intercultural learning (Leask, 2004; O'Dowd & Lewis, 2016). Therefore, the second half of this thesis focused on comparing student behaviours and experiences in group work when using internationalised versus local content through a randomised control trial design. This allowed for a critical and empirical evaluation of the rising rhetoric of internationalisation in higher education (Altbach & Knight, 2007; Hudzik, 2011; J. Knight, 2013; Yemini & Sagie, 2016) through an examination on the individual assignment level of how internationalisation impacts student experiences.

1.2 Research Aims and Contributions

This research sought to both unpack current understanding about complex problems during online intercultural group work and evaluate a potential solution for supporting successful interactions. It is evident from the literature that intercultural group work is challenging and that students encounter tensions when working with diverse peers in online settings. Therefore, as universities and online modules become increasingly diverse, it is essential moving forward that more attention is paid to the processes students undergo during collaboration (Reid & Garson, 2016). At the same
time, the literature has suggested that internationalised academic content can support students by encouraging collaboration and engagement. However, there is a need for more empirical evidence to support this claim. Set against this context and drawing from these gaps in the current research, the findings of this research have made two substantial contributions to the field: first, a more nuanced understanding of the sociocultural experiences of diverse students during the online intercultural group work process, and second, evidence for internationalised academic content as a support for positive online collaborations.

In order to accomplish these goals, the remainder of this thesis outlines four empirical studies that were undertaken to address the following research questions:

**RQ1:** How do students’ social relationship networks influence measurable participation in intercultural group work? (Chapter 4)

**RQ2:** How do students’ cultural traits influence measurable participation in intercultural group work? (Chapter 4)

**RQ3:** What sociocultural tensions do students experience when working with diverse peers in intercultural group work? (Chapter 5)

**RQ4:** What role do students feel internationalised academic content can play in supporting intercultural group work experiences? (Chapter 5)

**RQ5:** How does local versus internationalised academic content impact upon measurable participation in intercultural group work? (Chapter 6)

**RQ6:** How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work? (Chapter 6)

**RQ7:** How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content? (Chapter 7)

Intercultural group work experiences are complex (Kimmel & Volet, 2012) and are influenced by a variety of interlinking variables and processes. The underlying variables outlined in previous work (and in Chapter 2) include cultural traits (Hofstede, Hofstede, & Minkov, 2010; Mittelmeier, Tempelaar, Rienties, & Nguyen, 2016; Tempelaar & Verhoeven, 2016), gender (Al-Harthi, 2005; Muilenburg & Berge, 2005; C. T. Williams & Johnson, 2011), and academic performance (Gašević, Zouaq, & Janzen, 2013; Hommes et al., 2012; Rienties, Johan, & Jindal-Snape, 2015; Singaram et al., 2011). Furthermore, it is expected that the ‘space and place’ of academic content (i.e. local or
internationalised) will influence online group work experiences (Arkoudis et al., 2013; de Haan & Sherry, 2012; Leask, 2009; Middleton, 2014; Trahar & Hyland, 2011), as will subsequent social relationships (Davies, 2009; Decuyper, Dochy, & Van den Bossche, 2010; Hommes et al., 2014; Kimmel & Volet, 2012; Van den Bossche, Gijselaers, Segers, & Kirschner, 2006), cultural differences in behaviours or expectations (Fozdar & Volet, 2012; J. Hou & McDowell, 2013; Turner, 2009) and participation variations (Caspi, Gorsky, & Chajut, 2003; Hämäläinen & Arvaja, 2009; Strijbos & de Laat, 2010; Wise, Perera, Hsiao, Speer, & Marbouti, 2012). As highlighted in Figure 1.1., the research outlined in this thesis has used an integrated range of methods and approaches to test this proposed model, including: social network analysis, learning analytics, qualitative interviews, randomised control trials and questionnaires. In summary, Figure 1.1 provides a visualisation of the key variables and methods incorporated into this thesis, which will be described in more detail in Chapters 2 and 3.

*Figure 1.1 Key variables and methods used in this thesis*
The chapters that follow will provide a justification for the focus on these overlying and underlying elements related to online intercultural group work experiences, as well as present novel contributions to current knowledge through the findings of four rigorous studies. In the next section, an explanation of the structure of the document moving forward is provided.

1.3 Thesis Structure
This introductory chapter outlined the context within which the research was focused. The overall structure of the remaining chapters within this thesis are as follows:

Chapter 2: Literature Review
Chapter 2 includes an in-depth review of current research on the topics of intercultural group work experiences and internationalised academic content. In doing so, the complex and multivariate experiences of students during the group work process are outlined. The chapter also provides a critical review of gaps in current knowledge and understanding, providing a rationale for the research questions addressed by this research.

Chapter 3: Methodology
Chapter 3 focuses on the overarching methodologies and assumptions adopted, including a justification for the pragmatic and mixed methods approach. It also describes the strengths and weaknesses of the general methodological tools used to answer the research questions. The specific methods of the four research studies are outlined in their corresponding chapters (Chapters 4 through 7).

Chapters 4: Study 1 Methods and Results
In Chapter 4, RQ1 and RQ2 unpacked sociocultural influences on online intercultural group work experiences through an analysis of measurable student behaviours during a group work activity. In this chapter, an outline of the specific methods used to address these research questions is provided, including information about the study setting, participants and procedures. This chapter also describes results from the analysis of Study 1 data, which highlighted differences in student behaviours based on social network diversity and cultural background. A brief discussion of the research findings is addressed, as well as the limitations of the study and implications for future work in the thesis.
Chapter 5: Study 2 Methods and Results

Study 2 triangulated and confirmed the Study 1 findings through in-depth qualitative interviews (RQ3 and RQ4). Chapter 5, therefore, outlines the specific research methods used to address these research questions, as well as information about study participants, the research setting and procedures. The chapter also describes the results of the qualitative analysis, which highlighted strong differences in reflections of sociocultural tensions between students of different academic performance levels. This study also provided a rationale for exploring the role of internationalised academic content to support students during online intercultural group work. At the end of the chapter, a short discussion is provided, including the study’s limitations and implications for the remaining studies.

Chapter 6: Study 3 Methods and Results

Chapter 6 describes Study 3, which incorporated a rigorous randomised control trial study to explore differences in students’ measurable behaviours during online intercultural group work when using local versus internationalised academic content (RQ5 and RQ6). The chapter also describes the methods used to answer these research questions, including the setting, participants and procedures. Results from Study 6 are provided, which indicated small improvements in student participation when using internationalised academic content from their own backgrounds. These findings are discussed in the chapter, along with the study’s limitations and implications for further work.

Chapter 7: Study 4 Methods and Results

The final research study, Study 4, built upon the research described in Chapter 6 through a mixed methods questionnaire regarding student reflections of their experiences during the Study 3 group work activity (RQ7). In doing so, Chapter 7 outlines the specific methods used to answer the final research question by providing information about the setting, participants and procedures. The analysis of Study 4 is also described, which indicated differences in student experiences and group work processes when using local versus internationalised content. The wider implications and limitations of these findings are provided in a brief discussion.

Chapter 8: General Conclusions and Discussion

The final chapter synthesises the findings of the four studies by providing final conclusions and outlining the novel contributions this research has made to existing knowledge. In addition, implications and suggestions for practices are provided. Overarching limitations of this work and directions for future research are also described.
1.4 Conclusions

This chapter has provided an overview of the research context and the origins of the work described in the remaining chapters. Altogether, the work outlined in this thesis sought a well-rounded understanding of student experiences during online intercultural group work processes, and a critical evaluation of the potential for internationalised academic content to support students as their work with diverse peers. In doing so, the work sought to address crucial gaps in previous work on the subject of intercultural group work and internationalised academic content. In Chapter 2, an elaboration of recent research on these topics is provided, including a critical evaluation of the gaps in current knowledge which have contributed to the research questions.
Chapter 2 - Literature Review

2.1 Introduction

This chapter outlines prominent findings in the recent literature related to intercultural group work in blended and online settings and the role of internationalised academic content in supporting group work processes. Throughout the chapter, essential gaps in current knowledge which have driven the research questions of this thesis are described. The sections below provide an overview of ongoing contributions to the problems this work has addressed.

In Section 2.2, the benefits of intercultural work are defined, which provides a rationale for the focus of this research. The challenges associated with intercultural group work are problematised next in Section 2.3, including an overview of essential gaps that have been addressed by this research. Section 2.4 then outlines recent literature on the subject of internationalised academic content, providing a rationale for its potential as an intervention to support students in online intercultural group work, as well as gaps in current understanding. Concluding comments and the full list of research question addressed is finally assembled in Section 2.5.

2.2 Benefits of Intercultural Group Work

In the last 50 years, there has been an increase in the number of collaborative group work activities incorporated into higher education curriculums (Bertucci, Conte, Johnson, & Johnson, 2010; Slavin, Leavey, & Madden, 1982). This trend coincides with the increased international student enrolment (Choudaha, 2017). In some countries, international students now comprise a substantial percentage of the student population, such as in the UK, where more than 18% of higher education students are non-British (UKCISA, 2016), and the Netherlands, where over 10% of higher education students are non-Dutch (NUFFIC, 2017). At the same time, there is a rising trend of international student enrolment in blended and online modules (Zawacki-Richter & Naidu, 2016). In the UK, for instance, nearly one-fourth of international students enrol in some form of blended or online module each term (UKCISA, 2016). These figures mean that online learning environments have now become unique spaces for intercultural communication, as students are increasingly ‘forced’ to work with peers from different backgrounds (Peacock & Harrison, 2009; Rienties, Héliot, et al., 2013). This is beneficial to students, as one of the foremost skills sought by employers of university graduates is an ability to work effectively and efficiently in intercultural settings (Aggarwal & Gooddell, 2014; Barker & Mak, 2013; Brookes & Becket, 2010; Brooks, Waters, & Pimlott-Wilson, 2012; Diamond, Walkley, Forbes, Hughes, & Sheen, 2011; Tymon & Mackay, 2016). In this sense, participating in intercultural group work can help build key employability skills, such as intercultural competencies and leadership (Daly, Hoy, Hughes, Islam, & Mak, 2015; Denson & Zhang, 2010;
Group work assignments are often based on the social constructivist assumption that interpersonal interactions among students benefit educational experiences (J. Dawson, 2010). This assumption is not without warrant, as group work has previously been shown to enhance learning (Bliss & Lawrence, 2009; Chang, 2006; Denson & Zhang, 2010; Kember, 2008; Lavy, 2017; Sweeney et al., 2008), increase creativity (Leung & Chiu, 2010; Stahl, Maznevski, Voigt, & Jonsen, 2010) and provide opportunities to encounter new ideas and values (P. Levin, 2005). Collaborative activities have also been found to help overcome intercultural differences and complexities (Elliott & Reynolds, 2014). Intercultural group work can additionally support students’ academic and social adjustments to university life (Wang, 2012) and build students’ sense of belonging (Meeuwisse, Severiens, & Born, 2010). In this regard, previous research has suggested that working in small groups with diverse peers over a sustained period can diversify social networks within large modules (Rienties, Alcott, & Jindal-Snape, 2014; Rienties, Hernandez Nanclares, Jindal-Snape, & Alcott, 2013). Stahl et al. (2010) also found in a meta-analysis of 108 studies that collaborative group tasks with diverse group members increased social relationship building between team members. Recent research has additionally noted that students often view working with diverse peers as a positive opportunity to build intercultural skills (Montgomery, 2009) and rethink their preconceived notions about different cultures (Volet & Ang, 2012). These benefits have impacts beyond educational experiences, as intercultural interaction among diverse peers has been found to positively transform student identities by building intercultural competencies (Jindal-Snape & Rienties, 2016; Jones, 2010; Savicki, 2008).

A wide range of literature has outlined similar benefits of collaboration in blended and online settings, which is where the studies adopted in this thesis are situated (see, for example: Cress et al., 2015; S. Dawson, 2006; Resta & Laferrière, 2007; Schellens & Valcke, 2005; Stewart & Edwards, 2012), although only a small number of studies have specifically addressed intercultural elements of collaboration (S. Knight et al., 2017; Rienties et al., 2012; Rienties et al., 2009). For instance, Bernard et al. (2009) highlighted student-to-student interaction as one of three interaction types that can increase student engagement in online learning. Research has also found that online collaboration tools can enhance students’ sense of community (S. Dawson, 2006), increase knowledge flow between students (Bliss & Lawrence, 2009) and encourage overall participation in the module (Bliss & Lawrence, 2009; Hrastinski, 2006). Intercultural interaction in online modules has furthermore been found to encourage interactions between students and increase student satisfaction (Cruickshank et al., 2012). Online collaboration additionally leaves behind data traces which can be used to positively influence effective teacher supports (van Leeuwen, Janssen, Erkens,
Brekelmans, 2014) through the use of methods such as learning analytics, which is explored further in Section 3.3.2. Yet, relatively few studies in the online learning context have evaluated the influence of sociocultural factors on the data collected through online learning systems.

The benefits outlined link closely with Allport (1954)’s Intergroup Contact Theory, which highlighted that communication between ‘in-group’ members (i.e. those from one’s own social or cultural group) and ‘out-group’ members (i.e. those from outside one’s own social or cultural group) can help reduce biases or prejudices. This hypothesis has been rigorously empirically tested and confirmed, as evident in a recent meta-analysis of 515 studies (Pettigrew, Tropp, Wagner, & Christ, 2011) (see also other work, for example: Aberson, Shoemaker, & Tomolillo, 2004; Antonio, 2001; Eller & Abrams, 2003). For instance, Pettigrew (1997) found that more out-group friendships related to lower intergroup prejudice, even when controlling for factors such as political views or age. These benefits extend beyond the individual with whom one has been in contact, as it has been shown to also alter perceptions of the entire out-group (R. Brown & Hewstone, 2005). In higher education contexts, previous research has demonstrated that contact with peers from other countries is a positive part of the university experience (Bowman & Park, 2015; S. Levin, van Laar, & Sidanius, 2003; Loes, Pascarella, & Umbach, 2012; Pascarella & Terenzini, 2005). Benefits of intercultural experiences during university include higher thought complexity, self-esteem and cultural openness (Pascarella & Terenzini, 2005).

Allport (1954) outlined that successful intergroup contact occurs when four conditions are met:

1. Participants must have the perception of equal status and engage equally in communication.
2. Participants must be working towards a common goal.
3. Participants must be in cooperation with one another.
4. Participants must be supported by authority figures.

When considering the university context, group work has the potential to satisfy all four of these conditions (Colvin & Volet, 2014). Online collaboration, in particular, provides a variety of different tools for enhancing and encouraging interaction between students in ways unprecedented 10 to 20 years ago. However, it has been noted that participants must perceive interactions as ‘positive’ to elicit the outcomes described (R. Brown & Hewstone, 2005). Other research has outlined that intergroup contact should be ‘enjoyable’ (Schaafsma, Nezlek, Krejtz, & Safron, 2010) or ‘pleasant’ (Jasinskaja-Lahti, Mähönen, & Liebkind, 2011) and must meet the pre-conceived expectations of the participant (Gudykunst, 1992). Similarly, participants must feel that their experiences and
values are respected (Nezlek & Schaaafsm, 2010). Byram (2008) argued that successful interactions require both groups to be active in the communication. Yet, such positive experiences are not inherent to intercultural interactions. Indeed, literature has outlined a broad range of challenges for intergroup contact during the university experience (Schweisfurth & Gu, 2009).

In intercultural group work contexts, challenges include the building of social relationships, understanding cultural differences in behaviours and variations in participation. These issues are further examined in online intercultural group work contexts next in Section 2.3.

2.3 Intercultural Group Work Challenges

As outlined in Section 2.2, research has highlighted important benefits of incorporating intercultural group work into higher education modules. However, related research in face-to-face, blended and online settings has demonstrated that students often encounter difficulties and challenges when working with peers from different countries. Table 2.1 provides a summary of recent research that has addressed group work challenges specifically in intercultural settings.
<table>
<thead>
<tr>
<th>Paper</th>
<th>Methods Used</th>
<th>Sample size</th>
<th>Communication medium</th>
<th>Group work challenges outlined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colvin and Volet (2014)</td>
<td>• Interviews</td>
<td>19 students</td>
<td>Face-to-Face</td>
<td>• Lack of interest in intercultural interaction</td>
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<td></td>
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<td>• Lack of agency for some student groups</td>
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<tr>
<td>Colvin, Fozdar, and Volet (2015)</td>
<td>• Interviews</td>
<td>10 students</td>
<td>Face-to-Face</td>
<td>• Dominant position of local students</td>
</tr>
<tr>
<td>Cotton, George, and Joyner (2013)</td>
<td>• Interviews, Observations</td>
<td>15 students</td>
<td>Face-to-Face</td>
<td>• Dominant position of local students</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Gender issues</td>
</tr>
<tr>
<td>Cruickshank et al. (2012)</td>
<td>• Student needs analysis, Group work interventions, Focus groups</td>
<td>42 students</td>
<td>Face-to-Face</td>
<td>• Power disparities between domestic and international students</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Lack of scaffolding</td>
</tr>
<tr>
<td>Curșeu and Pluut (2013)</td>
<td>• Questionnaire</td>
<td>847 students</td>
<td>Blended</td>
<td>• Gender</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>• Cultural diversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Teamwork experience</td>
</tr>
<tr>
<td>Dunne (2009)</td>
<td>• Interviews</td>
<td>24 students</td>
<td>Face-to-Face</td>
<td>• Cultural differences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Motivation and effort</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Anxiety</td>
</tr>
<tr>
<td>Fozdar and Volet (2012)</td>
<td>• Interviews</td>
<td>47 questionnaires 9 interviews</td>
<td>Face-to-Face</td>
<td>• Cultural differences</td>
</tr>
<tr>
<td>Giesbers et al. (2014)</td>
<td>• Content analysis, Questionnaire</td>
<td>110 students</td>
<td>Online</td>
<td>• Participation differences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Online communication tool</td>
</tr>
<tr>
<td>Study</td>
<td>Methodologies</td>
<td>Participants</td>
<td>Context</td>
<td>Main Findings</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------------------------</td>
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<td>---------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>N. Harrison and Peacock (2010)</td>
<td>Interviews, Focus groups</td>
<td>40 interviews, 60 focus groups</td>
<td>Face-to-Face</td>
<td>Cultural differences, Xenophobia, Perception that marks would be harmed, Preference for working with peers from own background, Anxiety</td>
</tr>
<tr>
<td>Hernandez Nanclares (2016)</td>
<td>Social network analysis</td>
<td>126 students</td>
<td>Blended</td>
<td>Social relationships, Learning design</td>
</tr>
<tr>
<td>Hernandez Nanclares (2016)</td>
<td>Social network analysis, Questionnaire</td>
<td>57 students</td>
<td>Face-to-face</td>
<td>Social relationships, Motivation</td>
</tr>
<tr>
<td>J. Hou and McDowell (2013)</td>
<td>Ethnography</td>
<td>50 students</td>
<td>Face-to-Face</td>
<td>Cultural differences, Lack of resources, Language</td>
</tr>
<tr>
<td>Kimmel and Volet (2012)</td>
<td>Questionnaire, Interviews</td>
<td>169 questionnaires, 27 interviews</td>
<td>Face-to-Face</td>
<td>Preference for working with peers from own background, Lack of social relationships</td>
</tr>
<tr>
<td>Liu, Liu, Lee, and Magjuka (2010)</td>
<td>Analysis of forum posts</td>
<td>17 students, 5 module facilitators, 2 moderators</td>
<td>Online</td>
<td>Cultural distance, Communication issues</td>
</tr>
<tr>
<td>P. Moore and Hampton (2015)</td>
<td>Questionnaire, Student focus groups, Staff interviews</td>
<td>312 questionnaires, 26 students in focus groups, 7 staff interviews</td>
<td>Face-to-Face</td>
<td>Differences in academic performance, Xenophobia, Perceptions that marks would be harmed, Language</td>
</tr>
<tr>
<td>Peacock and Harrison (2009)</td>
<td>Focus groups</td>
<td>60 students</td>
<td>Face-to-Face</td>
<td>Preference for working with peers from own background, Xenophobia, Perceptions that marks would be harmed</td>
</tr>
<tr>
<td>Study</td>
<td>Methodologies</td>
<td>Participants</td>
<td>Interface</td>
<td>Issues</td>
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<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------</td>
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<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Popov et al. (2012)           | • Questionnaire                                                             | 141 students | Face-to-Face | • Unequal participation  
|                               |                                                                             |              |           | • Cultural differences  
|                               |                                                                             |              |           | • Language  
|                               |                                                                             |              |           | • Communication issues  |
| Rienties et al. (2014)        | • Social network analysis surveys  
|                               | • Randomised control trial                                                  | 138 students | Face-to-Face | • Lack of social relationships  
|                               |                                                                             |              |           | • Allocation of group members  |
| Rienties, Héliot, et al. (2013)| • Social network analysis surveys  
|                               | • Focus groups                                                              | 207 surveys  
|                               |                                                                             | 2 focus groups | Face-to-Face | • Lack of social relationships  |
| Rienties, Hernandez Nanclares, et al. (2013) | • Social network analysis surveys  
|                               | • Randomised control trial                                                  | 377 students | Face-to-Face | • Academic discipline  
|                               |                                                                             |              |           | • Social relationships  
|                               |                                                                             |              |           | • Allocation of group members  |
| Rienties and Héliot (2016)    | • Social network analysis surveys  
|                               | • Randomised control trial                                                  | 119 students | Face-to-Face | • Social relationships  
|                               |                                                                             |              |           | • Allocation of group members  |
| Rienties et al. (2015)        | • Social network analysis surveys  
|                               | • Qualitative case studies                                                  | 81 social network analysis surveys  
|                               |                                                                             | 5 qualitative case studies | Face-to-Face | • Social relationships  
|                               |                                                                             |              |           | • Academic performance  
|                               |                                                                             |              |           | • Previous intercultural experiences  |
| Rienties and Nolan (2014)     | • Social network analysis surveys  
|                               |                                                                             | 592 students | Face-to-Face | • Social relationships  
|                               |                                                                             |              |           | • Cultural differences  
|                               |                                                                             |              |           | • Group allocation  |
| Robinson (2006)               | • Interviews                                                                 | 30 students  | Face-to-Face | • Dominant position of local students  
|                               |                                                                             |              |           | • Power disparities between domestic and international students  
|                               |                                                                             |              |           | • Exclusion of international students  |
| Singaram et al. (2011)        | • Focus groups                                                              | 20 students  | Face-to-Face | • Lack of social relationships  
|                               |                                                                             |              |           | • Academic performance differences  
<p>|                               |                                                                             |              |           | • Language  |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Learning Environment</th>
<th>Issues/Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spencer-Oatey and Dauber (2017)</td>
<td>Questionnaire</td>
<td>2000 students</td>
<td>Face-to-Face</td>
<td>Unequal participation, Preference for working with peers from own background, Language</td>
</tr>
<tr>
<td>Stahl et al. (2010)</td>
<td>Meta-analysis</td>
<td>108 studies</td>
<td>Face-to-face</td>
<td>Lack of social relationships, Task conflicts</td>
</tr>
<tr>
<td>Stepanyan, Mather, and Dalrymple (2014)</td>
<td>Social network analysis, Learning analytics</td>
<td>51 students</td>
<td>Online</td>
<td>Lack of social relationships, Cultural differences</td>
</tr>
<tr>
<td>Strauss et al. (2011)</td>
<td>Questionnaire</td>
<td>165 students</td>
<td>Face-to-Face</td>
<td>Uncertainty in intercultural environments, Anxiety about working with diverse peers</td>
</tr>
<tr>
<td>Strauss, U-Mackey, and Crothers (2014)</td>
<td>Questionnaire</td>
<td>165 students</td>
<td>Face-to-Face</td>
<td>Perceptions that marks would be harmed</td>
</tr>
<tr>
<td>Summers and Volet (2008)</td>
<td>Questionnaire</td>
<td>233 students</td>
<td>Face-to-Face</td>
<td>Lack of social relationships, Previous multicultural experiences, Attitudes towards group work</td>
</tr>
<tr>
<td>Summers and Volet (2010)</td>
<td>Video analysis, Interviews</td>
<td>53 students</td>
<td>Face-to-Face</td>
<td>Cultural differences, Motivation differences</td>
</tr>
<tr>
<td>Turner (2009)</td>
<td>Learning journals</td>
<td>65 students</td>
<td>Face-to-Face</td>
<td>Unequal participation, Cultural differences, Language, Communication issues</td>
</tr>
<tr>
<td>Volet and Ang (2012)</td>
<td>Focus groups</td>
<td>40 students</td>
<td>Face-to-Face</td>
<td>Preference for working with peers from own background, Xenophobia, Language</td>
</tr>
<tr>
<td>Yoo and Huang (2011)</td>
<td>Questionnaire</td>
<td>183 students</td>
<td>Blended</td>
<td>Cultural differences</td>
</tr>
</tbody>
</table>
One clear gap, as evident from Table 2.1, is the relative lack of studies that have engaged with sociocultural elements of intercultural group work in blended or online settings. This is concerning, considering nearly one-fourth of international students will enrol in a blended and online module each term (UKCISA, 2016). Although a wide variety of research in the computer-supported collaborative learning field has analysed student behaviours in online group work environments (see, for example: Angeli & Schwartz, 2016; Bernard et al., 2009; Diep, Cocquyt, Zhu, & Vanwing, 2016; Ellis, Pardo, & Han, 2016; D. Hall & Buzwell, 2013; Hämäläinen & Arvaja, 2009; Hrastinski, 2006; Järvelä, Volet, & Järvenoja, 2010; Maiden & Perry, 2011; Oliveira, Tinoca, & Pereira, 2011; Wise et al., 2012; Xing, Wadholm, & Goggins, 2014), they have primarily ignored the broad range of diversity present in blended and online modules (UKCISA, 2016; Zawacki-Richter & Naidu, 2016). These issues are explored further in Sections 2.3.1 – 2.3.4.

From this table, it is also apparent that the benefits of intercultural collaboration (outlined in Section 2.2) do not occur automatically by simply assigning students to work with peers from other countries. This links with work by Decuyper et al. (2010), who highlighted that group work requires a ‘dialogical space’ (i.e. cooperation through constructive conflict) by establishing trust between group members. Van den Bossche et al. (2006, p. 514) have similarly argued that group work is more than merely ‘putting people together,’ and that more attention is needed on the social conditions that underpin collaboration. Otherwise, the opportunity to work with peers from different countries does not always impact behaviours or attitudes towards diversity (Strauss et al., 2011; Summers & Volet, 2008).

The challenges outlined in Table 2.1 also potentially compromise the benefits described by Allport (1954) in the Intergroup Contact Theory. After all, previous work has outlined that Intergroup Contact Theory relies on participant perceptions that the contact was ‘positive’ (R. Brown & Hewstone, 2005; Jasinskaja-Lahti et al., 2011; Schaafsma et al., 2010). However, it is evident that this is often not the case for students during intercultural group work assignments. One important negative experience is perceived xenophobia, particularly from domestic students towards international students. P. Moore and Hampton (2015), for instance, discovered that students often used ‘othering’ language (i.e. ‘us’ versus ‘them’ mentalities) to describe their experiences working with peers from different countries. This often leads to instances of ‘passive xenophobia,’ whereby domestic students make assumptions that international students are self-isolating or culturally distant (N. Harrison & Peacock, 2010; Peacock & Harrison, 2009). Volet and Ang (2012) additionally found that reflections of intercultural group work often contained negative stereotypes or ethnocentric viewpoints from both domestic and international students.
Research has demonstrated perceived power disparities between students in intercultural group work. For instance, Colvin et al. (2015) argued that intercultural group work activities privileged the knowledge of domestic students, such as how to work in small groups within the local culture, leading to a lack of agency for international students. Cotton et al. (2013) similarly highlighted that domestic students more often dominated discussions at the expense of international student participants. In this regard, Cruickshank et al. (2012) found that positive interactions in intercultural group work required ‘power equality’ between students, which is in line with Allport (1954)’s suggestion that intergroup contact requires a perception of equal status between participants.

Further affecting intercultural group work experiences is the perception by some students that working with peers from different countries negatively impacts their marks. N. Harrison and Peacock (2010), for example, noted that domestic students often believed international students produced academic work that was inferior in quality, which would hurt their marks during group work. P. Moore and Hampton (2015) similarly found that high-performing students (both domestic and international) believed that their marks during intercultural group work were lower than their typical marks in the module. In the same regard, Strauss et al. (2014) outlined that native English speakers perceived that non-native speakers would bring down the group’s marks. Peacock and Harrison (2009) also highlighted in a UK context that domestic students perceived that international students would bring down the group marks due to a lack of knowledge about British academic standards and locally-based content.

These challenges are in line with work concerning the Integrated Threat Theory (Stephan & Stephan, 1985, 1996, 2000), which provides a framework for analysing challenges in social relationships between groups of people. In particular, the framework focuses on experiences of interactions between cultural minority and majority group members, such as international and domestic students (Spencer-Rodgers & McGovern, 2002). Within the theory, Stephan and Stephan (2000) outlined four potential ‘threats’ experienced as a result of contact with members of different cultural groups:

1. **Realistic threats** – those that endanger a participant’s safety and well-being or lead to a decline in their quality of life
2. **Symbolic threats** – those that threaten a group’s culture or standing as members of a society
3. **Intergroup anxiety** – participant experiences of fears about communicating positively and effectively
4. **Negative stereotyping** – participant experiences when they encounter preconceived notions about their identity that may damage their standing in society

These categories were confirmed through a meta-analysis of 95 studies by Riek et al. (2006). In an intercultural group work environment, N. Harrison and Peacock (2010, p. 897) found evidence for all four threats when students worked with peers from different backgrounds. They concluded that ‘more work is needed to provide a managed context in which intercultural encounters are positive, meaningful and non-threatening.’ Strauss et al. (2011) similarly noted that students encounter uncertainties during intercultural group work experiences, thereby leading to anxiety when working with peers from different countries. Dunne (2009) also found that students felt anxious about offending peers from different countries with inappropriate comments or questions.

Altogether, it is evident that intercultural group work presents challenges for students, which diminishes the potential benefits of collaborating with diverse peers (outlined in Section 2.2). However, much of the work described has centred around experiences of students in face-to-face modules, despite the fact that a rising number of international students participate in blended and online modules (UKCISA, 2016; Zawacki-Richter & Naidu, 2016). Therefore, one gap in current understanding is if and how students have similar experiences when their group work activities are conducted using online communication tools. At the same time, it is not enough to simply identify the challenges, which has been the focus of much recent research on this topic. To better understand which evidence-based supports can encourage positive group work processes, more work is needed to unpack the underlying reasons why students experience challenges. A review of recent literature (summarised in Table 2.1) identified three potential underlying reasons for perceived challenges: social relationships, cultural differences in behaviours and expectations, and participation variations. These are described in depth in the sections that follow.

### 2.3.1 Challenges Related to Social Relationships

Research has demonstrated that social relationships play a prominent role in educational experiences. For example, ‘social presence’ is one of three foundations of online collaborative learning experiences highlighted by Community of Inquiry literature (along with teaching and cognitive elements) (Akyol & Garrison, 2013; Garrison, Anderson, & Archer, 1999). Research has also outlined that social relationships are strongly related to student satisfaction in online modules (J. C. Richardson, Maeda, Lv, & Caskurlu, 2017). In teamwork literature, the importance of shared mental models has been previously highlighted (i.e. the ability to understand the strengths and
weaknesses of one’s fellow group members in order to form a ‘common ground’ for collaboration) (Decuyper et al., 2010; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). Similarly, Curşeu, Janssen, and Raab (2012) have found that social relationships among peers in small groups reduce conflicts, thereby leading to more cognitive gains. At the same time, current research has demonstrated that simply assigning students to groups with peers from other countries does not automatically lead to the benefits outlined throughout Section 2.2 (Decuyper et al., 2010; Van den Bossche et al., 2006; Volet & Ang, 2012). In online settings, Kreijns, Kirschner, and Vermeulen (2013) suggested that social interaction between group members is a foundation for learning in online collaborative environments. Other research has outlined that social elements are necessary for community development, positive collaborations and self-efficacy in online group work (Remesal & Colomina, 2013; Sung & Mayer, 2012). Yet, Kirschner, Kreijns, Phielix, and Fransen (2015) argued that social relationships in online group work are often ignored and deserve increased attention.

Despite the easy access to a wide range of diversity in university modules, intercultural relationships do not always occur easily or naturally. Indeed, research has highlighted that many university students’ social networks are comprised of peers from their own background and that international students face difficulties in forming friendships with domestic peers (for example: Arkoudis et al., 2013; Bennett, Volet, & Fozdar, 2013; Hendrickson, Rosen, & Aune, 2011; McKenzie & Baldassar, 2016; Mittelmeier & Kennedy, 2016; Montgomery & McDowell, 2009; Rajapaksa & Dundes, 2002; Rienties, Héliot, et al., 2013; Schartner, 2015; C. T. Williams & Johnson, 2011). In the US, for instance, Gareis (2012) found in a questionnaire survey of 454 students from 10 universities that 38% of international students had no close friendships with host students. At Canadian universities, only 11% of domestic Canadian students reported having a friend who is an international student (Grayson, 2008). Fozdar and Volet (2016) found that, while students generally felt positive about the idea of intercultural communication, they were reluctant to make the effort to build social connections with peers from different countries. In online learning contexts, studies have noted that many students feel there is a lack of communication between peers from different countries (Hannon & D’Netto, 2007; Muilenburg & Berge, 2005). For instance, Angeli and Schwartz (2016) found in an intercultural comparison of over 800 American and European online group work participants that students from the same country shared interpersonal knowledge more easily than those from differing backgrounds. These trends add complexities to the environments within which groups of diverse students are ‘forced’ to work with one another.

Indeed, students often experience social tensions and challenges in group work settings. For instance, Rienties, Héliot, et al. (2013) found that many students in a large multi-disciplinary module formed social relationships with those from the same country or academic discipline, rather than with their assigned group members. While observing small groups in problem-based learning
environments, Takahashi and Saito (2013, p. 702) found students were initially ‘tense and quiet,’ making group collaboration more difficult. Using Stephan and Stephan (1985)’s Integrated Threat Theory as a theoretical framework, N. Harrison and Peacock (2010) outlined that many domestic students felt negative towards working with peers from other countries. Their study, based on interviews and focus groups, found evidence for all four of the threats outlined by Stephan and Stephan (2000), leading to anxiety about intercultural interactions and ‘passive xenophobia.’ Similarly, P. Moore and Hampton (2015) found via questionnaires and focus groups that many students (particularly domestic students) preferred to work with those from their own background and that ‘othering’ language was common (e.g. by in-group versus out-group distancing). Fozdar and Volet (2012) also highlighted through questionnaires and interviews that, although students felt positive about working with peers from other countries, they found the work more difficult compared to working with peers from their own background. In a problem-based learning environment, Singaram et al. (2011) established through focus groups trends of self-segregation by cultural background between students in collaborative tutorials, leading to power imbalances between students from different cultures.

Adding to these complexities is the role of academic performance on students’ social experiences and friendship network building, particularly as previous research has demonstrated that high-performing university students tend to demonstrate stronger social relationship networks. For example, studies have found that high-performing students tend to be more central (i.e. connected) within the module social network (Gašević et al., 2013; Hommes et al., 2012). Rienties et al. (2015) similarly highlighted that students who are academic leaders are more likely to act as social ‘bridge-builders’ between students from different backgrounds, thereby demonstrating more diversity in their social networks. Singaram et al. (2011) noted that differences in academic performance levels influenced the ways in which students interacted in intercultural group work. Altogether, these findings demonstrated that it is worth unpacking whether students from different performance levels experience social tensions in group work in different ways.

Although the research described in this section provides a foundation for understanding the complexities of social elements in intercultural group work, there are gaps in current knowledge that must be addressed. For instance, much of the research on this topic (as highlighted in Table 2.1) has relied solely on student reflections or perceptions of social tensions when working with peers from different countries, using methods such as interviews, focus groups and self-reported questionnaires. This is a limitation in current understanding, as students may inaccurately or incompletely recall their group work experiences. One suggestion worth considering, therefore, is whether there are indeed measurable differences in student behaviours during group work. At the same time, much work focuses on group work experiences in general rather than analysing specific
opportunities or experiences working with peers from different countries. This means that research on this topic often describes students’ general feelings rather than specific examples. What is currently unknown, therefore, is whether students’ reflections of social tensions in intercultural group work match their measurable behaviours. Therefore, more research is needed to unpack the actual processes of specific group collaborations to determine whether there are indeed measurable differences.

Current research on social experiences in intercultural group work has also primarily focused on defining and outlining trends in student perceptions. However, relatively few studies have explored what teachers or universities can do to support students during online intercultural collaboration in spite of social challenges, although limited research has suggested that interventions may help alleviate such tensions. For example, in an analysis of student interviews by Kimmel and Volet (2012), one suggestion was that ‘cohort-like’ modules (i.e. where students have the opportunity to get to know those in their module) encourage group work satisfaction. Davies (2009, p. 574) also broadly suggested that teachers should give students ample time for ‘socialising and a sense of group solidarity.’ Crafter and Maunder (2012) similarly argued that teachers should provide opportunities for students to build relationships within their learning communities. These perceptions were confirmed by Hommes et al. (2014) in a longitudinal randomised control trial study of large module divisions into smaller cohorts, whereby it was found that relationship building in the smaller cohorts encouraged informal learning networks. Yet despite this previous research, P. Moore and Hampton (2015) found that many students perceived their teachers provided little to no intervention to support collaborations. Therefore, more research is needed to determine an evidence-based intervention that can support students as they navigate through social tensions while collaborating with peers from different countries.

2.3.2 Challenges Related to Cultural Differences

The second underlying challenge in intercultural group work relates to perceptions of cultural differences in learning behaviours and expectations between students from different countries. For instance, Dunne (2009) found by qualitative interviews that students perceived differences between cultural groups in terms of attitudes and motivations during group work. Through questionnaires and interviews, Fozdar and Volet (2012) established that many students framed their intercultural interactions through a lens of cultural differences. Turner (2009) analysed student learning journals and outlined that students perceived differences in group work expectations and etiquettes between peers from different countries. In an ethnographic study of Chinese and British students at UK universities, J. Hou and McDowell (2013) described differences
in the ways that students approached communication in group work activities. Singaram et al. (2011) found through focus groups of students in problem-based learning environments a perception of cultural differences in student academic expectations and opinions on ‘good’ student behaviours. These issues may help explain the ‘othering’ language typically used to juxtapose behaviours of students from different countries (P. Moore & Hampton, 2015), as well as the intercultural group challenges outlined in Table 2.1. For instance, such cultural distances and differences between group members have been found to make collaboration more difficult (Fozdar & Volet, 2012) and induce uncertainty (Strauss et al., 2011), which may impact students’ perceptions of working with diverse peers.

Much of this work, however, has relied on students’ perceptions without analysing differences in the actual, measurable behaviours when students participate in intercultural group work. Therefore, it is currently unknown if these perceptions match reality, and whether students from different countries do indeed behave differently in group work activities. For these reasons, a number of researchers over the last 30 years have argued for a need for researchers to examine the role culture plays on measurable module behaviours and experiences, particularly in blended and online learning environments (Chen & Bennett, 2012; Gunawardena, 2014; Kang & Chang, 2016; Melsaac & Gunawardena, 1996; Phuong-Mai, Terlouw, & Pilot, 2005; Pincas, 2001; Rienties & Tempelaar, 2013; Tempelaar, Rienties, et al., 2013). In online settings, methods such as learning analytics offer opportunities to unpack differences in student behaviours (Kizilcec, Saltarelli, Reich, & Cohen, 2017; Tempelaar, Rienties, & Giesbers, 2015; Tempelaar, Rienties, & Nguyen, 2017b). Such analysis would build off of recent research, which has outlined a number of learning behaviours and reflections that are influenced by cultural backgrounds and values. Therefore, it is reasonable to assume that intercultural group work behaviours might also be affected.

For example, recent research has outlined that cultural backgrounds influence students’ use and acceptance of technologies. To this regard, Hannon and D’Netto (2007) found by a questionnaire that there were differences in the ways that domestic and international students perceived the online environment and engaged with learning technologies. Using a mixed-methods approach with questionnaires and interviews, Gray, Chang, and Kennedy (2010) found that students from different backgrounds approached online communication and use of online tools in varying ways. In a comparison of South Korean and American students across 6 online communication platforms, Yoo and Huang (2011) found differences between the two groups in regards to students’ acceptance and use of technological communication tools. Therefore, it is worth considering whether intercultural group work behaviours, such as participation and use of communication tools, differ between students based on cultural traits.
Cultural backgrounds have also been found to affect the ways in which individuals communicate online. For instance, K.-J. Kim and Bonk (2002) analysed forum posting behaviours of students from different countries and found differences in the types of posts that students contributed. For instance, they found students from some cultures were more goal-oriented and pragmatic, thereby posting fewer and shorter messages, while others were more social and contextually-driven, thereby posting longer and more frequent messages. In a comparison of online forum posts by Chinese, Southeast Asian and Western students, Warden, Chen, and Caskey (2005) highlighted differences between cultures in terms of frequency of posts, whereby students from some cultures posted more often than other groups represented. Such issues of participation differences are further elaborated upon in Section 2.3.3.

Cultural backgrounds additionally impact student approaches to collaboration in group work settings. For example, in a systematic review of 27 empirical papers, Uzuner (2009) outlined that cultural backgrounds were strong influences on communication styles and preferences in online group work. Elenurm (2008) analysed questionnaire responses of business students and found that there were cultural differences in the ways students approached hierarchy and formality in group interactions. Zhu, Valcke, and Schellens (2009) compared questionnaire responses of Chinese and Flemish online learners and found that Flemish students viewed collaborative activities more favourably, while Chinese students preferred informal discussions over formal group work. In a content analysis of online group work scripts, X. Gu, Wang, and Mason (2017) found that differences between cultures in terms of thinking styles impacted upon the ways in which students participated.

One prominent theory in the literature related to cultural influences on student behaviours is Hofstede’s cultural dimensions theory (Hofstede, 1980, 1986, 1995, 2001; Hofstede et al., 2010), which is described in depth in Section 3.2.2. Hofstede outlined six measurable cultural dimensions, which are numerically assigned on a scale of 1-100 to individual countries according to their overarching cultural traits and values. The traits are as follows (see also Table 3.3):

- **Power Distance Index**: distribution of power between individuals through strong or loose hierarchal structures
- **Individualism Versus Collectivism**: strength of ties between individuals and society (i.e. ‘I’ versus ‘we’ mentalities)
- **Masculinity Versus Femininity**: degree of ego-orientation (i.e. conflict resolution through force) or relationship-orientation (i.e. conflict resolution through negotiation)
- **Uncertainty Avoidance Index**: tolerance for unknown circumstances or ambiguity
- **Pragmatism**: focus on the future compared to focus on the present
- **Indulgence Versus Restraint**: degree of free gratification of personal desires

(Based on: (Hofstede et al., 2010)

Educational research has frequently used Hofstede’s model as a framework for understanding differences in learning behaviours between students from different countries (see, for example: Al-Harthi, 2005; Arenas-Gaitan et al., 2011; Davis et al., 2017; Jippes & Majoor, 2008; Rienties, Héliot, et al., 2013; Tarhini, Hone, Liu, & Tarhini, 2017). Many of these findings have implications for intercultural group work experiences. For example, Rienties and Tempelaar (2013) found through questionnaire analysis of students across 9 institutions in the Netherlands that Hofstede’s cultural traits could predict students’ academic and social adjustments to university, as well as their academic performance. Mittelmeier, Tempelaar, et al. (2016) highlighted that including Hofstede’s dimensions into learning analytics modelling led to better predictions of students’ academic behaviours and performances. Similarly, Tempelaar and Verhoeven (2016) found that Hofstede’s cultural dimensions better predicted behaviour and longitudinal academic performance of 980 students than a questionnaire on culturally-based learning preferences. In a comparison of students’ acceptance of technology across Individualism and Uncertainty Avoidance scores, Sánchez-Franco, Martínez-López, and Martín-Velicia (2009) noted differences in perceptions of the purposes and goals for using web tools. Similarly, Cronje (2011) highlighted that dimensions such as Power Distance and Uncertainty Avoidance contributed to students’ level of initiative in blended and online communication. In group work contexts, Bjørge (2007) compared 344 emails written by students across the Power Distance scale and found differences in the formality of written communications. Frambach, Driessen, Beh, and van der Vleuten (2014) also highlighted through a comparative case study across three countries that group-oriented activities can be more challenging in Collectivist cultures. In a questionnaire analysis of students’ group work reflections, Popov et al. (2012) found that the level of Individualism impacted student perceptions, with those from more Individualistic cultures more likely to rate their group work experiences positively.

Altogether, these findings indicated that measurable behaviours in online intercultural group work experiences may indeed be affected by students’ cultural traits. One prominent variation in student behaviours was the amounts of contributions that group members made in intercultural collaboration; these findings are unpacked further in the next section.
2.3.3 Challenges Related to Participation Variations

M. G. Moore (1989) outlined three types of interaction in distance learning: learner-instructor, learner-content and learner-learner. Collaborative group work fits within the ‘learner-learner’ interactions category, which he argued is highly self-directed and, therefore, subject to participation variations between students. Indeed, research has outlined that students participate and engage in online collaboration in different, and often unequal, ways. For instance, Caspi et al. (2003) found in an analysis of asynchronous forum posts that 80% of students contributed only 20% of the posts. Wise et al. (2012) similarly highlighted wide variations in students’ interaction types and motivations for communication. Hämäläinen and Arvaja (2009) found that some students participated minimally in online collaborative activities, even when assigned specific roles or tasks within their groups. In response to such findings, Strijbos and de Laat (2010) categorised participants in small groups into one of four participation categories:

- **Captain:** active and group-oriented
- **Over-rider:** active and self-oriented
- **Free-rider:** non-active and group-oriented
- **Ghost:** non-active and self-oriented

These categories demonstrate the wide variations in students’ online group work behaviours. Similarly, Carr, Cox, Eden, and Hanslo (2004) differentiated in chat-based communication between ‘peripheral’ participants (i.e. those who were less active and central in conversations) and ‘full’ participants (i.e. those who were more active and central in conversations). Hrastinski and Jaldemark (2012) also outlined that many students made the minimum number of contributions required to pass an assignment. From a social perspective, Beth, Jordan, Schallert, Reed, and Kim (2015) found variations in students’ sense of ‘responsibility’ in contributing to online discussions.

Similar variations have been demonstrated on a group level. For example, in a qualitative analysis of online group work activities, Oliveira et al. (2011) identified that some groups were more successful in their collaboration than others. Fransen, Weinberger, and Kirschner (2013) also noted wide variations among small groups in terms of teamwork effectiveness, emphasising the importance of equal participation among group members. Similarly, Curşeu (2013) outlined that groups with more diversity present posted fewer messages than groups that were more demographically similar. These variations are harmful to the group learning process, as participation equality within groups was highlighted by Decuyper et al. (2010) as a critical component for successful shared mental model development among the team.
Although participation is, of course, about more than just ‘quantity,’ the number of messages or posts contributed in online group work is telling, as previous research has noted that more messages are indicative of higher quality conversations (H.-T. Hou & Wu, 2011; Rienties et al., 2009; Schellens & Valcke, 2005). In research areas such as Massive Open Online Courses, a clear link has been found between the number of posts submitted to online collaboration forums and overall performance (Alario-Hoyos, Muñoz-Merino, Pérez-Sanagustín, Delgado Kloos, & Parada G, 2016). The quantity of participation also links to Allport (1954)’s Intergroup Contact Theory, which stipulates that individuals must engage equally in the discussion in order to elicit the benefits of intercultural interaction.

Indeed, one consequence of unequal participation is the negative effects on student perceptions of working with peers from different countries. For example, in a questionnaire of domestic and international students, Popov et al. (2012) found ‘free-riding’ (i.e. the tendency for some students not to contribute much to group work) to be the top complaint of intercultural group work participants. This was confirmed in further work in face-to-face (D. Hall & Buzwell, 2013; Spencer-Oatey & Dauber, 2017) and online settings (Capdeferro & Romero, 2012). Through an analysis of student learning journals, Turner (2009) also discovered that free-riding and frequent ‘silence’ were commonly noted by participants. In response to this, Maiden and Perry (2011) outlined that students appreciated any attempts for teachers to moderate or address participation variations in group activities.

In Sections 2.3.1 and 2.3.2, the multifaceted roles of sociocultural factors on group work experiences were outlined. At the same time, the research described in this section demonstrated strong differences in student participation and contributions to collaborative group work activities. However, few studies have unpacked the intersection of these ideas. Questions remain, therefore, about how measurable participation is linked with sociocultural experiences, and whether factors such as social relationships and cultural backgrounds influence behaviours. The next section outlines these issues in relation to the research questions adopted.

2.3.4 **Summary of Gaps in Understanding about Group Work Challenges**

Current research has provided evidence for three underlying causes of the challenges experienced by students in intercultural group work (summarised throughout Section 2.3 and in Table 2.1): differentiation in social relationship networks, cultural differences in group work behaviours and participation variations during group work activities. As outlined in Sections 2.3.1 through 2.3.4, there are gaps in current knowledge associated with each of these trends. Perhaps most striking is that there have been few studies that have sought to understand the overlaps of the challenges in
order to unfurl how they interlink and influence one another. By unpacking the associations between these three essential challenges, a more holistic picture of students’ experiences with group work challenges can be ascertained. These potential overlaps are depicted visually in Figure 2.1.

Figure 2.1 Potential overlaps in underlying intercultural group work challenges

Therefore, the first half of this thesis sought to understand relationships between these three challenges that students experience during online intercultural group work. In doing so, a balanced and nuanced understanding of the barriers that students encounter when working with peers from different countries in blended and online settings was provided.

Research on intercultural group work experiences has often focused on students’ reflections or perceptions of the underlying challenges by relying mostly on methods such as questionnaires or interviews (as evidenced in Table 2.1). These findings have potential limitations in self-reporting, as participants may inaccurately or incompletely recall their group work experiences. At the same time, relatively few studies focusing on intercultural elements of group work have assessed more objectively whether factors such as friendship networks or cultural traits impact upon measurable group work behaviours. This suggestion is in line with Kimmel and Volet (2012, p. 177) who argued
against an ‘exclusive reliance on students’ anecdotal reports’ of group work experiences’ and urged, instead, that findings should ‘emphasise the richness of mixed method approaches (Johnson & Onwuegbuzie, 2004) to investigate the complex interplay of academic, relational, emotional, and contextual aspects of intercultural interactions in the university context.’ Therefore, it is evident that more work from a mixed methods perspective is needed in order to triangulate and corroborate whether students’ reflections on group work experiences and challenges match measurable behaviours.

In this regard, research in blended and online environments provides potentially rich resources for addressing this gap by incorporating quantitative methods, such as learning analytics and social network analysis. However, current work in online settings has mostly failed to take into consideration the intercultural elements that impact student experiences. For example, many learning analytics studies simply label international students as ‘yes’ (is an international student) or ‘no’ (is not an international student) (Colthorpe, Zimbardi, Ainscough, & Anderson, 2015; de Freitas et al., 2015; Gašević, Dawson, Rogers, & Gasevic, 2016). This ignores the broad range of research over the last three decades that has outlined the complex and multifaceted patterns of transitions and experiences between students from different cultural groups (see, for example: Q. Gu, Schweisfurth, & Day, 2010; Jindal-Snape & Rienties, 2016; Rajapaksa & Dundes, 2002; Russell, Rosenthal, & Thomson, 2010; Sherry, Thomas, & Chui, 2010; Zhou, Jindal-Snape, Topping, & Todman, 2008) by homogenising international student backgrounds.

This means there is a need for research to form a bridge between these two research domains by unpacking the connection between sociocultural elements in group work and measurable student behaviours. This methodological contribution of the research is visualised in green in Figure 2.2.

*Figure 2.2 Gaps addressed within this research*
In summary, this work has addressed two complementary gaps in current research. On the one hand, the literature on intercultural group work experiences often relies on anecdotal evidence without analysing actual, measurable group work behaviours. On the other hand, more objective methods such as learning analytics provide tools for measuring student behaviours, but rarely include the sociocultural elements that impact upon intercultural group work experiences (Sections 2.3.1 through 2.3.4). Given these gaps, this thesis adopted the following research questions:

**RQ1**: How do students’ social relationship networks influence measurable participation in intercultural group work? (Chapter 4)

**RQ2**: How do students’ cultural traits influence measurable participation in intercultural group work? (Chapter 4)

As demonstrated in Figure 2.1, there is also a need to unpack how social and cultural elements interact and impact experiences in intercultural group work. Further, there is a need for triangulation between students’ measurable behaviours and reflections of sociocultural tensions when working with peers from different countries (Kimmel & Volet, 2012). Therefore, this thesis also addressed the following question:

**RQ3**: What sociocultural tensions do students experience when working with diverse peers in intercultural group work? (Chapter 5)

Given the challenges outlined in the preceding sections, it is evident that students require support in order to elicit positive intercultural group work experiences (Kimmel & Volet, 2012; P. Moore & Hampton, 2015). In this regard, previous authors have argued that there is a paucity of rigorous studies outlining evidence-based interventions for intercultural interactions (Jindal-Snape & Rienties, 2016; Volet & Jones, 2012). Therefore, it was important for this research to move beyond simply outlining group work challenges in order also to analyse an evidence-based intervention. One suggested intervention is the internationalisation of academic content, which is described in the next section.
2.4 Internationalised Academic Content

2.4.1 Defining Internationalised Academic Content

There has recently been an increased focus in higher education on internationalising the university experience (Altbach & Knight, 2007; Hudzik, 2011; J. Knight, 2013; Yemini & Sagie, 2016). Internationalisation of higher education is commonly defined as, ‘the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education’ (J. Knight, 2004, p. 11). Further, as described by Leask (2009, p. 209), internationalisation is the ‘incorporation of international, intercultural and/or global dimensions into the content of the curriculum, as well as the learning outcomes, assessment tasks, teaching methods and support services of a program of study.’ In this sense, internationalisation is characterised by a holistic encompassing of international elements into the broader university experience, both within the module curriculum and through wider support services and informal university-related activities. Successful university internationalisation is multifaceted and encompasses the formal curriculum (i.e. the learning activities, module design and schedule), as well as the informal curriculum (i.e. the university support systems, social elements and activities outside of the module) and the hidden curriculum (i.e. implicit or hidden messages communicated to students) (Leask, 2015). Webb (2005) also argued that internationalisation must holistically embed intercultural learning and exchange throughout the university experience.

It is evident in the recent literature that intercultural group work plays a prominent role in internationalisation efforts by providing students with opportunities to interact with peers from different backgrounds (Arkoudis et al., 2013; Crose, 2011). For instance, Stohl (2007) outlined three key components of university internationalisation, which is in line with the focus of this research:

1. Gaining new facts or information about other countries and cultures
2. Learning from the experiences of people from other countries and cultures
3. Working collaboratively with peers from other countries and cultures

This also links with Volet and Ang’s (2012) argument that group work is an ideal situation for promoting intercultural learning about international topics. Chang (2006) similarly suggested that group work is a pedagogical tool for interweaving international elements into the curriculum.

In addition to the presence of diversity (i.e. students from different countries), one additional important element of internationalisation is the content of the assignments from which students
learn. For instance, N. Harrison (2015, p. 423) outlined that an assignment with internationalised content:

'(a) uses knowledge about other nations,
(b) uses knowledge, perspectives or epistemologies derived in or from other nations, and/or
(c) is intended to act as a springboard to developing skills around intercultural interaction.'

In the same regard, Ryan and Viete (2009) argued that universities often view teacher assignment and curriculum choices as key to internationalisation efforts. Internationalised academic content, in this sense, ‘must be designed in a way that, because of their very nature, they cannot be completed satisfactorily without a meaningful intercultural interaction’ (Leask & Carroll, 2011, p. 655). Bodcott et al. (2014) further highlighted that collaborative assignments with international content must be ‘so complex that no one cultural orientation or perspective can provide all the answers.’ Therefore, internationalised content must bring together the knowledge and expertise of students from diverse backgrounds. These choices have profound impacts on intercultural group work experiences; Dunne (2009) found that the assignment content influenced the types of interactions students had during collaborative group work.

At the same time, one important question is how to define ‘internationalisation’ in the context of academic content, as this remains relatively vague in current literature. Indeed, it has been noted that there is confusion over what internationalisation actually means for teaching practices (Egron-Polak & Hudson, 2010; J. Knight, 2006). Similarly, Kehm and Teichler (2007) argued that internationalisation is a ‘fuzzy’ term, and J. Knight (2004) outlined that it can take on varied meanings for different stakeholders across institutional contexts. Q. Gu and Schweisfurth (2011, p. 614) similarly suggested that one key challenge for internationalisation is ‘the offering of pedagogically responsive and culturally appropriate curricula to a student population which is increasingly massified and diversified.’ Therefore, there is a need to unpack what makes content ‘international’ and how various types of content impact measurable student behaviours and reflections.

To this regard, a wide body of literature has emphasised the role of international students in contributing to the internationalisation of academic assignments and module environment (for example: Brookes & Becket, 2010; L. Brown, 2009; de Haan & Sherry, 2012; Dunne, 2011; Kahn & Agnew, 2015; Stone, 2006; Volet & Ang, 2012; Whitsed & Volet, 2011). For instance, it has been argued that students’ diverse experiences should serve as a foundation for internationalisation efforts (Bodycott et al., 2014; Leask & Carroll, 2011). Brookes and Becket (2010) similarly described international students as a ‘ready-made resource’ for incorporating internationalised content.
through activities such as intercultural group work. L. Brown (2009, p. 209) also suggested that international students can serve as ‘cultural mediators who carry the power to improve global relations.’ Chang (2006) additionally referred to international students as a ‘transcultural wisdom bank.’ However, these sentiments make an assumption that content is personally relevant to students’ lives and draws upon their diverse experiences. For instance, it would be naïve to assume that an international student from China would be able to provide meaningful insights into a case study situated in Mexico any more than a domestic student could. Indeed, Cruickshank et al. (2012) highlighted that a key feature of positive and successful intercultural group interactions is the ability for students to act as ‘experts’ on assigned content. Yang, Kinshuk, Yu, Chen, and Huang (2014, p. 218) similarly note that online collaboration ‘take the social interaction and cultural interaction as the basis for collaboration and set collaborative topics that overlap the knowledge base of both sides.’ Such notions may help international students overcome perceived power disparities between domestic and international students (Colvin et al., 2015; Colvin, Volet, & Fozdar, 2014; Cotton et al., 2013; Cruickshank et al., 2012; Robinson, 2006). Yet, despite these arguments, Guo and Guo (2017) found in interviews of international students from nine countries that many felt there were few opportunities to discuss topics specifically related to their own backgrounds.

It is also worth considering whether engaging with such personal topics might actually create more challenges for intercultural groups. For instance, it has been previously noted that, while students enjoyed discussing personally relevant content, they also felt that they needed to take extra care not to offend their peers (Peacock & Harrison, 2009). This fear of offending others often led students to avoid interacting with those from different backgrounds (Osmond & Roed, 2010), which is in line with the Integrated Threat Theory (Stephan & Stephan, 1985, 1996, 2000). Alternatively, Arkoudis et al. (2013, p. 230) suggested that group work can instead be supported by, ‘using group tasks to discuss different views around a particular topic.’ Therefore, one consideration might be whether a middle ground between the benefits and challenges of internationalisation can be achieved by assigning content that is broadly international in nature but does not require students to act as ‘resources’ from their own countries.

At the same time, an alternative explanation might be that local content encourages participation and collaboration. After all, many international students may in part choose to study abroad in order to engage with and learn about the local culture. For instance, in a study of Chinese students’ motivations to study abroad (the largest group of international students worldwide), Bodycott (2009) found gaining an understanding of Western culture to be a top ‘pull’ factor. In the US, Eder, Smith, and Pitts (2010) similarly found engaging with American culture was a prime motivator for international students in their choice to study overseas. Additionally, previous work has outlined the need for a ‘common ground’ upon which to collaborate (Decuyper et al., 2010; Van den
Bossche, Gijselaers, Segers, Woltjer, & Kirschner, 2011), which could be provided by the opportunity to discuss contextualised issues related to local surroundings. Therefore, it is worth considering whether intercultural groups engage more with assignments that feature local content, seeing as it is topical and relevant to the current circumstances of all group members.

Nonetheless, previous literature has provided evidence for the potential for internationalised academic content to support students in intercultural group work, despite the current ambiguities of defining it. These are outlined in the next section.

### 2.4.2 Evidence as Support for Intercultural Group Work

Jones (2010) argued that there is an increased emphasis on the benefits of internationalisation by higher education institutions, which is supported by recent research. For example, Caffrey, Neander, Markle, and Stewart (2005) conducted a quasi-experimental study in the United States with 32 nursing students using a pre/post-test and found that cultural competencies increased as a result of engaging with instructional designs that embedded international content. Tran and Pham (2016) also found by interviewing over 150 students at 25 Australian VET institutions that engagement with internationalised content and diverse peers was key to co-creation of ‘mutual learning’ and development of intercultural competencies. In a case study analysis of three universities in both Australia and Hong Kong, Bodycott et al. (2014) highlighted that internationalised content which engaged both domestic and international students was an essential condition for a successfully integrated internationalised curriculum.

Research has also highlighted that internationalised academic content can encourage student engagement and enjoyment of module activities, as well as increase collaboration and contact between students of diverse backgrounds. For example, in a case study of an internationalised group work project in sports management in both Australia and the UK, de Haan and Sherry (2012) highlighted increased engagement and co-construction of knowledge between international and domestic students. Middleton (2014) found using a case study analysis in combination with satisfaction questionnaires of 145 students in an introductory statistics module that students were more engaged with collaborating with their diverse peers when internationalised content was embedded into the module design. Trahar and Hyland (2011) also conducted focus groups with 19 students and highlighted that they felt ‘rewarded’ through their experiences with internationalisation due to the opportunities to encounter new ideas and meet people from different backgrounds. From an educators’ perspective, Arkoudis et al. (2013) found by conducting focus groups of 40 teachers across three Australian universities that the incorporation of international content encouraged collaboration among students and increased student
engagement. In an online context, Liu et al. (2010) determined through a case study analysis of an MBA programme that internationalised content can improve engagement and participation. Finally, a large volume of theoretical and reflective pieces on the benefits of incorporating internationalisation have been published in top journals in higher education research (for example: Aerden, De Decker, Divis, Frederiks, & de Wit, 2013; Brookes & Becket, 2010; Crose, 2011; Fitch, 2013; Jones & Killick, 2013; Leask, 2009; Leask & Carroll, 2011; Lumby & Foskett, 2016; Luxon & Peelo, 2009; Matus & Talburt, 2015; Rasi, Hautakangas, & Väyrynen, 2015; Stütz, Green, McAllister, & Eley, 2015; Tadaki & Tremewan, 2013).

As highlighted by Leask (2004), blended and online settings can particularly provide a platform or set of tools for encouraging curriculum internationalisation through tasks such as:

- Synchronous communication with peers from different backgrounds
- Group projects using international subjects or case studies
- Finding and analysing information from international sources
- Debating relevant subjects from multiple cultural perspectives
- Participating in real-world simulations or role-playing about diverse topics

In this regard, O'Dowd and Lewis (2016) outlined the multifaceted role of online intercultural collaboration can play in supporting internationalisation efforts. Despite this potential, only a small number of articles published about internationalisation have focused on online learning, as noted in a systematic literature review of 7,000 internationalisation papers over the last 25 years by Yemini and Sagie (2016). This was similarly articulated by De Wit (2016), who argued that relatively little attention has been paid in research to the benefits of online learning for intercultural interaction and exchange. Against the backdrop of rising international student numbers in blended and online learning (UKCISA, 2016; Zawacki-Richter & Naidu, 2016), this means there is a clear gap in current knowledge about the role of internationalisation in student experiences during online learning activities.

Altogether, these findings outline that there is potential for internationalised academic content to support student experiences and engagements with diverse peers. Yet, there is a clear gap in empirical evidence to support the measurable changes in student behaviours and reflections when interacting with internationalised content in comparison to content from the local context. Indeed, most studies rely on self-reported data (for example, through observations, case studies and interviews) and lack appropriate control conditions in the research design. This makes it difficult to
understand the measurable added value of internationalisation. Therefore, there is a need for more research to empirically analyse and compare student experiences when their academic assignments are internationalised.

At the same time, there are important critiques of internationalisation that require attention. For example, T. Kim (2010) noted that internationalisation policies exploit the identities of international students and staff. Similarly, it has been suggested that the rhetoric of ‘global citizenship’ in higher education curriculums reinforces existing power imbalances between local and global issues (Andreotti & de Souza, 2012; Andreotti et al., 2009). Further criticisms have highlighted that curriculum internationalisation is fuelled by ‘corporatisation’ of diversity through neoliberal market values and profit margins (Kelly, 2000). In light of the sociocultural tensions experienced between groups of students, De Vita (2007, p. 165) argued that ‘the ideal of transforming a culturally diverse student population into a valued resource for activating processes of international connectivity, social connectivity and intercultural learning is still very much that, an ideal.’ These critiques add even more precedence to the need for more evidence-based evaluations of internationalisation in order to measure its actual added value. Indeed, it has been argued that, although many universities tout the benefits of internationalisation on student experiences and skills acquisitions, relatively little is known about its measurable impact (N. Harrison, 2015; Leask, 2013).

2.4.4 Summarising Gaps in Understanding about Internationalised Academic Content

Current research has suggested that students participate more and are more engaged in group work activities when they are assigned internationalised academic content (Arkoudis et al., 2013; de Haan & Sherry, 2012; Liu et al., 2010; Middleton, 2014). However, relatively few studies have considered student opinions on internationalised content and whether they feel that it can support their interactions with peers from different countries. One alternative suggestion could be that students feel exploited by or uncomfortable with the position of being used as resources for peers’ learning (Andreotti & de Souza, 2012; Andreotti et al., 2009; T. Kim, 2010). Therefore, this thesis first sought an understanding of student views on internationalised academic content by answering:

**RQ4**: What role do students feel internationalised academic content can play in supporting intercultural group work experiences? (Chapter 5)
At the same time, to the best of my knowledge, no known research has considered whether there are indeed differences in students’ measurable behaviours when internationalised academic content is embedded within group work activities, particularly in online contexts. Recent work on this topic tends to rely on perceptions of the researcher through methods such as case study interpretation. This means that one prominent gap in current knowledge is whether measurable patterns of student participation are in line with these reflections. The second gap is that current research also tends to consider the effects of internationalised content without a baseline set of data within local contexts with which to compare. At present, no known study has made comparisons between activities with internationalised content versus activities with locally-based content using robust methods such as a randomised control trial design. Given these critical gaps, this thesis also adopted the following research question:

**RQ5:** How does local versus internationalised academic content impact upon measurable participation in intercultural group work? (Chapter 6)

One additional ambiguity in current literature is what ‘international’ means in the context of academic content. For instance, Brookes and Becket (2010) argued that international students should serve as ‘ready-made resources’ for discussing international topics with peers. Other research suggested that both domestic and international students’ knowledge and experiences should be incorporated into the curriculum (Bodycott et al., 2014; Leask & Carroll, 2011). However, this makes the assumption that learning topics are situated within students’ own backgrounds. Others have noted that incorporating international elements, regardless of whether it is connected with students’ backgrounds, might be enough to elicit the benefits of internationalisation (J. Knight, 2004). However, an alternative explanation might be that *locally-based* content encourages participation and collaboration. After all, many students may in part choose to study abroad in order to engage with and learn about the local culture of the host institution (see, for example, Bodycott, 2009). Therefore, this thesis also considered different dimensions of the ‘space and place’ of academic content through the following research question:

**RQ6:** How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work? (Chapter 6)
In light of the research questions outlined in Section 2.3.4, one final consideration is whether there were nuances in student reflections of their group work experiences when assigned internationalised versus local content. After all, previous research has outlined that students experience challenges when partaking in intercultural group work (see Section 2.3). At the same time, it has been suggested that students may feel uncomfortable when working with content from their peers’ backgrounds (Osmond & Roed, 2010; Peacock & Harrison, 2009). As this work sought to evaluate the potential for internationalised academic content to support intercultural group work experiences, it was important to understand whether there are indeed improvements in student reflections of the group work process, as suggested in recent research (Arkoudis et al., 2013; de Haan & Sherry, 2012; Liu et al., 2010; Middleton, 2014). However, this has yet to be established against a baseline of local content. Therefore, the final research question addressed in this thesis was:

**RQ7: How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content? (Chapter 7)**

Altogether, these final four research questions provided an empirical analysis and critical evaluation of if and how internationalised academic content can support students in intercultural group work. In doing so, measurable impacts on student behaviours and reflections were evaluated and compared against a baseline activity incorporating local content. This added to current knowledge by providing empirical evidence of the impacts and added value of internationalisation. Additionally, the blended and online setting of this research has further contributed to suggestions by Leask (2004) and O’Dowd and Lewis (2016) about the role of online learning in internationalisation.

### 2.5 Conclusions

In summary, this thesis has addressed gaps in the recent research related to the underlying causes of experienced intercultural group work challenges in blended and online settings. These include differentiations in social relationship networks, cultural differences in group work behaviours and participation variations during group work activities. The research has also analysed and evaluated
the evidence-based suggestion that internationalised academic content can be used to support students as they navigate through sociocultural tensions in intercultural group work.

Altogether, this chapter has provided an in-depth summary of current research and the essential gaps that led to the seven research questions. Chapter 3 next describes the overarching research methodologies adopted in order to meet these goals.
Chapter 3 – Methodology

3.1 Introduction

Chapter 2 provided a critical assessment of current literature, highlighting essential gaps and the research questions that are addressed by this research. As noted in Section 1.3, this thesis was comprised of four studies, which are described in Chapters 4 through 7. An in-depth description of the specific methods for each study is provided at the start of its corresponding chapter. This chapter, therefore, describes the overarching methodologies and methods adopted within and across the four empirical studies.

Appropriate research methodologies and methods are essential to substantially address the research questions which were raised in Chapter 2. These are:

**RQ1:** How do students’ social relationship networks influence measurable participation in intercultural group work?

**RQ2:** How do students’ cultural traits influence measurable participation in intercultural group work?

**RQ3:** What sociocultural tensions do students experience when working with diverse peers in intercultural group work?

**RQ4:** What role do students feel internationalised academic content can play in supporting intercultural group work experiences?

**RQ5:** How does local versus internationalised academic content impact upon measurable participation in intercultural group work?

**RQ6:** How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work?

**RQ7:** How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content?

In this chapter, Section 3.2 outlines the overarching theoretical perspectives and philosophical underpinnings of the research. Next, Section 3.3 provides an overview of the research designs and methods adopted, as well as an in-depth discussion of each method incorporated across the four...
studies (including social network analysis, learning analytics, qualitative interviews, randomised control trials and questionnaires). Finally, ethical considerations are addressed in Section 3.4.

3.2 Theoretical Perspectives and Philosophical Underpinnings

It has widely been acknowledged (Blaxter, Hughes, & Tight, 2005; Crotty, 1998; Gilbert, 2001; Potter, 2006) that, when designing research studies, the researcher must choose appropriate methodologies and methods with consideration for their underlying assumptions. Crotty (1998, p. 3) advocates that the philosophical underpinnings of research designs are constantly ‘informing the methodology and therefore, providing a context for the process and grounding its logic and criteria.’ In this research, several philosophical underpinnings are important to the design of the four research studies. In Section 3.2.1, the pragmatic paradigm is described, followed by a discussion of mixed methods as a methodology in Section 3.2.2. Section 3.2.3 finally outlines the conceptualisation of ‘culture’ adopted in this research.

3.2.1 Pragmatic Approach

When deciding which methods to use, the decision-making process must include a consideration of which methodological and philosophical assumptions best address the research questions (Bryman, 2006b, 2012; Symonds & Gorard, 2010). Chapter 2 provides a detailed discussion of the research questions identified from the literature which are driving this thesis (also outlined in Section 3.1). Researchers’ underlying philosophical views regarding truth and reality are referred to as research paradigms. Kuhn (1962, p. 10) classically referred to paradigms as ‘the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed.’ Within research paradigms, assumptions are made about ontology and epistemology. Ontology refers to the nature of truth (i.e. what is reality), while epistemology is concerned with the nature of human knowledge about truth (i.e. how do we know what reality is) (Mertens, 2014). In Table 3.1, a comparative summary of commonly used research paradigms is outlined, including their underlying ontologies and epistemologies.
### Table 3.1 Comparison of popular research paradigms

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Ontological views</th>
<th>Epistemological views</th>
<th>Methodology examples</th>
<th>Method examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positivism</td>
<td>There is one single truth</td>
<td>Reality is measurable with valid, reliable tools</td>
<td>Experiments</td>
<td>Quantitative analysis</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Questionnaires</td>
<td>Sampling</td>
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<td></td>
<td></td>
<td></td>
<td>Big Data</td>
<td>Measurement</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Statistical analysis</td>
</tr>
<tr>
<td>Interpretive / Constructivism</td>
<td>There is no one single truth because group membership constructs truth</td>
<td>Reality must be interpreted through the lens of group members</td>
<td>Ethnography</td>
<td>Qualitative analysis</td>
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<td></td>
<td></td>
<td></td>
<td>Grounded Theory</td>
<td>Interviews</td>
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<td></td>
<td>Action Research</td>
<td>Observation</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Discourse Analysis</td>
<td>Case study</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Narrative</td>
</tr>
<tr>
<td>Critical</td>
<td>There is no one single truth because truth is socially constructed</td>
<td>Reality is socially constructed and must be interpreted through the lens of society</td>
<td>Critical Discourse Analysis</td>
<td>Qualitative analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Critical Ethnography</td>
<td>Interviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Action Research</td>
<td>Observations</td>
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<td>Focus groups</td>
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<td></td>
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<td></td>
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<td>Journals</td>
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<tr>
<td>Subjectivism</td>
<td>There is no one single truth because truth is interpreted through our own individual perceptions</td>
<td>Reality is based purely on the perspective of the individual researcher</td>
<td>Discourse Theory</td>
<td>Qualitative analysis</td>
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<td></td>
<td></td>
<td></td>
<td>Deconstruction</td>
<td>Interviews</td>
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<td></td>
<td></td>
<td>Auto-ethnography</td>
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<td></td>
<td></td>
<td></td>
<td>Semiotics</td>
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<td></td>
<td></td>
<td>Literary analysis</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>There is no one single truth because truth should constantly be debated and reinterpreted in light of new circumstances</td>
<td>Reality can be discovered by the method that suits the problem best</td>
<td>Mixed Methods</td>
<td>A combination of any of the above</td>
</tr>
</tbody>
</table>

(Based on: Bryman, 2012; Creswell & Plano Clark, 2011; Crotty, 1998; Gilbert, 2001; Potter, 2006)
The research questions in this thesis were complex and sat within multiple research paradigms. On the one hand, exploration of measurable student behaviours using quantitative methods is positivistic and makes assumptions that experiences are measurable with reliable tools. On the other hand, it was recognised that cultural identity and social experiences are subjective, socially and individually constructed, and cannot be represented by one single truth. As outlined in Section 2.3.4, to study students’ measurable behaviours in isolation from their sociocultural conditions would have provided only a partial understanding of online intercultural group work experiences. At the same time, a solely subjective perspective of student reflections of their experiences would not have aided in understanding the objective, observed differences in online group work behaviours. Therefore, the research questions called for the flexibility of a pragmatic approach with a mixed methods methodology. Pragmatism, in this sense, allowed for the acceptance that truths are multifaceted, are both objective and subjective and may be in contention with one another (Creswell & Plano Clark, 2007; Feilzer, 2010). As described by Feilzer (2010, p. 9):

‘Ultimately, pragmatism brushes aside the quantitative/qualitative divide and ends the paradigm war by suggesting that the most important question is whether the research has helped “to find out what [the researcher] want[s] to know” (Hanson, 2008, p. 109). Are quantitative and qualitative methods really that different or is their dichotomy politically motivated and sociologically constructed (Hanson, 2008)? Pragmatists do not “care” which methods they use as long as the methods chosen have the potential of answering what it is one wants to know.’

In this sense, as described by Tashakkori and Teddlie (1998, p. 30), pragmatists should ‘study what interests you and is of value to you, study it in the different ways that you deem appropriate, and utilize the results in ways that can bring about positive consequences within your value system.’ Pragmatism, therefore, is one of the underlying paradigms of mixed methods research (Tashakkori & Teddlie, 2010), which stresses the need to use methods that best address research questions (Maxcy, 2003). With this in mind, Section 3.2.2 provides a description and justification for the incorporation of mixed methods as a methodology.

3.2.2 Mixed Methods as a Methodology

Mixed methods are frequently described as a combination of quantitative and qualitative methods (Johnson, Onwuegbuzie, & Turner, 2007). By design, mixed methods mean the inclusion of multiple methods to address one or multiple research questions (Bryman, 2006a, 2012; Creswell & Plano Clark, 2011; Symonds & Gorard, 2010). The incorporation of mixed methods is a methodology in its own right, as described by Creswell and Plano Clark (2007, p. 5):
‘Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.’

The research questions required analysis and interpretation of both objective data about students’ online group work behaviours (RQs 1, 2, 5 and 6) and subjective reflection of students’ online group work experiences (RQ 3, 4, and 7). Therefore, a mixed methods methodology allowed for an amalgamation of research perspectives. The underlying approach taken was that the best method is the one that most accurately answers the research questions (Johnson & Onwuegbuzie, 2004). However, it is recognised that mixed methods have inherent advantages and disadvantages. These are outlined in Table 3.2:

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>Draws upon the strengths and balances the</td>
<td>Often takes more time and effort than single-method studies</td>
</tr>
<tr>
<td>weaknesses of individual methods</td>
<td></td>
</tr>
<tr>
<td>Allows for ‘triangulation’ of data by combining</td>
<td>Researchers must have a wider set of skills to conduct</td>
</tr>
<tr>
<td>multiple lens or approaches to a problem</td>
<td>research rigorously</td>
</tr>
<tr>
<td>Provides for a more well-rounded understanding</td>
<td>Requires large amounts of planning to rigorously ‘mix’ the</td>
</tr>
<tr>
<td>of the problem</td>
<td>data from multiple methods</td>
</tr>
</tbody>
</table>

(Based on: Bryman, 2012; L. Cohen, Manion, & Morrison, 2011; Creswell & Plano Clark, 2011; Greene, Caracelli, & Graham, 1989; Symonds & Gorard, 2010)

Mixed methods offer a number of benefits to approaching complex research topics, such as online intercultural group work. One such consideration is that, individually, both quantitative and qualitative research methodologies are inherently prone to opposing strengths and weaknesses. By incorporating multiple methods, the researcher can draw upon the strengths and balance the weaknesses of chosen methods, and of quantitative versus qualitative research as a whole (Symonds & Gorard, 2010). In this regard, Cook (1985) used the term critical multiplism to describe how combining research methods can be useful in combating the biases inherent to research methods on their own. As described by Johnson and Onwuegbuzie (2004, pp. 14-15):
'We hope the field will move beyond quantitative versus qualitative research arguments because, as recognized by mixed methods research, both quantitative and qualitative research are important and useful. The goal of mixed methods research is not to replace either of these approaches but rather to draw from the strengths and minimize the weaknesses of both in single research studies and across studies.’

Therefore, the inclusion of multiple methods provided a stronger understanding of the multiple issues and angles associated with online intercultural group work behaviours and experiences. The balance of strengths and weaknesses of the chosen approaches in this thesis are further described throughout Section 3.3.

One additional strength of a mixed methods approach is that it allows for data triangulation by combining multiple lenses or vignettes to a problem. As described by L. Cohen et al. (2011, p. 195), ‘triangular techniques in the social sciences attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint.’ Greene et al. (1989) further highlighted five purposes for mixed methods research:

1. **Triangulation**: converging the results of multiple methods
2. **Complementation**: reviewing where findings from different methods overlap
3. **Initiation**: discovering contradictions in findings between different methods
4. **Development**: allowing results of one method to inform the next method in a sequential process
5. **Expansion**: allowing results of multiple methods to expand the scope and understanding of the research problem

As such, the mixed methods approach was advantageous in this research due to the complexity of understanding behaviours and experiences in intercultural group work.

However, it is recognised that a mixed methods methodology, like all methodologies, has inherent weaknesses. One prominent weakness is that an in-depth and multi-layered mixed method study requires a large amount of time, effort and planning on behalf of the researcher (Creswell & Plano Clark, 2011). However, the full-time PhD process allowed the researcher to give full focus to the research studies. Secondly, mixed methods require a variety of resources to collect data from different sources (Bryman, 2006a). For this reason, strong connections were made by the researcher with the lecturers of the modules within which this thesis research took place. An additional weakness is that the researcher must be well-versed in a wider range of research methods, potentially compromising the robustness and reliability of the research (Bryman, 2012;
To compensate for this, steps were taken to pilot and cross-validate the research methods, as well as analyse the validity and inter-reliability of findings (described further in Sections 4.2, 5.2, 6.2 and 7.2).

As noted by Ivankova, Creswell, and Stick (2006), mixing methods is appropriate when, ‘neither quantitative nor qualitative methods are sufficient, by themselves, to capture trends and details of a situation.’ Creswell and Plano Clark (2011, pp. 9-11) further outlined situations in which incorporating mixed methods are particularly well-suited:

1. ‘A need exists because one data source may be insufficient.’
2. ‘A need exists to explain initial results.’
3. ‘A need exists to generalize exploratory findings.’
4. ‘A need exists to enhance a study with a second method.’
5. ‘A need exists to employ a theoretical stance.’
6. ‘A need exists to understand a research objective through multiple research phases.’

In this research, situations 1, 2, 4 and 6 strongly applied. Regarding situation 1, it was necessary to understand both differences in measurable participation behaviours and objective reflections of online group work experiences to gain a well-rounded understanding of the gaps described in Chapter 2. In Study 1, initial results indicated behavioural differences in intercultural group work based on social relationships and cultural background, which required further research to understand how and why these differences existed (situations 2 and 4). Finally, research questions sought to both unpack an observed problem (group work challenges) and provide an evidence-based solution to increase group work success (internationalised academic content). Therefore, it was necessary to reach these objectives through multiple research phases (situation 6), by first building an empirical and conceptual foundation of the problem before testing an intervention.

A review of the research design and the methods adopted to meet these goals is discussed in Section 3.3. First, however, it is important also to describe in more detail the conceptualisation of ‘culture’ adopted in this thesis.

3.2.3 Conceptualising ‘Culture’

This research explored and compared student behaviours and experiences in online intercultural group work. As such, it is important to highlight the conceptualisation of ‘culture’ that was adopted throughout these empirical studies. Culture, as it stands, is perhaps one of the most difficult human
concepts to define and no one definition is universally adopted. Colloquial definitions of culture tend to be vague, such as the *Oxford English Dictionary*’s definition of ‘the attitudes and behaviour characteristics of a particular social group.’ The *Merriam-Webster Dictionary* similarly describes culture as, ‘the customary beliefs, social forms and material traits of a racial, religious or social group.’ Academic definitions of culture have taken on different forms across various fields of research. A few examples of their wide breadth include:

‘Culture is man’s medium; there is not one aspect of human life that is not touched and altered by culture. This means personality, how people express themselves (including shows of emotion), the way they think, how they move, how problems are solved, how their cities are planned and laid out, how transportation systems function and are organized, as well as how economic and government systems are put together and function.’ (E. T. Hall, 1976, pp. 16-17)

‘Culture is the shared knowledge and schemes created by a set of people for perceiving, interpreting, expressing, and responding to the social realities around them.’ (Lederach, 1995, p. 9)

‘... the set of attitudes, values, beliefs, and behaviors shared by a group of people, but different for each individual, communicated from one generation to the next.’ (Matsumoto, 1996, p. 16)

‘Culture is a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioural conventions that are shared by a group of people, and that influence (but do not determine) each member’s behaviour and his/her interpretations of the “meaning” of other people’s behaviour.’ (Spencer-Oatey, 2008, p. 3)

‘A culture involves a social group (such as a nation, ethnic group, profession, generation, etc.) defined in terms of similar cultural representations held by a significant proportion of the group’s members. In other words, people are said to belong in the same culture to the extent that the set of their shared cultural representations is large.’ (Žegarac, 2007, pp. 39-40)

‘The deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving.’ (Porter & Samovar, 2003, p. 8)

‘In its most general sense, culture is simply a way of talking about collective identities.’ (Kuper, 2009, p. 3)

The definition of culture adopted in this research is that of Hofstede et al. (2010, p. 5) as ‘the collective programming of the mind which distinguishes the members of one group or category of people from another.’ Hofstede’s model originated in the business world with his seminal work (Hofstede, 1980), which compared employee questionnaires at IBM across 70 countries. His focus was on organisational behaviours and unpacking cultural differences in the way people work.
through the collection of over 100,000 questionnaires around the world. Hofstede’s results, and his many associated works spanning the three decades since (Hofstede, 1986, 1998, 2001; Hofstede & Bond, 1984a; Hofstede & Hofstede, 2002; Hofstede et al., 2010; Hofstede, Neuijen, Ohayv, & Sanders, 1990), have resulted in one of the most comprehensive and influential quantitative classification of cultural traits.

Hofstede’s model was chosen because there was a need to ‘quantify’ cultural traits throughout this work in order to compare behavioural data using methods such as social network analysis and learning analytics with cultural backgrounds. This allowed for the research findings to build a bridge between sociocultural elements and measurable behaviours, as depicted in Figure 2.2. In Hofstede’s model, culture can be represented numerically on a scale of 0-100 for individual countries by a set of six dimensions or traits: Power Distance Index, Individualism versus Collectivism, Masculinity versus Femininity, Uncertainty Avoidance Index, Long Term Orientation versus Short Term Orientation (sometimes called Pragmatism), and Indulgence versus Restraint. A description of each dimension can be found in Table 3.3. This definition and the associated cultural dimension scores added in a comparison of students’ measurable behaviours in online group work based on macro-level cultural traits.

### Table 3.3 Description of Hofstede’s cultural dimensions

<table>
<thead>
<tr>
<th>Cultural Dimension</th>
<th>High Score</th>
<th>Low Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance Index</td>
<td>Centralised power; Strong hierarchies; Large gaps in levels of authority or respect; Dependency on leaders; Submission to authority</td>
<td>Flatter organisations; Equality among members; Stronger emphasis on teamwork; Many people involved in decision-making; Inequalities minimised</td>
</tr>
<tr>
<td>Individualism vs. Collectivism</td>
<td>Focus on ’I’; Debate encouraged; Free expression of ideas; Expectation to speak up</td>
<td>Focus on ’We’; Group harmony more important than honesty; Avoidance of direct confrontations</td>
</tr>
<tr>
<td>Masculinity vs. Femininity</td>
<td>Ego-oriented; Conflict resolved through force; High value of successful performance</td>
<td>Relationship-oriented; Conflict resolved through negotiation; Emphasis on quality of life</td>
</tr>
<tr>
<td>Uncertainty Avoidance Index</td>
<td>Preference for structure; Differences avoided; Resistance to change; Formality in interactions with strangers</td>
<td>Openness to change; More comfortable with unstructured situations; Informality in interactions with strangers</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>Focus on the future; Willing to delay immediate gratification; Persistence valued</td>
<td>Focus on the present; Care more about immediate gratification; Quick results valued</td>
</tr>
<tr>
<td>Indulgence vs. Restraint</td>
<td>Free gratification of desires; Leisure time important; More positive and extroverted</td>
<td>Believes desires should be curbed; Leisure time is less important; Less positive; More cynical</td>
</tr>
</tbody>
</table>

(Based on: Hofstede, 1980; Hofstede & Bond, 1984a; Hofstede et al., 2010)
As with all research tools, Hofstede’s model has a variety of advantages and disadvantages. These are summarised in Table 3.4.

Table 3.4 Advantages and disadvantages of Hofstede’s cultural dimensions

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple validations and reiterations lending</td>
<td>Nation-based categorisation of cultural traits, ignoring intra-national diversity</td>
</tr>
<tr>
<td>to the rigour of the model</td>
<td></td>
</tr>
<tr>
<td>Wide-scale adoption and use, particularly in</td>
<td>Broad, macro-level view that may oversimplify individual identities</td>
</tr>
<tr>
<td>education research</td>
<td></td>
</tr>
<tr>
<td>Ability to ‘quantify’ cultural dimensions for</td>
<td>Infrequent re-evaluation of dimension scores may not incorporate changing national values</td>
</tr>
<tr>
<td>inclusion into statistical analyses</td>
<td></td>
</tr>
</tbody>
</table>

(Based on: Bond, 2002; Hofstede, 1986, 2001; McSweeney, 2002; Merritt, 2000; Minkov & Hofstede, 2014; Taras, Kirkman, & Steel, 2010; Taras, Steel, & Kirkman, 2012)

The adoption of Hofstede’s classification system provided several benefits to this research project. First, the theory builds on over 40 years of research by Hofstede and colleagues in multiple contexts and across different time points (see, for example: Hofstede & Bond, 1984b; Hofstede et al., 1990; Minkov & Hofstede, 2014). Multiple researchers have also independently validated the original questionnaire (see, for example: Litvin, Crotts, & Hefner, 2004; Merritt, 2000; Søndergaard, 1994). Hofstede himself suggested in 2001 that the model has undergone over 200 successful replications (Hofstede, 2001). Therefore, the multiple validations and reiterations of the model added to the rigour of the studies described in this thesis.

In addition to the theory’s reliability, there is also a large associated bank of research findings that have used Hofstede’s dimensions to interpret behavioural differences between cultures (for meta-analyses see: Sama & Papamarcos, 2000; Stahl et al., 2010; Taras et al., 2010; Taras et al., 2012). Indeed, Taras et al. (2012) outlined that studies adopting Hofstede’s dimensions have reached over half a million participants across more than 75 countries. Additionally, Hofstede’s Google Scholar citation count (as a rough estimate) stretches to more than 134,000 citations. In regards to the theory’s scale of influence, Triandis (2004, pp. 89-90) argued that ‘any publication that deals with cultural differences is likely to reference Hofstede.’

While the original aim of Hofstede’s research was to investigate the impact of cultural differences on leadership styles in the business world, the cultural dimensions identified by Hofstede appeared to impact learning and teaching as well (as described in: Hofstede, 1986, 2001; Hofstede et al., 2010). Hofstede (2001) described that educational experiences are one of the top influences on individuals’ adoption of cultural values. As outlined in Section 2.3.2, the theory has strong implications for educational settings, with many studies using it as a tool to analyse intercultural
differences in educational behaviours, experiences and traits (see, for example: Al-Harthi, 2005; Arenas-Gaitan et al., 2011; Jippes & Majoor, 2008; Rienties, Héliot, et al., 2013; Rienties & Tempelaar, 2013; Tarhini et al., 2017; Tempelaar & Verhoeven, 2016). Overall, the wide-scale use of Hofstede’s theory aided in the application and comparability of these research findings.

However, it is recognised that there are criticisms of Hofstede’s work. For example, Hofstede’s theory relies on a nation-based categorisation of cultural traits, whereby other researchers have argued that both nations and individuals can have multiple or multifaceted identities and cultures (see, for example: Baskerville-Morley, 2005; Crafter & de Abreu, 2010; Myers & Tan, 2002; Stanton, Ramsamy, Seybolt, & Elliott, 2012). Therefore, one drawback of Hofstede’s model is the presumed homogeneity of intra-national cultural identities, as argued by McSweeney (2002). Indeed, it is easy to fall into the trap of stereotyping students based on cultural identities, as demonstrated in the myth of the ‘Chinese learner’ (whereby Chinese students are erroneously stereotyped as rote memorisers) (Chen & Bennett, 2012; Q. Gu & Schweisfurth, 2006; Price et al., 2011; Ryan & Louie, 2007; Sun & Richardson, 2012). In their work unpacking the experiences of Chinese learners, Q. Gu and Maley (2008, p. 227) counter such stereotyping by stating:

‘We shall, therefore, take the view that, while “the Chinese learner” may have certain identifiable characteristics, some of them related to culture, they may also learn and behave differently in different contexts, in ways related more to personal needs and situational demands.’

Hofstede (1995) countered these criticisms by urging researchers to consider the ‘garden’ rather than the ‘flowers’ (i.e. to reflect on cultural traits from a macro, group-level perspective rather than an individual perspective). Lenartowicz and Roth (1999) further supported this notion by arguing that culture is more generally ‘stable’ and ‘observable’ as a macro, group-level phenomenon.

One additional caution when using Hofstede’s cultural dimension tools is the level of analysis within which researchers draw conclusions about their findings. Macro-level measures of culture are best suited to provide macro-level conclusions about group experiences. To wholly subscribe a group-level phenomenon onto the individual is what Hofstede (1980) described as ecological fallacy, which is the erroneous assumption of correlational relationships between levels of analysis. Therefore, many researchers have urged caution in drawing individual-level conclusions based on group-level traits (Bond, 2002; Brewer & Venaik, 2012; Hofstede, 1980; Smith & Bond, 1998; Triandis, Leung, Villareal, & Clack, 1985). In this sense, the macro-level focus of Hofstede’s cultural dimensions in this thesis provided a broad, generalised understanding of patterns of behavioural...
differences between groups of students in online intercultural group work. Throughout this research, therefore, it was important to interpret such findings on this macro-level scale, with care taken to recognise the potential for individual-level differences and deviations from group behaviours.

A final criticism of Hofstede’s model is that quantification of cultural traits oversimplifies group and individual identities. For example, G. L. Harrison and McKinnon (1999) argued that culture is too complex to reduce to a single score. Jacob (2005) also highlighted that cultural identities within nations are constantly changing and cultural trait categorisations only reflect cultures at one particular time. Further, the categorisations do not take into consideration identity shaping as a result of life experience (McSweeney, 2013), migration (Raghuram, 2013) or acculturation (Daghfous, Petrof, & Pons, 1999). Therefore, it is essential to consider findings when using quantified cultural traits as a generalisation rather than a hard rule for individual behaviours.

Despite these criticisms, Hofstede’s broad, macro-level view of cultural differences closely connects to the overarching goals of the studies. After all, a typical higher education module includes students from a wide range of diverse backgrounds. In this regard, the needs of practitioners and teachers, who in reality may not have the time or resources required to read segmented literature about each individual group represented in their module, were considered. The goal of this research, therefore, was to unpack on a macro level the general tensions experienced by students working with a broad range of peers and provide one general intervention that can be broadly adopted to support cohesion.

Yet, in addition to this broad and macro-level approach to diversity and culture, it was also important to keep in mind that students are individuals and cannot be generalised or essentialised based on their cultural group membership. Indeed, it has been considered that cultural identity is flexible – ‘a plastic and changing badge of membership’ (Modood, Beishon, & Virdee, 1994, p. 119) – rather than a rigid code of guidelines for individual behaviour. Although there was a macro-level focus within this project, it was important for micro-level influences to play a role in understanding findings, particularly in light of the above criticisms of Hofstede’s conceptualisation. For this reason, care was taken to highlight individual experiences and voices through the incorporation of a mixed method research design (described in Section 3.2.2) and the inclusion of qualitative triangulation through interviews and open-ended questionnaires.
3.3 Research Design

As described in Chapter 2, this research was comprised of seven research questions (outlined in Section 3.1), which were addressed through four interlinking studies. Figure 3.1 demonstrates the research questions that each study addressed.

Figure 3.1 Research questions addressed in each study

Study 1
- RQ1: How do students’ social relationship networks influence measurable participation in intercultural group work?

Study 2
- RQ2: How do students’ cultural traits influence measurable participation in intercultural group work?
- RQ3: What sociocultural tensions do students experience when working with diverse peers in intercultural group work?

Study 3
- RQ5: How does local versus internationalised academic content impact upon measurable participation in intercultural group work?
- RQ6: How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work?

Study 4
- RQ7: How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content?

Study 1 provided a foundational, macro-level understanding of measurable differences in online intercultural group work participation. Study 2 then illuminated individual voices and micro-level experiences through in-depth interviews. The study also unpacked student opinions on the role of internationalised academic content in supporting group work success. The effectiveness of this intervention was analysed next in Study 3 through a comparison of student behaviours using internationalised versus local academic content. Finally, Study 4 reviewed student reflections on
their experiences when working with internationalised versus local academic content. Altogether, the findings (described in Chapters 4 through 7) provided a multifaceted understanding of sociocultural tensions in online intercultural group work and the role of internationalised academic content in supporting positive group work experiences. In doing so, the studies filled important gaps in current knowledge, as addressed in Sections 2.3.4 and 2.4.4. This conceptual relationship between the four studies is summarised in Figure 3.2.

Figure 3.2 Conceptual links between studies

<table>
<thead>
<tr>
<th>Study 1</th>
<th>Provided evidence for differences in measurable behaviours between students in online intercultural group work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 2</td>
<td>Unpacked student views on intercultural group work tensions to understand how and why behavioural differences exist</td>
</tr>
<tr>
<td>Study 3</td>
<td>Analysed measurable student behaviours to evaluate the effectivity of internationalisation of academic content as an intervention to support students in online intercultural group work</td>
</tr>
<tr>
<td>Study 4</td>
<td>Evaluated student experiences and reflections of sociocultural tensions when participating in intercultural group work using internationalised versus local academic content</td>
</tr>
</tbody>
</table>

Supporting intercultural collaboration in blended and online settings
Mixed methods were deemed appropriate to provide a multifaceted understanding of this complex topic (as outlined in Section 3.2.2), By using a pragmatic approach (described in Section 3.2.1), research methods were chosen based on the ‘best fit’ for addressing the needs of each individual research question. Research methods used included: social network analysis, learning analytics, qualitative interviews, randomised control trials and questionnaires. These are described in detail in Sections 3.3.1 through 3.3.6. As a general overview, however, the relationships between the research methods, study components and research questions are provided in Figure 3.3.

Figure 3.3 Graphical depiction of mixed methods used in this thesis

Sections 3.3.1 through 3.3.6 next provide an in-depth discussion and justification for the use of each of these methods in relation to the research questions.
3.3.1 Social Network Analysis

RQ1 considered the role of social networks in intercultural group work participation. Therefore, social network analysis (SNA) was used in Study 1, which allowed for students’ social relationships to be measured and compared with their measurable online group work participation behaviours. SNA provides a set of tools to analyse connections between individuals, allowing one to discover and map social relationships (Borgatti, Everett, & Johnson, 2013; Kadushin, 2012; Katz, Lazer, Aarow, & Contractor, 2004; Scott, 2013; Wasserman & Faust, 1994). As argued by Borgatti et al. (2013), this network mapping of social connections provides insights into the structure of communities and patterns of relationships. SNA is typically used to describe broader trends of interactions between individuals, rather than highlighting individual behaviours (Katz et al., 2004), a notion which fits well with the macro-level overarching framework of Study 1.

The method used in this research was a ‘closed’ network approach, whereby participants were provided with a list of all of their peers and asked to mark those with whom they are friends, as suggested in previous education research (see, for example: Curşeu et al., 2012; Haythornthwaite & Wellman, 1998; Hernández-Nanclares, Rienties, & Van den Bossche, 2012; Martinez, Dimitriadis, Rubia, Gomez, & de la Fuente, 2003; Rienties et al., 2014; Rienties, Héliot, et al., 2013; Rienties et al., 2015; Rienties & Nolan, 2014). The data can then be visualised graphically with ‘nodes’ (depicted as shapes) representing participants and ‘ties’ (depicted as arrows) representing stated relationships, which may or may not be reciprocal. An example is provided in Figure 3.4. Visualisation of social networks was accomplished through the use of the software Netdraw.

Figure 3.4 Example of social network analysis visualisation

SNA has frequently been applied in educational contexts (Carolan, 2014; Curşeu et al., 2012; Hommes et al., 2012; Martinez et al., 2003; Russo & Koesten, 2005) (for a systematic review, see: Cela, Sicilia, & Sánchez, 2015). For example, Hendrickson et al. (2011) used SNA in combination with
questionnaires methods and found that more connections with host students led to higher university satisfaction. Rienties et al. (2014) used a closed-network SNA survey to determine the influence of self-selected versus assigned small group members on social network building and found social networks were more diverse for students who were assigned random group members. Aviv, Erlich, Ravid, and Geva (2003) compared SNA data with content analysis of asynchronous group messages to analyse patterns of collaboration. Similarly, SNA has been used in online group work settings to analyse group cohesiveness (Heo, Lim, & Kim, 2010) and development of collaborative learning networks (Cho, Gay, Davidson, & Ingraffea, 2007). With this previous literature in mind, there is a clear rationale for the use of SNA to understand the effects of existing social networks on measurable behaviours in online group work.

When using SNA, it is important to keep in mind the method’s relative strengths and weaknesses, which are described in Table 3.5.

### Table 3.5 Advantages and disadvantages of social network analysis

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualisations allow for patterns of interactions and relationships to be easily identified</td>
<td>Recorded relationships are set in time, although in reality they may be evolving or changing</td>
</tr>
<tr>
<td>Social agency can be ‘quantified’ for inclusion in statistical analysis</td>
<td>Recorded networks do not by themselves explain how or why patterns occur</td>
</tr>
<tr>
<td>Allows for analysis of social networks on a large scale in a relatively short timeframe (compared to, for example, interviews)</td>
<td>Closed network approaches rely on participants’ subjective reflections of relationships and may not fully reflect real-world relationship patterns</td>
</tr>
</tbody>
</table>

(Based on: Borgatti, Mehra, Brass, & Labianca, 2009; De Laat, Lally, & Simons, 2007; Emirbayer & Goodwin, 1994; Scott, 2013)

RQ1 focused on understanding patterns of relationships, which is a strength of SNA. At the same time, the ‘quantification’ of social relationship data using SNA allowed for a statistical comparison with behavioural data in online group work. However, although SNA can demonstrate patterns of relationships, the data cannot describe how or why the patterns exist. This weakness provides a rationale for the inclusion of a qualitative element to this research (Section 3.3.3). One additional important weakness of SNA is that it does not provide very deep insights when used on its own. For this reason, it is suggested that SNA is a more robust tool when used in combination with other instruments (De Laat et al., 2007; Martinez et al., 2003; Rienties & Hosein, 2015; Rienties et al.,
This notion adds precedence for the comparison of SNA data with learning analytics data to answer RQ1, which are discussed next.

3.3.2 Learning Analytics

RQ1, RQ2, RQ5 and RQ6 were all concerned with measurable student participation behaviours in online intercultural group work (e.g. frequency and length of posts, etc.), which suggested the inclusion of learning analytics data. The Society for Learning Analytics Research (2015) defined learning analytics as, ‘the measurement, collection, analysis and reporting of data about learners and their contexts, for understanding and optimising learning and the environments in which it occurs.’ Learning analytics, at its core, is the analysis of student-generated behavioural data with the goal of benefiting learners (Long & Siemens, 2011). Broad goals include the measurement and monitoring of learning and social behaviours or processes with the aim of improving student progression, retention and experience (Buckingham Shum & Ferguson, 2012; Siemens, 2013). The rise of learning analytics stems from a wider ‘big data’ shift in areas such as business intelligence (Ferguson & Buckingham Shum, 2011; Piety, 2014). The field, therefore, is highly quantitative in nature and focuses on the analysis of measurable student behaviours. Verbert, Manouselis, Drachsler, and Duval (2012, p. 138) outlined six key objectives for learning analytics:

1. ‘Predicting learner performance and modelling learners.’
2. ‘Suggesting relevant learning resources.’
3. ‘Increasing reflection and awareness.’
4. ‘Enhancing social learning environments.’
5. ‘Detecting undesirable learner behaviours.’
6. ‘Detecting affects of learners.’

With this in mind, this research fit within categories 4 and 5 by addressing online intercultural group work social tensions and unequal participation among group members. Muijs (2011) similarly argued that quantitative research, in general, is particularly useful for research that aims to analyse relationships between measurable variables. As factors (outlined in Figure 1.1) such as student behaviours and social network (using SNA) are measurable, a quantitative approach is logical for Studies 1 and 3.

A wide variety of recent research has used learning analytics data to unpack factors that encourage or discourage student success (for example: Ali, Hatala, Gasevic, & Jovanovic, 2012; Beer & Tickner,
Learning analytics has also been widely used to analyse participation in online discussions (Agudo-Peregrina, Iglesias-Pradas, Conde-González, & Hernández-García, 2014; Giesbers et al., 2014; Macfadyen & Dawson, 2010; Tempelaar, Wosnitza, et al., 2013). However, few studies have considered the role of cultural factors on measurable behaviours, and studies that do tend to provide a relatively shallow definition of student diversity. Indeed, many studies simply label international student identities as a dichotomous yes/no (i.e. is an international student or is not an international student) (Colthorpe et al., 2015; de Freitas et al., 2015; Gašević et al., 2016), which fails to incorporate the variety of student backgrounds within the simple classification of ‘international.’

At the same time, there has been argumentation for the incorporation of more nuanced cultural variables, such as Hofstede’s cultural dimensions, into learning analytics models (Kizilcec et al., 2017; Mittelmeier, Tempelaar, et al., 2016; Vatrapu, 2011). Therefore, in addition to gaps in the current literature (highlighted in Chapter 2), there is a clear methodological gap in the learning analytics field to which this thesis contributed.

It is important to consider the strengths and weaknesses of a learning analytics approach. These are outlined in Table 3.6.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses large volumes of learner (e.g. demographics, educational experiences, etc.) and learning (e.g. behavioural) data that is already being recorded during online learning activities</td>
<td>Does not always capture relevant factors outside of the online learning platform that may impact performances or behaviours</td>
</tr>
<tr>
<td>Uses precise statistical models to allow for analysis and prediction of student behaviours</td>
<td>Collected data does not by themselves explain how or why behaviours occur</td>
</tr>
<tr>
<td>Looks objectively at measurable behaviours rather than subjective reflections of behaviours (as in other methods, such as interviews)</td>
<td>Potential for misinterpretation of cause and effect relationships between data</td>
</tr>
</tbody>
</table>

The major strength of incorporating learning analytics data was an objective analysis of measurable student behaviours. This was important, as much previous research has relied on subjective
reflections of students’ experiences. Therefore, it was important for this work to consider whether student behaviours match their reflections.

At the same time, one key weakness of a learning analytics approach, as with social network analysis, is that the data may not provide a strong understanding of how and why student behaviours occur if the data is insufficiently rich or if the methods used to understand student behaviour are over-simplified. However, a mixed methods approach was used to counterbalance the weaknesses in chosen methods (see Section 3.2.2). As social relationships and cultural influences are highly subjective, qualitative experiences, the quantitative findings from Study 1 required a further illumination through qualitative interviews (outlined in Section 3.3.3).

One important criticism of learning analytics which this thesis addressed is the notion proposed by Beer and Tickner (2014, p. 1) that it will, ‘fail to make sustained and meaningful contributions to learning and teaching.’ One explanation for this critique is that as a field in its relative infancy, learning analytics has not demonstrated much evidence regarding measurable improvements in student learning behaviours (Ferguson & Clow, 2017). Therefore, it was important for this research to move beyond theoretical and predictive measures and aim, instead, to ultimately provide an evidence-based and replicable intervention that can support successful intercultural group work experiences.

3.3.3 Qualitative Interviews

Study 1 provided a foundational, quantitative understanding of measurable behavioural differences among students in online intercultural group work. However, as highlighted in Sections 3.3.1 and 3.3.2, one prominent weakness of social network analysis and learning analytics methods is that they do not necessarily provide an understanding of which factors or experiences have influenced the collected data (i.e. the how and why factors). This was one key goal of Study 2: to unpack and confirm quantitative findings related to differences in students’ measurable online group work behaviours. At the same time, the second goal of Study 2 was to feed forward in this research project by providing a stronger understanding of which evidence-based intervention might help increase group work success. With this in mind, RQ3 and RQ4 required an analysis of student reflections on sociocultural tensions into intercultural group work through in-depth qualitative interviews.

Qualitative interviews focus on understanding and analysing the life experiences or thoughts of participants (Kvale, 2008). Although interview methods can take on a variety of forms (L. Cohen et
al., 2011), Mason (2002) noted that several underlying features are common for all qualitative interviews:

1. An exchange of dialogue between the interviewer and the interviewee(s)
2. A thematic or topic-centred approach (i.e. something the interviewer wishes to discuss)
3. A co-creation of knowledge and understanding between interviewer and interviewee(s) as a result of the interaction

As described by Kvale (2008, p. 5), ‘an interview is literally an inter-view, an interchange of views between two persons conversing about a theme of common interest.’ In this sense, interview methods are preferred when the research goal is to gain in-depth insight or understanding into a phenomenon (Gilman, 2000; Ritchie & Lewis, 2003).

The use of qualitative interviews as a research method does, of course, come with inherent advantages and disadvantages. These are outlined in Table 3.7.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a rich and detailed understanding of how and why phenomena occur</td>
<td>Responses are based on opinion, and therefore are highly subjective and easily biased</td>
</tr>
<tr>
<td>Allows for an analysis of the subtleties between individual experiences, particularly in regards to complex research topics</td>
<td>Collected data depicts participant reflections of their experiences, which may not correspond with actual, observable or measurable experiences</td>
</tr>
<tr>
<td>Allows new themes or ideas to emerge, which may not be apparent in current literature or collected quantitative data</td>
<td>Timely and expensive to conduct, therefore often resulting in a smaller sample size (making it more difficult to generalise findings across a large population)</td>
</tr>
</tbody>
</table>

(Based on: Gilbert, 2001; Gilman, 2000; Kvale, 2008; Ritchie & Lewis, 2003)

One major strength of incorporating interviews is that they allow for an in-depth understanding of individual experiences. This was important in this research, as one key weakness of the quantitative approaches adopted in this thesis, such as social network analysis (Section 3.3.1) and learning analytics (Section 3.3.2), is that they may fail to provide answers about how and why observed phenomena occur. In this regard, although interviews can take place at any and all stages of a research project, interviews following quantitative data collection provided a more in-depth
understanding of quantitative findings (Bryman, 2006a, 2012; Creswell & Plano Clark, 2011). As themes of culture and social experiences are highly individual and personal, the qualitative interviews in this research shed further light on the subtleties of student experiences. At this same time, this nuanced analysis of individual reflections helped triangulate and confirm findings in Study 1. This method mixing also helped counterbalance the ‘broadness’ of the research and analysis methods in Study 1, such as the incorporation of macro-level Hofstede cultural dimensions scores, by giving a voice to individual experiences on a more micro scale. At the same time, the quantitative data in Study 1 offset the weaknesses of qualitative interviews (highlighted in Table 3.7) by providing an objective outline of observable, measurable behaviours to complement Study 2’s more subjective individual reflection data.

One important weakness of interview methods lies in the subjectivity in the analysis (Kvale, 2008). As analysis relies on the personal perceptions of the researcher, it can be easily biased. For this reason, steps were taken to remove some of the subjectivity in the qualitative analysis. For instance, multiple coders and interrater reliability analysis have been incorporated. These are described further in Sections 5.2 and 7.2.

Altogether, Study 1 and Study 2 provided a multifaceted understanding of student behaviours and experiences in intercultural group work. In doing so, it was clear that an intervention was needed to support positive collaborations in light of measured sociocultural group work tensions. In light of recent research (Arkoudis et al., 2013; Bodycott et al., 2014; de Haan & Sherry, 2012; Jones, 2010; Jones & Killick, 2007; J. Knight, 2006, 2013; Leask, 2004, 2009; Leask & Carroll, 2011; Liu et al., 2010; Middleton, 2014), a decision was made to explore the role of internationalised academic content in supporting positive group work experiences. Therefore, the next steps in this research, Study 3 and 4, shifted focus onto analysing the effectivity of internationalised academic content as an intervention for supporting intercultural group work. These studies used a randomised control trial method to measure the added value of internationalisation, which is discussed next.

### 3.3.4 Randomised Control Trials

RQ5, RQ6 and RQ7 all required a comparison of student behaviours and experiences when working with internationalised versus local content. This comparison aspect was important, as one key gap addressed was whether internationalised academic content could indeed measurably improve group work behaviours and experiences. To demonstrate improvement, however, a baseline set of data was needed to understand student behaviours and reflections when working with content from the local context. With this in mind, a randomised control trial (RCT) method was used in Studies 3 and 4.
In education research, an RCT is a method of evaluating whether an educational intervention has been successful (Cook & Campbell, 1979; Kendall, 2003; Torgerson & Torgerson, 2001, 2008). By design, RCTs involve forming two or more participant groups at random. Groups are then allocated as either ‘experiment’ or ‘control’; the experimental group receives the intervention being researched, while the control group receives no intervention. By comparing the end results between the two groups, one can more robustly measure the added value of the intervention. As described by Torgerson (2009, p. 314):

‘The RCT is particularly well-suited to areas where there is considerable complexity in terms of causal pathways and mechanisms of action. Where a causal relationship is straightforward, such as a strong blow to the arm causing injury, then a RCT is not necessary to illuminate whether or not the action leads to the predicted outcome. In contrast, where the causal pathway and mechanism of action are more complex, such as training teachers to deliver a phonics-based reading programme causing improvement in children’s literacy outcomes, then a RCT is the robust method to use in order to establish this causal relationship.’

Indeed, it has been argued that the RCT is the most robust method for testing the success of educational interventions (Hutchinson & Styles, 2010; Shadish, Cook, & Campbell, 2002; Sheldon & Oakley, 2002; Torgerson, 2009; Torgerson & Torgerson, 2001). After all, it is difficult to measure the impact of an intervention without empirically testing it against a control condition (i.e. a random selection of students who did not receive the intervention) (Herodotou et al., 1990; McMillan & Schumacher, 2014; Slavin, 2008). For this reason, some stipulate that RCTs are the ‘gold standard’ for empirical research.

Although RCTs were originally devised for medical and hard science research (Hutchinson & Styles, 2010), there has been a strong push for their incorporation into education research (Sheldon & Oakley, 2002; Torgerson & Torgerson, 2001). For example, Hommes et al. (2014) combined an RCT method with qualitative interviews to evaluate using collaborative learning groups to make large modules feel ‘small.’ Using a combined RCT and SNA approach, Rienties and Héliot (2016) analysed the effectivity of small interdisciplinary groups to produce knowledge spillovers between students in different academic programmes. RCTs have also been used to analyse wide-ranging higher education interventions such as interventions for students at risk (Herodotou et al., 2017), examining new pedagogical tools (Secomb, McKenna, & Smith, 2012) and raising awareness of health concerns (Bewick, Trusler, Mulhern, Barkham, & Hill, 2008). In all cases, the RCT method
allowed for an evidence-based appraisal of an intervention’s ability to improve student learning or behaviours.

It is important to note that, despite its ‘gold standard’ status, the RCT is not an appropriate method for addressing all research questions (as outlined in Styles, 2009). However, Hutchinson and Styles (2010, p. 2) described conditions under which an RCT is an appropriate choice:

- There is a specific population of individuals at whom the intervention is aimed.
- Any improvements in the educational outcomes of the target individuals as a result of the intervention are measurable.
- The evaluation needs to discern the effect of the intervention on the outcome measure of interest.’

In this regard, an RCT method was appropriate for the research goals of Study 3 and 4. Regarding population, there was a specific target: higher education students in highly diverse modules who partake in online intercultural group work. As suggested, the educational outcomes of the targeted intervention (i.e. internationalised academic content) were measurable by learning analytics (Section 3.3.2) and questionnaire (Section 3.3.5). Finally, there was a need to discern the effects of the intervention (internationalisation of academic content) and the outcome (online group work behaviours and reflections).

When adopting an RCT method, it is important to consider its strengths and weaknesses. These are described in Table 3.8.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allows for a robust and evidence-based analysis of an intervention’s impact on measurable outcomes</td>
<td>Causality of an intervention’s success or failure is difficult to establish</td>
</tr>
<tr>
<td>Reduces influence of biases and confounding variables to allow for a more objective analysis of an intervention’s impact</td>
<td>A large sample size is required</td>
</tr>
<tr>
<td>Facilitates statistical analysis of observed behaviours</td>
<td>Bias in condition allocation can skew the results of the findings</td>
</tr>
</tbody>
</table>

(Based on: Hutchinson & Styles, 2010; Shadish et al., 2002; Sheldon & Oakley, 2002; Swain, 2017; Torgerson & Torgerson, 2008)
One common criticism of RCTs in education is related to the ethical implications of providing an intervention that may increase education success to only a subset of the student population (Cook, 2002; Cook & Payne, 2002; Oakley, 2006). Hutchinson and Styles (2010, p. 5) counter this argument by stating, ‘if we do not know whether the intervention works or is even detrimental to outcomes, we are in an ethically neutral scenario when randomising.’ For example, Herodotou et al. (2017) recently conducted a study on the effects of contacting students to encourage exam attendance. Contrary to intuition, the RCT study found that contacting students was detrimental to encouraging participation. These findings highlight that, without the rigorous and evidence-based testing of good practice assumptions, universities may be inadvertently harming students in the process of attempting to help.

Yet, it is important to keep in mind the ethical right that students have to equitable educational experiences, and steps were taken to ensure this in Study 3 and 4. First, the laboratory activities in Study 3 all involved the same group work task with only subtle variations in the ‘space and place’ of the assigned content (described in detail in Section 6.2.4). Therefore, all participants, regardless of condition allocation, had opportunities to practice group work soft skills, online communication, analysis of real-world data and making inferences beyond the data. In Study 4, all participants completed the same post-laboratory reflection activity (described in Section 7.2), which allowed them to reflect on their group work contributions and participation. Finally, all participants were given the same post-study feedback, which compared their behaviours and reflections with the module average and provided tools for improving group work experiences in the future.

Another common criticism or weakness of the RCT approach is about causality (Cook, 2002; Cook & Campbell, 1979; Cook & Payne, 2002; Hutchinson & Styles, 2010; Torgerson & Torgerson, 2008). RCTs allow for researchers to understand whether an intervention has been successful. However, they do not necessarily establish how or why an intervention succeeded or failed. In this sense, the limitations of RCTs are similar to that of social network analysis or learning analytics: measurable differences in behaviours can be easily established, but this does not always provide evidence of the causal influences that are important to understanding the nuances or complexities of participant experiences. In response to this, Hutchinson and Styles (2010, p. 5) argued, ‘this is a good argument for qualitative work happening in parallel with any trial that also seeks to clarify how the intervention is causing any measured effect.’ For this reason, the final study (Study 4) incorporated a mixed qualitative and quantitative reflective questionnaire to further analyse the causal relationship between internationalised academic content and online group work experiences. The questionnaire method is discussed next.
3.3.5 Questionnaires

As described in Section 3.3.4, combining qualitative work with an RCT method facilitates the unpacking of the causal relationships between the intervention and measured differences in behaviours. In Study 4, a post-activity reflective questionnaire was incorporated to understand the more subjective student reflections of their group work experiences and to unpack how and why internationalised academic content impacted group work participation (RQ7).

Questionnaires are self-report tools for collecting data regarding participants’ experiences or responses about a specific topic or theme (L. Cohen et al., 2011). They have been previously established as a useful method for assessing participants’ thoughts, preferences, attitudes or perceptions of a particular experience or problem (Best & Kahn, 2006; Creswell, 2012; Gay, Mills, & Airasian, 2016; Robson, 2011). Questions incorporated into questionnaires can take on a variety of forms (Groves et al., 2009; Wolf, Joye, Smith, & Fu, 2016). They can be more quantitative-minded and lend to statistical analysis, such as Likert scales, multiple choice or dichotomous yes/no questions. Alternatively, questions can collect written text responses and lend to qualitative analysis, such as short answer or open-ended questions. In this sense, the questionnaire method can be flexibly adapted to meet the needs of the research questions.

The advantages and disadvantages of incorporating a questionnaire method are outlined in Table 3.9.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allows for in-depth analysis of participant reflections or experiences</td>
<td>Truthful reflections of experiences may be biased by time or participant forgetfulness</td>
</tr>
<tr>
<td>Allows for a timely and cost-effective analysis of a larger population of participants than would be possible using alternative methods, such as qualitative interviews</td>
<td>Participants may interpret questionnaire questions or scales in ways different than intended by the researcher</td>
</tr>
<tr>
<td>Eliminates the possibility of interviewer bias on participant responses</td>
<td>When compiling questions, the researcher is making decisions or assumptions about what is of importance to the experience, which may miss latent or emerging themes or concepts</td>
</tr>
</tbody>
</table>

(Based on: Best & Kahn, 2006; Bryman, 2012; Gay et al., 2016; Groves et al., 2009; Wolf et al., 2016)

One key advantage relevant to this research is that questionnaires are timely and cost-efficient (Gay et al., 2016; Groves et al., 2009; Wolf et al., 2016). In Study 4, it was important for there to be a timely evaluation of participant experiences with an online intercultural group work activity. As
time progressed, after all, the ability of participants to immediately and unbiasedly recall their experiences working on this particular assignment would be compromised (Wolf et al., 2016). Therefore, there was pressure for data collection to occur quickly following the group work assignment in Study 3. One consideration for data collection was qualitative interviews (described in Section 3.3.3), however prominent weaknesses of interviews are that they are time-consuming to undertake, thereby limiting the sample size due to researcher resources (Kvale, 2008). Therefore, the alternative analysis of student experiences by questionnaire allowed for a quick data collection within 48 hours of participation in the group work activity of Study 3, as well as a sample of nearly all of Study 3’s participants (as outlined in Section 7.2.1).

The leading weakness of a questionnaire method is that it is relatively inflexible (Bryman, 2012). It does not allow for clarification or elaboration of participant responses, and misinterpretation of questions can lead to biased responses. J. T. E. Richardson (2004) argued that questionnaire items may particularly need to be edited or revised if participants are from various cultural backgrounds. Therefore, it is important for questionnaires to undergo rigorous piloting and, when possible, incorporate previously validated constructs (Wolf et al., 2016). These notions related to Study 4 are addressed in Section 7.2.3.

3.3.6 Summary of Methods

This section has outlined the overarching methodological justifications and issues surrounding the methods adopted in this research. As noted in Section 3.2, the research questions addressed were complex and required a multifaceted approach to understand and unpack the problems they addressed. For this reason, a pragmatic and mixed method approach allowed for the flexibility to use methods that addressed the research questions in a comprehensive and appropriate manner. In Sections 3.3.1 through 3.3.6, the methodological choices undertaken were outlined. With these overarching ideas in mind, the specific procedures adopted in each study are described in Chapters 4 through 7. In the next section, the overarching ethical considerations that guided these procedures are outlined.

3.4 Ethics

The Open University Human Research Ethics Committee reviewed and approved all studies described in this thesis [References: HREC/2014/1852/Mittelmeier/1 (Study 1), HREC/2015/2154/Mittelmeier (Study 2), HREC/2016/2360/Mittelmeier/1 (Study 3 and 4)].
Throughout this research, the following manuals for ethical guidelines were consulted: British Educational Research Association (2011), British Psychological Society (2014) and Jisc (2015).

Personal information about participants’ backgrounds was collected in all four of the empirical studies, including country of origin and gender. However, no sensitive information, as defined by the Data Protection Act 1998, was collected about participants (for example ethnicity, religion, disability, health matters, sexual orientation, etc.). In Study 1, data was shared between Dr YingFei Héliot (Lecturer and module convener) at the University of Surrey and the Open University supervision team. In Study 2, 3 and 4, data was shared between Dr Dirk Tempelaar (Senior Lecturer and module convener) at Maastricht University and the Open University supervision team. In these instances, student ID numbers were initially used to match collected data with demographic data but then were replaced with a unique identification number to preserve participant identities. All data was stored in secure, password-protected files.

Throughout the analysis and reporting processes, steps were taken to protect the personal identification of participants. Pseudonyms have been used in reporting where necessary, and countries of origins have been reported as global regions in the case when a participant was the sole representative from their country in the module. As personal data such as country of origin are central to findings of this research, the data will be kept in full until January 2020 to allow for dissemination of findings. After this point, the data will be reviewed with a consideration of full deletion where appropriate. Data will continue to be stored in password-protected files in line with Data Protection Act 1998 requirements.

In all four studies, no risks to participants were identified. Throughout the studies, the work was framed to students as seeking to understand online intercultural group work experiences, which is an accurate depiction of the intentions of this work. However, it was not revealed to participants that the research focussed specifically on tensions between diverse participants so as not to influence or bias participant behaviours or reflections of their experiences. Similarly, in Studies 3 and 4, it was not made apparent to students that the content of their group work assignment differed from some of their peers so as not to bias their behaviours or responses.

All four empirical studies were designed with participant benefit in mind. In particular, the educational activities in Studies 1, 3 and 4 were designed in coordination with the lecturers to build on module content. Therefore, participating in these studies provided educational benefits to participants, which aided in their learning of module materials. The qualitative elements in Study 2 and 4 promoted reflection on collaborative experiences, which allowed participants to reconsider strategies for group work success. In all studies, participants were provided after the study with individualised feedback and resources to increase the success of future group work experiences. At
the same time, participation in all studies was voluntary and optional (i.e. not mandatory). In Studies 1, 3 and 4, an alternative assignment of equal length was available for students who opted not to participate.

Additional study-specific ethical considerations are provided in the methods sections of each study’s corresponding chapter in this thesis (Chapters 4 through 7).

3.5 Conclusions

This chapter has provided an overview of the overarching philosophical perspectives, methodologies and methods adopted. The next four chapters (Chapters 4 through 7) describe in depth the specific methods used in each study, as well as highlight the findings and results. Finally, Chapter 8 concludes this thesis with a discussion of findings in relation to the gaps in literature outlined in Chapter 2.
Chapter 4 – Study 1 Methods and Results

As described in Section 1.3, the empirical work was comprised of four studies, and this chapter describes the methods and findings of Study 1, which addressed measurable student behaviours in online intercultural group work. This chapter is divided into four sections. The Introduction (Section 4.1) reiterates the research questions for testing the impact of social and cultural factors in online intercultural group work. While Chapter 3 reviews the overarching methodologies adopted in this thesis, Section 4.2 of this chapter, Methods, describes in detail the specific methods used for Study 1, including information about the setting, participants, procedure, instruments and data analysis approach. The third part, Results (Section 4.3), reviews the findings in relation to the study’s research questions. The final Discussion (Section 4.4) examines the implications of Study 1’s findings, including limitations and consequences for future work.

4.1 Introduction

As described in Section 3.2, the research questions required a methodological approach that allowed for both the measurement of actual student behaviours in intercultural group work and the capturing of student reflections on their group work experiences. Therefore, a mixed methods approach (Creswell & Plano Clark, 2011) was deemed appropriate for this research to explore student behaviours in an intercultural group work assignment1. Section 3.3 provided an in-depth rationale for the overarching methodologies and study structure.

Section 2.3 highlighted the wide variety of research which has indicated that students face challenges when working with peers from different countries. Similar research has highlighted social (Section 2.3.1) and cultural (Section 2.3.2) barriers to the transitions of students from different backgrounds in face-to-face, blended and online university settings. At the same time, findings have indicated that there are measurable differences in student participation in group work, particularly in online and intercultural settings (Section 2.3.3). However, few studies have considered the intersection between these three bodies of research to understand whether sociocultural elements have impacted upon measurable group work behaviours. Therefore, the first study in this thesis built off of previous work to establish this relationship. As Muijs (2011) has argued that quantitative research is especially suited for establishing relationships between

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1 This chapter is based upon the following peer-reviewed conferences papers:
measurable variables, this present study incorporated a quantitative design using social network analysis and learning analytics to measure and test the relationships between previously observed phenomena. See Chapter 3 for an in-depth review and justification for the use of social network analysis (Section 3.3.1) and learning analytics (Section 3.3.2) in this study.

With this background in mind, the research questions that Study 1 addressed are as follows:

**RQ1:** How do students’ social relationship networks influence measurable participation in intercultural group work?

**RQ2:** How do students’ cultural traits influence measurable participation in intercultural group work?

An analysis of student behaviours during an online intercultural group work assignment was undertaken during the first stage of this thesis to answer these questions (Mittelmeier, Héliot, Rienties, & Whitelock, 2015, 2016). The next section provides an in-depth overview of the methods used in Study 1 to accomplish these goals.

### 4.2 Methods

#### 4.2.1 Setting and Participants

In order to address the research questions outlined in Section 4.1, it was necessary for this study to be set within a highly diverse higher education module that incorporated online intercultural group work. Study 1, therefore, was undertaken with Master’s level students studying in a blended multidisciplinary organisational behaviour module in a business school at a distinguished UK university. Within the course, students had regular face-to-face lectures and sessions in a physical laboratory, where they worked in small groups using online tools. This university had a large international student population, particularly in postgraduate degree programmes. Within the wider university, 55% of postgraduate students were from outside the UK, including 39% from outside Europe. This particular module had 118 students registered, of whom 89% \((n = 105)\) were international students from 24 countries. The module incorporated regular small group projects with a case study-based curriculum, and students had frequent opportunities to collaborate using online tools in a physical laboratory setting. Therefore, students in this module were accustomed to working with students from diverse backgrounds on real-world problems in blended and online settings.
Demographic information about the students in this module is depicted in Table 4.1. The majority of students were female \((n = 90, 76.3\%)\) and the average age was 24.7. The largest cultural groups represented in the module were from Confucian Asia, South Asia and Western Europe. Because there were many countries from which only one or two participants originated, the GLOBE country cluster system was used (House, Hanges, Javidan, Dorfman, & Gupta, 2004) to categorise students by region of origin for analysis.

**Table 4.1 Descriptive statistics of cultural backgrounds and labelling in social network analysis**

<table>
<thead>
<tr>
<th>Cluster</th>
<th>No. of students</th>
<th>Countries (samples, ordered by relevance)</th>
<th>Shape/colour in social network graphic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo</td>
<td>7</td>
<td>UK (8), Ireland (1), USA (1)</td>
<td>Yellow/Square with cross</td>
</tr>
<tr>
<td>Confucian Asian</td>
<td>66</td>
<td>China (54), South Korea (6), Japan (4), Hong Kong (2)</td>
<td>Blue/Triangle</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>4</td>
<td>Bulgaria (2), Ukraine (2)</td>
<td>Red/Square</td>
</tr>
<tr>
<td>Middle East</td>
<td>4</td>
<td>Kuwait (2), Lebanon (2)</td>
<td>Orange/Circle in Square</td>
</tr>
<tr>
<td>South Asia</td>
<td>20</td>
<td>Thailand (10), India (7), Vietnam (2), Indonesia (1)</td>
<td>Light blue/Star</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>3</td>
<td>Nigeria (2), Kenya (1)</td>
<td>Purple/Diamond</td>
</tr>
<tr>
<td>Western Europe</td>
<td>14</td>
<td>Germany (3), France (2), Greece (3), Spain (3), Portugal (2), Denmark (1)</td>
<td>Green/Circle</td>
</tr>
</tbody>
</table>

### 4.2.2 Procedure

**Step One: Social Network Analysis Surveys**

RQ1 required information about students’ stated social relationships with their peers. Therefore, in the first step of this study, an SNA survey (outlined in Section 3.3.1 and further described in Section 4.2.5) was distributed to all students in the module. This method was used as a tool to understand the social relationships between students in the module (Cela et al., 2015; Curşeu et al., 2012; Hommes et al., 2012; Katz et al., 2004; Russo & Koesten, 2005) and this instrument had been previously tested and validated in the same context during previous implementations of this module (Rienties & Héliot, 2016; Rienties, Héliot, et al., 2013). Altogether, surveys were collected from 94 students from 21 countries, which is a response rate of 79.6%. This is closely in line with Wasserman and Faust (1994)’s recommendation of 80%. As relationships in SNA are simultaneously indicated and confirmed by multiple individuals within the sample, it is common practice in this method to transpose results for missing respondents (see, for example: Rienties & Kinchin, 2014). Therefore, results from all 118 students in the wider module are included in the analysis.
The surveys were distributed by their module teacher to all students during a face-to-face lecture in their fourth week of study. The fourth week was specifically chosen in order to give students time to form social relationships with peers and begin to adjust to studying in the UK (Zhou et al., 2008). Students were provided information about the study verbally and signed a physical consent form before completing the survey (see Appendix 1). By agreeing to participate in the survey, students consented that their demographic data and grades would be shared with the researcher (see Section 4.2.4).

The survey took a closed network approach by including a list of all students registered in the module with the prompt: ‘I am friends with...’ Participants were asked to mark all peers with whom they were friends, as demonstrated in previous research (Curşeu et al., 2012; Haythornthwaite & Wellman, 1998; Hernández-Nanclares et al., 2012; Martinez et al., 2003; Rienties, Héliot, et al., 2013; Rienties & Nolan, 2014). An example of the method is provided in Figure 4.1.

**Figure 4.1 Example social network analysis survey**

<table>
<thead>
<tr>
<th>Name</th>
<th>I am friends with</th>
<th>Name</th>
<th>I am friends with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example Student 1</td>
<td>X</td>
<td>Example Student 2</td>
<td></td>
</tr>
<tr>
<td>Example Student 3</td>
<td>X</td>
<td>Example Student 4</td>
<td>X</td>
</tr>
<tr>
<td>Sarah Jones</td>
<td></td>
<td>John Smith</td>
<td></td>
</tr>
</tbody>
</table>

**Step Two: Computer Laboratory Task**

Both RQ1 and RQ2 required behavioural data from an online intercultural group work experience. Therefore, in the second step of this study, an online learning activity was conducted in a physical computer laboratory setting during Week 8. In this computer laboratory, participants were physically present in the same room but took part in a group work assignment using an online messenger in their Virtual Learning Environment (VLE) to communicate (described in Section 4.2.3). The computer laboratory sessions were part of the module calendar, with students assigned to laboratory times at regular intervals throughout the term to work on collaborative online tasks. Students were made aware that a research activity was built into one specific computer laboratory date at the start of the term. Students were recruited to participate in this laboratory activity through their module lecturer by email and verbally during the weekly face-to-face lecture. The email invitation from the lecturer included the study information sheet (also available in Appendix 2), which allowed students to make an informed decision whether to participate. All
communication about the study was provided by the module lecturer, and no contact was made by the researcher. There were also no consequences for choosing not to attend, as the research activity was entirely voluntary.

Upon arrival to this computer laboratory session, the information sheet was summarised verbally. Informed consent was given via physical signatures at the bottom of the information sheets, which were collected at the start of the laboratory. Students received no credit for participating in the activity, and no marks were given to their group work output. As the final examination for the module was scheduled for the following week, the activity acted as a revision opportunity, which incentivised participation.

Students were assigned to one of three laboratory sessions for this study, with approximately 20 students in each session. Altogether 58 students from 13 countries participated, which is a response rate of 47.5%. Again, the largest group of participants was from Confucian Asian countries (62.1%, n = 26). Other regions represented included: South Asia (n = 11), Western Europe (n = 4), Anglo (n = 3), Middle East (n = 2), Sub-Saharan Africa (n = 1) and Eastern Europe (n = 1). More female students participated (70.2%, n = 41) and the average age was 23.4. Altogether, computer laboratory participants were a good representative sample of the larger module population.

Before the individual laboratory sessions, all computers were logged into by the researcher using a generic login provided by the university’s IT department. Following the procedures developed by S. Knight et al. (2017), computers were prepared so that the web browser was open to the VLE log in page when students arrived. A paper copy of the study information sheet was placed in front of each computer (described in Section 4.2.4 and included in Appendix 2). The browser cache was cleared in between laboratories so that participants would not find hints to the activity through auto-filled responses. Upon arrival at the laboratory, participants were assigned to small groups of approximately 5 members (m = 4.67, SD = .88). Participants were assigned to groups at random in order to mimic real-world experiences where they must work with new and diverse group members. As students were physically present in the same room, they were also given a specific computer to work on in the laboratory that was not adjacent to any of their group members and instructed to use an online messenger as their sole means of communication (described in Section 4.2.3).

After being seated, the researcher and the study were briefly introduced to the students by the module lecturer. Afterwards, the researcher verbally summarised the study information sheet. Students were additionally reminded at that time that participation was voluntary and that no marks would be given for the activity. Next, the researcher described the task and group work aims in more detail. Prior to beginning the task, students were asked to provide consent to participate
via physical signature on the forms in front of their computer. These were collected by the researcher. After this initial introduction, the module lecturer left the room, and the laboratory was fully run by the researcher.

**Laboratory activity**

The laboratory activity used a Harvard Business School case study, in which a tyre company was faced with the problem of high worker turnover. A case study activity was selected as it is a common learning approach in business schools and in this particular programme. This particular case study was chosen in coordination with the module lecturer as it mimicked the type of activity that students would typically complete in small groups online during this module. Because the case study is a copyrighted item purchased by the researcher, it is not copied in full in the appendices but is available at Skinner and Beckham (2008). Although part of this research centred on issues surrounding internationalised academic content (RQ5, RQ6 and RQ7), the case study used in this study focussed on a local UK context. This was purposefully chosen so as to provide a baseline understanding of sociocultural tensions in intercultural group work when students work on locally-based assignments, which are typical in many universities. Issues surrounding experiences and behaviours when encountering internationalised academic content build upon the Study 1 findings in the final studies (Studies 3 and 4) using a randomised control trial design (Chapters 6 and 7).

The case study package included a variety of information and data about the fictional company and its workers, such as worker satisfaction questionnaires, line manager interviews, worker turnover data and the company’s induction processes. The group task, therefore, was to discuss this provided information in order to collectively decide on one best solution to the company’s problem. Each participant was given one identical sheet of information to begin the task, which described the problem stated in the case study and gave background information about the tyre company. Next, each group member was given a set of unique information related to the problem, such as raw data or further explanations, to which other group members did not have access. Students were made aware that each group member did not have the same information in order to incentivise communication and collaboration (see also: Decuyper et al., 2010). After a brief reading period of approximately 15 minutes, group members were instructed to log into the online messenger to collaborate with their group members to determine one best solution to the problem. By request of the module lecturer, participants were additionally asked to make explicit connections in their conversations to theories recently discussed in the module. After approximately 30 minutes of online discussion, participants were instructed to provide a final solution in the messenger to complete the task. A breakdown of the study timings and procedures is provided in Table 4.2.
### Table 4.2 Study 1 laboratory session timings

<table>
<thead>
<tr>
<th>Time (minutes)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>Introduction to laboratory session and oral summary of study information sheet</td>
</tr>
<tr>
<td>5-10</td>
<td>Consent signing, logging into VLE and group page</td>
</tr>
<tr>
<td>10 - 25</td>
<td>Reading of instructions and materials (5-minute warning given)</td>
</tr>
<tr>
<td>25 - 55</td>
<td>Online discussion with group members (10- and 5-minute warnings given)</td>
</tr>
<tr>
<td>55-60</td>
<td>Debrief</td>
</tr>
</tbody>
</table>

In order to gain familiarity with the university and module context, the researcher acted as an assistant in a laboratory session prior to this research activity. This provided the researcher with knowledge of the laboratory setting and the students in the module. Similarly, it provided essential practice and experience in running the practical aspects of a laboratory activity.

#### 4.2.3 Online Collaboration Tool

RQ1 and RQ2 required an analysis of behavioural data in order to measure student participation in an online intercultural group work activity. An online communication tool was used in order to address previous research that has demonstrated strong variations in student participation during online collaboration (see Section 2.3.3). Participants in this study communicated via an online synchronous instant messenger, which was a built-in feature of the university’s VLE. After logging into the VLE with their own Student ID and password, students were instructed to enter an assigned group page that had been preloaded into the module page. Their group number was handed to them on a slip of paper as they arrived at the laboratory. Only the assigned group members accessed each group page. Inside the page, participants could send instant messages to their peers to discuss the assignment. A screenshot of the messenger is provided in Figure 4.2. Instructions for the task were given in physical, paper form, and students were free to use online sources to complete the task (such as within the VLE or by web search).
When posting, only students’ university online ID was shown as their messenger username, which was a series of 2 letters and 4 numbers (for example: ab1234). This meant that students did not have an indication of their group members’ real names, ages, genders or cultural backgrounds unless the information was volunteered (i.e., mr4624: Hello, this is Marie from France). Therefore, although students were made aware that they would be working with peers from different countries, sociocultural influences on group work behaviours in this study are considered against the backdrop of an anonymous environment.

4.2.4 Data Used for Analysis

**Learning analytics data**

**Group Work Participation**

As RQ1 and RQ2 both focused on measurable participation in the group work activity, several data about individual contributions to the group work activity were obtained from the VLE. First, the number of posts made was considered. However, participants differed in their ‘style’ of online communication; some opted to write many, shorter messages while others contributed fewer, longer messages, in line with previous findings (K.-J. Kim & Bonk, 2002; S. Knight et al., 2017). Therefore, the summed word count submitted by each participant was also considered in the analysis to compensate for this.
Cultural Dimensions

RQ2 examined the role of cultural traits on participation in online intercultural group work. In order to measure cultural traits, demographic information about participants’ countries of origin was obtained from their university records and converted to Hofstede’s cultural dimensions scores (Hofstede et al., 2010). For an in-depth description of Hofstede’s cultural dimensions, including a definition of each trait, see Section 3.2.3.

Student Background Information

Several data related to students’ backgrounds and individual circumstances were also included in the analysis. First, demographic information about students’ gender identification was obtained from their university records. Previous research has also demonstrated a link between module social relationships and academic performance level (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015). One outcome could be that students who are more successful in the module may be more apt to contribute to the group work activity. Therefore, information about students’ grades was additionally obtained and included in the analysis. In this study, final examination scores were used, as the examination occurred one week after the study and covered materials included in the case study approach of this experiment. As suggested by the module lecturer, this score was perhaps the best indicator for how well students understood the materials covered in the activity.

Social Network Analysis

RQ1 considered the role of social networks in measurable online intercultural group work participation. For this reason, several data about students’ social networks in the module were collected from the SNA surveys and compared with learning analytics data from the online group work activity. As previous research has demonstrated that some students prefer to work with peers from their own background (N. Harrison & Peacock, 2010; P. Moore & Hampton, 2015; Rienties, Hernandez Nanclares, et al., 2013; Singaram et al., 2011; Strauss et al., 2011; Summers & Volet, 2008; Volet & Ang, 2012), one consideration was whether participants with more diverse social networks behaved differently compared to those with more homogeneous networks. Therefore, in line with Rienties, Héliot, et al. (2013), an External-Internal (EI) Index was calculated, which measures the diversity of an individual’s network based on a chosen category. EI Indexes are measured on a -1 to 1 scale, with -1 denoting an exclusively homogeneous network and 1 denoting an exclusively heterogeneous network (see Figure 4.3 for a visualisation). In this study, the EI Index was used to measure the social relationships participants had either within or outside of their own country cluster, as designed by GLOBE country clusters.
Other research has demonstrated that more ‘cohort’-like social connections with many peers within the module can improve group work satisfaction (Kimmel & Volet, 2012). Therefore, a second consideration was whether the quantity of students’ social connections in the module affected their group work behaviours. This was measured by network density, which is calculated by dividing the number of stated social ties by the total number of possible ties within the network.

4.2.5 Data Analysis

After the social network surveys were collected, a graphical representation of the data was first created using the software Netdraw in order to visually depict the patterns of students’ social relationships with one another, as suggested by Wasserman and Faust (1994). Reviewing this visualisation provided insights into the module community structure and patterns of friendship diversity (Borgatti et al., 2009).

Given the response rate, it was important to analyse whether there was a non-response bias and whether participants’ social connections and cultural traits affected their decision to participate in the optional laboratory activity. Therefore, a dummy variable was created to indicate laboratory attendance, which was compared with the SNA data (i.e. diversity and quantity of social connections) and Hofstede cultural dimension scores using bivariate analysis and Analysis of Variance (ANOVA) (Field, 2013; Muijs, 2011).

The data file was then split in order to analyse only the behaviours of those who did indeed attend the laboratory session. In this phase of the analysis, the learning analytics data from the activity (i.e. quantity of contributions) were compared with SNA data and Hofstede cultural dimensions.
scores in order to better understand whether social networks and cultural backgrounds affected student behaviours in the online group work activity. This was first accomplished through bivariate analysis using Pearson’s $r$, which demonstrated correlational relationships between the variables. These are outlined in table form in Section 4.3, and significance levels of $p < .01$, $.05$ and $.10$ are flagged throughout this thesis.

The analysis also considered the predictive quality of social relationship networks and cultural traits on online group work participation using linear regression analyses. The regression models considered several dependent variables, including the number of posts and summed word count submitted to the online messenger. To measure whether social networks and cultural traits improved the regression models, the independent variables included SNA data (EI Index and network density) and Hofstede cultural dimension scores.

A general rule of thumb for sample sizes in regression analysis is 10-15 observations per independent variable (Agresti & Finlay, 2009), as too many independent variables can risk overfitting the model (Field, 2013). Considering the sample size in this study, it was determined that regression analyses could realistically include 5 to 7 independent variables without violating the test’s assumptions. Therefore, demographic factors that were not statistically significant in the bivariate analysis were not included in the regression analyses.

One additional concern in regression analysis is collinearity, whereby highly correlated independent variables risk degrees of freedom and compromise the robustness of the model. This was of particular concern in this study, as there were thematic similarities between several Hofstede cultural traits. To counterbalance this issue, only Power Distance, Masculinity and Uncertainty Avoidance were included in the analysis in order to avoid collinearity or risking degrees of freedom, as suggested and described by Rienties and Tempelaar (2013). Collinearity diagnostics were conducted to test for collinearity of the remaining independent variables. All variation inflation factors were under 3.00, suggesting no collinearity issues (Field, 2013). To aid in the analysis and interpretation of findings, independent variables were converted to $z$-scores.

Normality of the collected data was analysed visually by reviewing normal distribution curves. Normality was indicated for all data except the number of posts and word count submitted, which demonstrated a slight negative skew. However, analysis of the skewness and kurtosis found that all data was within the acceptable limits of ±2.00 (Field, 2013).
4.3 Results

4.3.1 Social Network Visualisation

In order to understand general patterns in students’ social networks, a graphical representation of respondents’ social relationships was created first, which is depicted in Figure 4.4. In Figure 4.4, each node represents one participant, while each arrow indicates a stated relationship in the SNA survey, which may or may not be reciprocal. Additionally, the colour and shape of the node in Figure 4.4 represent participants’ country cluster (see Table 4.1 for a key).

Altogether, the graphic indicated that participants’ social relationships within the module were often comprised of primarily those from the same country cluster, in line with previous research (Gareis, 2012; Hendrickson et al., 2011; McKenzie & Baldassar, 2016; Schartner, 2015; C. T. Williams & Johnson, 2011). However, Figure 4.4 also highlighted that some participants had more diverse social networks than others. This is, again, in line with previous work by Rienties et al. (2015), which described social ‘bridge builders’ between students from diverse backgrounds.

As previous research has demonstrated a link between social relationships and academic performance (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015), the social network analysis data were compared with students’ grades using bivariate analysis and Pearson’s r. To this, the density (i.e. size) of students’ social network correlated positively with grades ($r = .237, p < .01$),
which is in line with previous findings. This highlighted that high-achieving students were more likely to have a wider social relationship network within the module.

### 4.3.2 Participation in the Laboratory Activity

The next consideration was which factors influenced students’ initial decision to participate in the optional online group work activity. After all, participants with fewer diverse social connections might feel less positively about collaborating with peers from other countries (N. Harrison & Peacock, 2010; Summers & Volet, 2008) and be less inclined to participate. Therefore, bivariate analysis was conducted using Pearson’s *r* to compare a dummy variable that indicated participation in the laboratory activity with a variety of social and demographic factors, which is highlighted in Table 4.3. Findings indicated that factors such as academic performance, gender and friendship network composition did not impact the decision to participate in the laboratory. However, several Hofstede cultural dimensions did impact the decision to participate with a small effect (J. Cohen, 1988).

<table>
<thead>
<tr>
<th>Table 4.3 Bivariate analysis of Study 1 laboratory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimension</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Hofstede traits</td>
</tr>
<tr>
<td>Power Distance</td>
</tr>
<tr>
<td>Individualism</td>
</tr>
<tr>
<td>Masculinity</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
</tr>
<tr>
<td>Pragmatism</td>
</tr>
<tr>
<td>Indulgence</td>
</tr>
<tr>
<td>Friendship EI Index</td>
</tr>
<tr>
<td>Friendship density</td>
</tr>
<tr>
<td>Grades</td>
</tr>
<tr>
<td>Gender</td>
</tr>
</tbody>
</table>

* *p < .05
* *p < .10

This was also explored by employing ANOVA with the laboratory attendance dummy variable as the independent variable and the dimensions listed in Table 4.3 as dependent variables. Only Hofstede’s Power Distance (*F* = 5.731, *p* < .05) and Individualism (*F* = 4.945, *p* < .05) were statistically significant with a small to medium effect (*η²* = .047 and .041, respectively) (J. Cohen, 1988). In other words, students from Confucian Asian backgrounds were less likely to participate in the optional laboratory activity. However, given that 65% of students were from Confucian Asian countries, there was still a large number of Confucian Asian students present in the lab study (*n* = 66).
4.3.3 Group Work Contributions

The dataset was then split to focus on the behaviours of the 58 students who did participate in the online group work activity. Altogether, a total of 621 posts were made during the 30-minute discussion period. On average, participants contributed 10.71 posts each. High variance ($SD = 9.24$) was demonstrated in total posts submitted, which is in line with previous findings (Caspi et al., 2003; Hämäläinen & Arvaja, 2009; Slof, Nijdam, & Janssen, 2016; Strijbos & de Laat, 2010). However, nearly all participants posted at least 2 messages, while 41% of participants posted at least 10 messages. The most frequent poster sent 52 messages, while two participants posted no messages at all during the activity. The average summed word count for participants was 110.14, again with high variance ($SD = 94.48$).

In order to compare students’ measurable behavioural traces with their cultural background and social network composition, bivariate analysis using Pearson’s $r$ was used (summarised in Table 4.4). Medium to strong correlations in size were found between the behavioural traces and Hofstede’s cultural dimension scores (J. Cohen, 1988). This highlighted that cultural traits might have important influences on participation quantity in intercultural group work. Additionally, strong and positive correlations were found between the behavioural traces and participants’ Friendship EI Index, indicating that students with more diverse social networks participated more in intercultural group work. At the same time, factors such as the overall size of participants’ social network density, gender and academic performance did not appear to affect the quantity of participation.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Number of posts</th>
<th>Summed Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hofstede traits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Distance Index</td>
<td>-.193</td>
<td>-.099</td>
</tr>
<tr>
<td>Individualism</td>
<td>.296*</td>
<td>.342**</td>
</tr>
<tr>
<td>Masculinity</td>
<td>-.394**</td>
<td>-.368**</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>.534**</td>
<td>.291*</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>-.407**</td>
<td>-.287*</td>
</tr>
<tr>
<td>Indulgence</td>
<td>.324*</td>
<td>.261*</td>
</tr>
<tr>
<td>Friendship EI Index</td>
<td>.484**</td>
<td>.481**</td>
</tr>
<tr>
<td>Friendship density</td>
<td>.078</td>
<td>.045</td>
</tr>
<tr>
<td>Grades</td>
<td>.151</td>
<td>.103</td>
</tr>
<tr>
<td>Gender</td>
<td>-.091</td>
<td>-.063</td>
</tr>
</tbody>
</table>

* $p < .05$
** $p < .01$

Next, regression analyses were conducted in order to understand the predictive power of cultural dimensions and social networks on the number of posts (model 1) and summed word count (model
2) submitted. With respect to the number of posts submitted, 31.9% of the variation between participations could be explained by Hofstede’s Uncertainty Avoidance (Table 4.5), which is a large effect size (J. Cohen, 1988). This means that, on a macro level, more contributions to a group work task can be predicted for cultures that are less comfortable with uncertain circumstances. One explanation for this might be that students who are uncomfortable with uncertain environments make more posts to clarify the task.

Table 4.5 Regression analysis of posts submitted

<table>
<thead>
<tr>
<th>Model 1 (posts submitted)</th>
<th>t</th>
<th>p</th>
<th>β</th>
<th>F</th>
<th>df</th>
<th>p</th>
<th>adj. R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall model</td>
<td>.</td>
<td></td>
<td></td>
<td>6.336</td>
<td>52</td>
<td>.000</td>
<td>.319</td>
</tr>
<tr>
<td>Hofstede traits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td>.404</td>
<td>.688</td>
<td>.066</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity</td>
<td>-.616</td>
<td>.540</td>
<td>-.101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>2.101</td>
<td>.041</td>
<td>.357*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendship EI Index</td>
<td>1.533</td>
<td>.131</td>
<td>.273</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendship density</td>
<td>-.350</td>
<td>.728</td>
<td>-.044</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05

In terms of summed word count submitted (Table 4.6), 25.9% of the variation between participants could be explained by low Hofstede Masculinity scores and high friendship EI Index, which is, again, a large effect size (J. Cohen, 1988). This means that cultures that favour conflict resolution and students with more diverse social friendship networks are predicted to contribute more words to a group work task.

Table 4.6 Regression analysis of summed word count submitted

<table>
<thead>
<tr>
<th>Model 2 (word count submitted)</th>
<th>t</th>
<th>p</th>
<th>β</th>
<th>F</th>
<th>df</th>
<th>p</th>
<th>adj. R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall model</td>
<td></td>
<td></td>
<td></td>
<td>4.993</td>
<td>52</td>
<td>.001</td>
<td>.259</td>
</tr>
<tr>
<td>Hofstede traits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td>.285</td>
<td>.777</td>
<td>.049</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity</td>
<td>-.247</td>
<td>.017</td>
<td>-.422*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>-.898</td>
<td>.373</td>
<td>-.159</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendship EI Index</td>
<td>2.265</td>
<td>.028</td>
<td>.421*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendship density</td>
<td>-.634</td>
<td>.529</td>
<td>-.084</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
Altogether, these findings indicated that cultural traits and the diversity of students’ social networks both strongly impact behaviours in online intercultural group work.

4.4 Study 1 Discussion

4.4.1 Implications of Findings

This laboratory study considered the impact of social network composition and cultural traits on the quantity of student contributions to online intercultural group work. In response to RQ1, the findings indicated that macro-level cultural traits are a powerful influence on general behaviours in terms of participation quantity. This suggests that there are cultural variations in how students from different countries contribute to online collaborative activities, which may in part explain previously established frustrations when working with diverse peers (Capdeferro & Romero, 2012; Kimmel & Volet, 2012; P. Moore & Hampton, 2015; Popov et al., 2012; Strauss et al., 2011).

In terms of RQ2, the findings highlighted that the social space within which students participate in group work is a strong predictor of behaviours and participation. In this study, pre-existing social relationships could predict students’ contributions, even more so than perhaps more easily ‘quantifiable’ data about student participants, such as gender or academic performance. Therefore, this study adds to current knowledge by identifying the impact of more traditionally ‘qualitative’ sociocultural influences within the module.

These findings have strong implications for further work on this topic and in this thesis. Relatively few studies in intercultural group work research have measured the influence of sociocultural factors on measurable student behaviours. Rather, much work has relied primarily on anecdotal data through methods such as case studies or inferential data through methods such interviews or focus groups. A unique contribution of this study, therefore, is that measurable behaviours are influenced by cultural traits and social network diversity, even in an anonymised settings. This provided the illumination outlined in Figure 2.1, as well as served as a foundation for the remaining studies, which further unpacked and analysed sociocultural influences in intercultural group work.

The findings summarised in this chapter may also help explain in part the phenomenon of ‘free-riders’ (i.e. low contributors) highlighted in previous research on face-to-face, blended and online collaboration (Davies, 2009; D. Hall & Buzwell, 2013; Singaram et al., 2011; Strijbos & de Laat, 2010).

In a blended intercultural setting, social and cultural factors could predict the participation quantity of students in group work. Therefore, one consideration may be whether participation in online collaborative activities could become more equal with increased sociocultural support systems. After all, researchers have identified the need for a ‘dialogical space’ (i.e. cooperation through
constructive conflict), which is established by building trust between group members (Decuyper et al., 2010). Similarly, Van den Bossche et al. (2006, p. 514) have argued that group work is about more than simply ‘putting people together’ and that more attention is needed on the social conditions that underpin collaboration.

At the same time, it is interesting that academic performance was not a statistically significant influence on student behaviours in this study. After all, studies have found that high-performing students tend to be more central (i.e. connected) within the module social network (Gašević et al., 2013; Hommes et al., 2012). Previous research has also indicated that module ‘bridge builders’ between students of different backgrounds tend to also be high performers (Rienties et al., 2015). One consideration worthy of further attention is whether there is an indirect influence of academic performance on social experiences in higher education. This is strengthened by the findings of this study, which indicated a correlation between social network size and academic performance. More research, therefore, is necessary to unpack this connection further.

Yet overall, it is noteworthy that this laboratory study found such strong links between sociocultural factors and online group work participation. This highlighted a need for additional scaffolding and training so that students are able to work positively and effectively with peers from different backgrounds in blended and online environments. For instance, in this study, those who were more active were also those with social agency and the ability to network within a diverse group of peers. This notion – that a diverse social network can predict increased group work participation – certainly has implications for higher education researchers and educators alike.

4.4.2 Study Limitations

In this chapter, the analysis indicated strong social and cultural influences on behaviours between diverse group members in online intercultural group work. However, several limitations were recognised. First, this study was conducted with a relatively small sample size. It is acknowledged that using statistical methods such as regression analysis with a small sample size may limit the predictive power and accuracy of the model. Therefore, it is important in the future to replicate and build upon this work, particularly in different institutional settings, to confirm and compare findings. Second, Hofstede’s dimension scores have been established as a good proxy for gaining a macro-level understanding of cultural influences on behaviour. However, as highlighted by McSweeney (2002), the quantification of cultural dimensions comes at the expense of intra-national diversity and individual identities (see also Section 3.2.3). Therefore, an in-depth qualitative analysis is necessary to highlight individual voices and experiences on sociocultural tensions in intercultural group work (See Study 2, Chapter 5). Finally, it is recognised that social
network surveys only capture participants’ social networks within their module, and more variation may be present in their social networks beyond the module.

4.4.3 Links to Other Studies in This Thesis

This study tested whether a relationship exists between students’ cultural traits, social network composition and measurable group work participation behaviours. The empirical findings of Study 1 supported that this relationship exists and, therefore, set the foundation for future work in this thesis. The findings highlighted in Section 4.3 have given a macro-level, quantitative understanding of student behaviours in online intercultural group work by exploring measurable differences in participation quantity. In this sense, the study has established an understanding of what impacts behaviour (i.e. cultural traits and social connections). Yet, these findings did not offer an understanding of how and why social and cultural factors impact group work behaviours and experiences. In order to unpack which evidence-based interventions might improve group work participation and experiences, a more well-rounded understanding of these sociocultural experiences in light of these present findings was important.

As sociocultural elements are highly qualitative and subjective experiences, Study 2 incorporated qualitative interviews in order to shed further light on these quantitative findings. This study design was chosen in consultation with methodology literature. For instance, Creswell and Plano Clark (2011) highlighted that a mixed method design can converge or corroborate data through triangulation. Greene et al. (1989, p. 259) also argued that mixing research methods can aid in ‘seek[ing] elaboration, enhancement, illustration, clarification of results from one method with the results of another.’ For an in-depth justification for the mixed methods design, see Section 3.2.2.

One additional ambiguity in need of attention is the role of academic performance. In this study, no direct relationships between academic performance and participation were found. Yet, previous quantitative and qualitative research has established a connection between academic performance and social network building (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015). Social connections were also a powerful influence on students’ level of participation in this study. At the same time, module performance was associated with stronger social connections. Therefore, one suggestion is that there is an indirect influence of academic performance on group work participation. This needed to be more explicitly addressed in further work.

The final goal of this thesis was to contribute an understanding of whether internationalised academic content can support students in overcoming sociocultural tensions in intercultural group work. This initial study has contributed to unpacking the underlying causes of intercultural group
work tensions through an analysis of measurable behavioural differences. However, relatively little is currently known about how the content used in group work activities can provide an avenue for contributing their unique experiences and backgrounds with peers. This study examined student behaviours in online group work when using content that was locally-based, in part to act as a ‘baseline’ understanding of behaviours when students interact with content that is regularly incorporated into module assignments. Future work in this thesis needed to explicitly address student views (Chapter 5) and measurable behaviours (Chapter 6-7) when encountering local versus internationalised academic content.

To address these notions, Chapter 5 describes an in-depth qualitative evaluation of twenty students’ experiences with social and cultural tensions in intercultural group work. To further unpack the link between academic performance and social tensions, these semi-structured interviews were analysed and compared between academic performance levels. In Chapter 6 and 7, the evidence-based intervention of incorporating internationalised academic content into group work activities is analysed and explored.
Chapter 5 - Study 2 Methods and Results

This chapter describes the second study in this thesis, which probed students’ sociocultural experiences in intercultural group work more deeply by highlighting individual voices and experiences through a series of qualitative interviews. In doing so, the chapter is divided into four sections. The Introduction (Section 5.1) makes explicit the research questions for Study 2. The Methods section (5.2) provides an overview of the specific methods used for Study 2, including information about the setting, participants, procedure, instruments and data analysis approach. The third part, Results (Section 5.3), provides an overview of the findings in relation to the study’s research questions. The final section, Discussion (5.4), reviews the implications of Study 2’s findings, as well as its limitations and influence on the final empirical study conducted in this thesis.

5.1 Introduction

In Chapter 4, the analysis of Study 1’s laboratory activity highlighted that both social network diversity and cultural traits impacted student participation behaviours in online intercultural group work. In doing so, the findings provided a strong foundation for understanding the sociocultural tensions that students experience when working with diverse peers. However, these quantitative findings only provided one perspective on student experiences (i.e. what), while follow-up qualitative research was necessary for a richer understanding of the observed phenomena (i.e. how and why). As summarised by Bryman (2006a, pp. 105-106), incorporating a mixed method design is commonly used to add a rigorous triangulation (Creswell & Plano Clark, 2011) and ‘completeness’ (Greene et al., 1989) to complex research topics. Therefore, this chapter summarises an in-depth qualitative analysis of student reflections on sociocultural tensions when working with diverse peers (Mittelmeier, Rienties, Tempelaar, & Whitelock, 2017).

Study 2 also sought to address students’ views on the role of internationalised academic content in encouraging participation in and engagement with online intercultural group work assignments. In Chapter 4, the laboratory activity design in Study 1 used content from the local context in order to provide a baseline understanding of participation with commonly used activities in higher education modules. In the final studies (Chapters 6 and 7), a randomised control trial study compared participation and student experiences when working in small group projects using local versus internationalised academic content. Therefore, the second goal of Study 2 was to provide a

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2 This chapter is based upon the following peer-reviewed journal publication:
bridge between the studies by establishing an initial understanding of the link between participation and internationalised content. In doing so, this study built on previous work on curriculum internationalisation (Arkoudis et al., 2013; Bodyclcott et al., 2014; de Haan & Sherry, 2012; Jones, 2010; Jones & Killick, 2007; J. Knight, 2006, 2013; Leask, 2004, 2009; Leask & Carroll, 2011; Liu et al., 2010; Middleton, 2014).

Altogether, the following research questions were addressed in Study 2:

**RQ3:** What sociocultural tensions do students experience when working with diverse peers in intercultural group work?

**RQ4:** What role do students feel internationalised academic content can play in supporting intercultural group work experiences?

The next section provides an in-depth overview of the methods employed in Study 2 to address these questions.

### 5.2 Methods

#### 5.2.1 Setting and Participants

Study 1’s module lecturer was on parental leave for one year following the study described in Chapter 4. As such, it was not possible to complete the subsequent studies described in this thesis in the same setting for practical reasons. Therefore, this study was undertaken with first-year undergraduate students studying a multidisciplinary statistics module in a business school at a distinguished university in the Netherlands. This business school has adopted a problem-based learning curriculum, and students have frequent opportunities to work in groups inside and outside the module, as well as through assigned online computer laboratory activities (Gijselaers, 1995; Tempelaar et al., 2015; Tempelaar & Verhoeven, 2016; Van den Bossche et al., 2006). Students at this university study in a truly diverse and international environment. At the time of this study, the university was listed as one of the top 15 ‘most international’ universities in the world by Times Higher Education, with 49% of students and 40% of staff originating from abroad. Over 100 countries are represented at the wider university, with large cohorts from Germany and Belgium.

Interview participants were selected from a large-scale module of 1318 students. Within this module, 269 students were repeating. Recent research has highlighted that university experiences
vary widely by year of study (Zaitseva, Milsom, & Stewart, 2013) and that social relationships are particularly influential on first-year satisfaction (Wilcox, Winn, & Fyvie-Gauld, 2005). Therefore, experiences of students at the same stage of social transitions were sought in this study by only comparing experiences of first-year students. Repeating students in this module were in their second year of study and were, therefore, excluded from the analysis as they might have advanced more in their social transition process. Information about students’ grades was also missing from a further 189 students taking the module for the first time, and they were likewise not included in the analysis. Missing data could be due to a number of reasons, as students may have postponed or suspended their studies, or simply missed exams due to personal circumstances. Therefore, a total of 860 students were included in the sampling for this study. High cultural diversity was demonstrated between within the sample, with 79.3% ($n = 682$) of students originating from outside the Netherlands, representing 36 countries. A large group of international students were of German origin (48.7%, $n = 419$). In terms of gender, 54.5% ($n = 469$) of students in the module were male.

### 5.2.2 Participant Sampling

Selected students were invited to participate in an interview after an initial analysis of quantitative data about students’ demographics and academic performance. In this particular module, students provided written consent to their module lecturer for these data to be used for research purposes (for an in-depth explanation of this process, see: Tempelaar, Niculescu, Rienties, Gijselaers, & Giesbers, 2012). To ensure that a representative sample was selected for the interviews, k-means cluster analysis was used. As one goal of this study was to further unpack the relationship between social experiences and academic performance, the cluster analysis was applied to the larger sample to divide all 860 students into three clusters based on their grades. Students in this business school took four modules during their first term, three of which were multidisciplinary: Quantitative Methods (QM) (the module this chapter describes), Marketing and Management (MoM), and Accounting (ACC). As students in all disciplines were required to take these three multidisciplinary modules, the three final grades from these modules were used in the cluster analysis. Students were graded on a 0-10 scale in each module, with 10 indicating a perfect score.

K-means cluster analysis was deemed appropriate for grouping participants because the grade variables were numerical and on an interval scale (Everitt, Landau, Leese, & Stahl, 2011). ANOVA F-value scores were compared as a proxy for cluster accuracy to determine the number of clusters to input into the analysis (Field, 2013). F-value scores decreased when more than three clusters were used. Therefore, the number of clusters was limited to three, as highlighted in Table 5.1. Cluster 1
(n = 281, 33%) included high-performing students. Cluster 2 (n = 339, 39%) contained mid-performers, while low-performers were included in Cluster 3 (n = 240, 28%). At this particular university, a grade of 5.5 is required to pass, meaning most students in Cluster 3 did not successfully finish their first term.

To also ensure diversity in the interview sampling, students were next assigned to one of four categories by their country of origin: Dutch, German, ‘other’ European (i.e. non-Dutch or German) and non-European. The Dutch category was selected as the host university was located in the Netherlands. German students were given their own category, as they are a strikingly large group of international students at this university (outnumbering the local population), and their cohort identity may differentiate their experience (Kimmel & Volet, 2012; Mittelmeier & Kennedy, 2016; Schweisfurth & Gu, 2009; Zhou et al., 2008). Finally, the remaining international students were categorised into two groups: (1) ‘other’ European (defined by the European Union and Schengen member states) and (2) non-European. This dichotomy was chosen to explore the complexities of social learning experiences for those students designated in an immigrant category (i.e. requiring a visa for legal residence in Europe).

A sample quota based on cluster and country of origin category was then used to invite selected students to be interviewed. Altogether, 84 students were invited for an interview and 20 participated, which is a response rate of 23.8%. Potential interview participants were invited via their university email address to take part in this study (described in detail in Section 5.2.3). Of the 20 interview participants, 5 were in Cluster 1, 8 were in Cluster 2, and 7 were in Cluster 3. Interview participants were relatively diverse, with 10% (n = 2) from the Netherlands (host national students), 15% (n = 3) from Germany, 40% from other European countries (non-Dutch and non-German) (n = 8), and 35% from non-European countries (n = 7). Slightly more males (60%, n = 12) participated than females. In summary, the participant sampling was a fairly good representation of the demographics of the module and wider university.

### Table 5.1 Study 2 average grades by cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th># of students</th>
<th>Avg QM grade</th>
<th>Avg MoM Grade</th>
<th>Avg ACC grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1: high performers</td>
<td>281</td>
<td>9.3</td>
<td>7.8</td>
<td>7.7</td>
</tr>
<tr>
<td>Cluster 2: mid performers</td>
<td>339</td>
<td>6.9</td>
<td>6.3</td>
<td>5.8</td>
</tr>
<tr>
<td>Cluster 3: low performers</td>
<td>240</td>
<td>3.8</td>
<td>5.1</td>
<td>4.2</td>
</tr>
</tbody>
</table>
5.2.3 Procedure

Students were recruited to participate in the interview through their module lecturer by email. After one week, a reminder email was sent to students from the researcher (see Appendix 3). The email invitation included the study information sheet (see Appendix 4), which allowed students to make an informed decision about whether to participate. Students were asked to sign up for an interview timeslot through the scheduling assistant website Acuity. Students were asked to provide only their names on the scheduling website, so no sensitive information was stored or collected through the sign-up process. To compensate students for their time, they were offered a fifteen euro shopping voucher. Students received no other credits or incentives for participation. Upon arrival to the interview, the information sheet was summarised verbally. Informed consent was given via physical signatures at the bottom of the information sheet and was collected by the researcher at the start of the interview. All interviews were audio recorded using a recording device. Express permission to record was sought through the consent process and by verbal affirmation at the start of the interview.

The interviews took place in a private conference room at the university and lasted approximately 45 minutes. The interviews were conducted in English, which is the primary language used for teaching and academic activities at this particular university. Participants were assured of the confidentiality of all statements during the interviews and reminded that the interviewer was not affiliated with the university, so as to highlight a lack of conflict of interest.

Section 3.3.3 provides a rationale for the incorporation of a qualitative element in this thesis. In this particular study, the interview format was semi-structured, and interview questions were drafted based on a review of current literature in consideration with the research questions (Lichtman, 2013). Table 5.2 lists the interview question structure. This semi-structured format allowed for key topics related to the research questions to be discussed, while at the same time providing flexibility for unexpected themes to emerge from the interviews. This flexibility was deemed important, as the study was unpacking nuances in highly individual and personal experiences surrounding culture and social transitions, and was being triangulated with the work in Study 1. Therefore, emerging themes were a valuable part of the research.

The research questions were also written in a way that encouraged students to bring up elements that they found most relevant to their group work experiences. For instance, broad questions such as ‘What frustrations might students be feeling?’ were drafted rather than directly inquiring about sociocultural tensions. This was purposefully done so as to avoid biasing student opinions through leading questions. Therefore, the sociocultural themes outlined in Section 5.3 represent genuine, emergent reflections brought forth from participants’ own volitions.
As highlighted in Table 5.2, participants were first asked a series of icebreaker questions in order to build rapport and establish trust. As culture and social tensions are particularly sensitive topics, a visual mediating artefact was then introduced to encourage in-depth discussion and reflection. This method has been highlighted in previous research (Bahn & Barratt-Pugh, 2013) as a powerful way to elicit complex thoughts and feelings in an environment that is perceived as ‘safe’ by the participant. Building on previous work (Mittelmeier et al., 2015; Mittelmeier, Héliot, et al., 2016), the visualisation provided to participants (shown in Figure 5.1) depicted an example of an intercultural group work project, including information about the participants, such as their region of origin, the number of contributions made and the categories of contributions (i.e. social, teaching or academic content contributions). All information provided in the visualisation was adapted from data in the group work activity in Study 1 in order to strengthen the data triangulation. Although Study 2 took place in a different institutional context than Study 1, the group work activity depicted in the visualisation was deemed relevant to Study 2 participants’ own module experiences, as it was conducted using a problem-based learning activity similar in nature to the curriculum design of their degree programme.

**Figure 5.1 Mediating artefact provided to participants during interviews**
After reviewing the visualisation, participants were then asked a series of in-depth questions about the group work example presented (Table 5.2) in order to understand their views on the tensions experienced by students in intercultural group work (RQ3). As suggested by Crafter, de Abreu, Cline, and O’Dell (2015), participants were asked questions about their perceptions and feelings related to the visualisation rather than explicit reflections on what they would have done in this scenario. Throughout the discussion, the researcher connected statements made by the participant to their own personal experiences, when possible (e.g. how does this reflect what you’ve seen in your own modules?). In order to gain an understanding of interventions that students feel may improve group work success (RQ4), participants were asked in the final portion of the interview about potential interventions or resources would positively benefit group work activities, including the role of

<table>
<thead>
<tr>
<th>Icebreaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbally review study information sheet and collect informed consent</td>
</tr>
<tr>
<td>Can you tell me about the opportunities you’ve had to work with groups in your academic programme?</td>
</tr>
<tr>
<td>Can you tell me about the opportunities you’ve had to work with peers from different countries?</td>
</tr>
<tr>
<td>What aspects do you feel are important for group work to be successful?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case study</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you see in this group that is going well?</td>
</tr>
<tr>
<td>What are some problems this group might be having?</td>
</tr>
<tr>
<td>Do you feel any students are disrupting the group’s success? Why?</td>
</tr>
<tr>
<td>Which students do you feel are most comfortable working in this group? Why?</td>
</tr>
<tr>
<td>What frustrations might students in this group be feeling?</td>
</tr>
<tr>
<td>What interventions would you suggest to this group to help things go more smoothly?</td>
</tr>
<tr>
<td>How do you feel the content of their group work assignment might be impacting their participation?</td>
</tr>
<tr>
<td>Does this look anything like what you’ve seen when working in small groups?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wrap-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>What suggestions or advice would you give to students at the beginning of a cross-cultural group work activity to help it go more smoothly?</td>
</tr>
<tr>
<td>What suggestions or advice would you give to your tutors to design or facilitate better group work activities?</td>
</tr>
<tr>
<td>How does working online impact the group work experience?</td>
</tr>
<tr>
<td>How does internationalising the academic content (such as through case studies from other countries) impact group work experiences when working with peers from different countries?</td>
</tr>
<tr>
<td>Are there any other thoughts or experiences with group work that you’d like to share?</td>
</tr>
<tr>
<td>Debrief and thank you for participation</td>
</tr>
</tbody>
</table>

Table 5.2 Study 2 semi-structured interview schedule
internationalised academic content. When applicable, this part of the interview was discussed with respect to participants’ own expressed experiences.

In order to practice interview techniques, as well as develop and test the suitability of the research instruments, the interview questions and the mediating artefact method were piloted before participants were interviewed for this study. In total, five Open University PhD students were selected to participate in a mock interview with the researcher. At the end of the pilot interviews, these participants were asked a series of questions related to their understanding of the interview questions, their level of comfort with discussing interview topics and suggestions for improving the interview techniques. A number of the pilot studies was observed by a member of the supervisory team, who provided extensive notes and advice for improving interview techniques. Altogether, the research methods in this study were rigorously tested and piloted prior to data collection.

5.2.4 Data Analysis
Thematic analysis was used to analyse the interview data by following the protocol suggested by Braun and Clarke (2006), as this allowed for an understanding of the emerging themes of discussion that arose from the broad interview questions. In the first stage of analysis, the researcher transcribed the audio recordings in order to gain familiarity with the data. Next, the researcher undertook an active and in-depth reading and rereading of interview transcripts and revisited the recorded interviews for re-listening. In the second phase of data analysis, a preliminary list of potential codes was created with reference to relevant literature, findings from Study 1, the interview questions and the data familiarisation process. During this period, the researcher made extensive notes of potential codes or themes in a research journal. After this stage, the list consisted of 43 potential code ideas. These codes were then critically reviewed for relevance to the collected data and research questions, and combined or reduced to 34 codes. Interviews were then reread by the researcher with these codes in mind for a critical review of their relevance and applicability to the collected data, and the coding system was further reduced to 25 codes.

In the next step, the researcher reviewed the coding structure for potential themes. Influenced by recent research (Akyol & Garrison, 2013; Garrison et al., 1999), codes were arranged into three overarching themes: social elements, teaching elements and cognitive elements. With these themes in mind, the interview transcripts were reread with a critical reflection of their validity. At this point, themes and codes were given explicit definitions in a codebook, which served as a guide map for the coding process.
Steps were taken to ensure the reliability of the coding system, which occurred in two stages. First, after an initial development of the themes and codes, a member of the researcher’s supervision team individually coded a selection of three interviews. Cohen’s kappa was used to analyse interrater reliability, which indicated moderate to good agreement (κ = .710). Afterwards, notes were compared between the researcher and supervisor, and revisions and additions to the coding system were made to counter any disagreements. In the second stage, an independent reviewer outside the supervision team analysed an additional section of three interviews using the revised coding system. Cohen’s kappa was again used to demonstrate inter-rater reliability, which indicated good agreement (κ = .834). At this point, confidence in the coding system was established.

Altogether, 20 codes were used to analyse the interview data, which were organised into three themes (social, teaching and cognitive elements). Table 5.3 provides the theme and code definitions, while Figure 5.2 demonstrates the themes and coding system visually. This resulting coding system was applied in nVivo for coding of the full set of interviews. The unit of analysis for coding was one paragraph (i.e. one full answer to an interview question), and responses could be given multiple codes. Following an initial round of coding, the interview transcripts were reread for a critical assessment of assigned codes.

In the final stage, a detailed analysis of responses within each code was undertaken in order to understand the narrative of student experiences with intercultural group work. These data ‘stories’ were compared between the academic performance clusters in order to recognise nuances in student experiences between those from different academic performance backgrounds. These results are highlighted in the following section. This chapter focuses explicitly on the ‘social’ and ‘teaching’ themes, as they are most relevant to RQ3 and RQ4.

In Chapter 5, demographic information about participants, such as gender and country of origin have been included when describing the study results. In a few cases, participants were the sole representative of their home country in the module. In order to protect the identities of these students, the region of origin has been provided, rather than an exact country, in connection to participant quotes in the next section.
### Table 5.3 Summary and definition of Study 2 interview codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Definition of code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social elements</td>
<td>Codes related to social relationships between students and students’ ability to share their background, experiences and personalities in intercultural group work</td>
</tr>
<tr>
<td>Cultural influences</td>
<td>Statements related to how cultural traits influence behaviours in group work, including statements about cultural distances and cultural differences</td>
</tr>
<tr>
<td>Social relationships</td>
<td>Statements about the impact of social relationships and building connections between group members</td>
</tr>
<tr>
<td>Language</td>
<td>Statements about language barriers, skills and use</td>
</tr>
<tr>
<td>Openness</td>
<td>Statements related to group members ‘openness’ towards one another (or lack thereof), including comments related to cultural sensitivity, respect and willingness to communicate</td>
</tr>
<tr>
<td>Emotional reactions</td>
<td>Statements related to participants’ emotional reactions to participating in group work</td>
</tr>
<tr>
<td>Social contributions</td>
<td>Statements related to speaking socially during a group work activity</td>
</tr>
<tr>
<td>Previous international experiences</td>
<td>Statements about how previous international experiences and experiences with diversity impact how one contributes to intercultural group work</td>
</tr>
<tr>
<td>Interactions</td>
<td>General statements about interactions between participants, including examples of positive and negative interactions</td>
</tr>
<tr>
<td>Communication</td>
<td>Statements about communication issues and factors that relate to good communication between group members</td>
</tr>
<tr>
<td>Teaching elements</td>
<td>Codes related to the facilitation of intercultural group work and the learning process when working in groups</td>
</tr>
<tr>
<td>Encouraging participation</td>
<td>Statements about how to encourage quieter group members to participate more (both from a teacher and student perspective)</td>
</tr>
<tr>
<td>Free riders</td>
<td>Statements related to those who contribute little to a group work activity, including who free riders are, why some students speak less than others, etc.</td>
</tr>
<tr>
<td>Leadership</td>
<td>Statements related to the leadership role in a group: who takes it, why some students are more natural leaders, suggestions for those in a leadership role, etc.</td>
</tr>
<tr>
<td>Group composition</td>
<td>Statements that reflect how the tutor or teacher should be involved in a group work assignment, including comments about feedback and marks</td>
</tr>
<tr>
<td>Scaffolding</td>
<td>Statements related to scaffolding and guidelines to group work participation</td>
</tr>
<tr>
<td>Students as resources</td>
<td>Statements about students’ ability to act as resources to group members in intercultural group work, including their ability to provide cultural inferences or context and diverse viewpoints</td>
</tr>
<tr>
<td>Cognitive elements</td>
<td>Codes related to students’ learning processes and ability to contribute and construct meaning during collaboration</td>
</tr>
<tr>
<td>Academic knowledge</td>
<td>Statements about the impact of students’ subject area knowledge of the assignment on their behaviours or contributions to group work, including comments about how academic performance and preparedness relates to participation</td>
</tr>
<tr>
<td>Academic content contributions</td>
<td>Statements related to cognitive or academic content contributions to a group work activity</td>
</tr>
<tr>
<td>Effort and engagement</td>
<td>Statements about the amount of effort put into the group or group members’ engagement with the activity</td>
</tr>
<tr>
<td>Group work outcomes</td>
<td>Statements about what skills and benefits students gain from participating in group work</td>
</tr>
<tr>
<td>Previous academic experiences</td>
<td>Statements about how prior academic experiences (including previous group work experiences) impact how one contributes to group work</td>
</tr>
<tr>
<td>Quantity versus quality</td>
<td>Discussions on the merits of quantity or quality of group work contributions, including statements about whether quantity or quality is more important to group work productivity</td>
</tr>
</tbody>
</table>
Figure 5.2 Visual representation of Study 2 codes and themes for interview analysis

Social
- Cultural influences
- Social relationships
- Language
- Openness
- Emotional reactions
- Social contributions
- Previous international experiences
- Interactions
- Communication

Teaching
- Encouraging participation
- Free riders
- Leadership
- Group composition
- Scaffolding
- Students as resources

Cognitive
- Academic knowledge
- Academic content contributions
- Effort and engagement
- Group work outcomes
- Previous academic experiences
- Quantity versus quality
5.3 Results

Overall, a total of 1582 codes were recorded. In Table 5.4, a descriptive summary of themes in the social and teaching categories are depicted in order to outline whether there were differences between clusters in terms of quantity of statements for each code. This highlighted how much participants discussed topics relevant to the research questions.

The social element theme was the most highly discussed by interview participants, comprising 39.1% of the coded units (n = 618). Participants in Cluster 1 contributed an individual average 31.2 social element codes (SD = 7.76), while Cluster 2 participants contributed an individual average of 27.75 (SD = 12.14) social element codes. Finally, participants in Cluster 3 contributed an individual average of 24.28 social element codes (SD = 11.40). One consideration was whether there were differences between clusters in terms of the quantity of individual codes, and only a few differences were found. First, high-performing students on average discussed cultural influences with working with diverse group members more often. Second, low-performing students more frequently discussed the role of forming social relationships with group members.

Teaching elements were the second most discussed theme by interview participants, comprising 34.3% of the coded units (n = 543). Cluster 1 participants contributed an individual average of 24.8 (SD = 6.74) teaching element codes. Similarly, Cluster 2 participants contributed an individual average of 26.3 teaching element codes (SD = 9.43), and Cluster 3 participants contributed an individual average of 31.64 (SD = 7.75) teaching codes. Participants, for the most part, discussed the individual codes in the same quantities, with one notable exception: high-performing students spoke more often about methods for encouraging participation.

Although participants may be discussing the same general topics in terms of quantity, the research questions in this study were particularly interested in understanding qualitative similarities and differences in student opinions and experiences in intercultural collaboration. Therefore, comparisons of coded statements were made by cluster (i.e. performance level), which is discussed next.
Table 5.4 Number of codes by category and cluster

<table>
<thead>
<tr>
<th>Code</th>
<th>Total N</th>
<th>% of total codes</th>
<th># of participants coded</th>
<th>Cluster 1 High (n = 5)</th>
<th>Cluster 2 Mid (n = 8)</th>
<th>Cluster 3 Low (n = 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Avg Individual SD</td>
<td>Avg Individual SD</td>
<td>Avg Individual SD</td>
</tr>
<tr>
<td>Social elements</td>
<td>618</td>
<td>39.1</td>
<td>20</td>
<td>31.20 7.76</td>
<td>27.75 12.41</td>
<td>24.28 11.40</td>
</tr>
<tr>
<td>Cultural influences</td>
<td>152</td>
<td>9.8</td>
<td>20</td>
<td>11.20 5.35</td>
<td>6.50 3.66</td>
<td>6.29 2.75</td>
</tr>
<tr>
<td>Social Relationships</td>
<td>148</td>
<td>9.5</td>
<td>20</td>
<td>6.00 2.91</td>
<td>4.63 3.81</td>
<td>11.57 4.99</td>
</tr>
<tr>
<td>Language</td>
<td>102</td>
<td>6.5</td>
<td>20</td>
<td>4.80 1.48</td>
<td>4.75 1.98</td>
<td>5.71 2.92</td>
</tr>
<tr>
<td>Openness</td>
<td>64</td>
<td>4.1</td>
<td>18</td>
<td>2.40 3.21</td>
<td>3.50 2.82</td>
<td>3.42 1.71</td>
</tr>
<tr>
<td>Emotional Reactions</td>
<td>51</td>
<td>3.3</td>
<td>15</td>
<td>1.60 1.82</td>
<td>3.50 3.46</td>
<td>2.14 1.22</td>
</tr>
<tr>
<td>Social Contributions</td>
<td>40</td>
<td>2.9</td>
<td>15</td>
<td>2.40 2.30</td>
<td>2.00 1.69</td>
<td>1.71 1.79</td>
</tr>
<tr>
<td>Previous international</td>
<td>24</td>
<td>1.5</td>
<td>12</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.57 1.40</td>
</tr>
<tr>
<td>experiences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td>21</td>
<td>1.4</td>
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5.3.1 Social Tensions in Intercultural Group Work

Common themes in all clusters

RQ3 considered social tensions that students experience when working with diverse group members during small group projects. Several themes were common to participants in all clusters and are important to note. Perhaps most prevalent was the notion that all participants wished to have the opportunity to build social relationships with their fellow group members. This overwhelming agreement is important, as there were no interview questions that specifically addressed social relationships between group members, yet this was a prominent emergent theme of discussion that was voluntarily offered by all 20 interview participants. There was also an overall perception among all participants that the ‘vibe’ within the module and between group members is an important element of group work. Participants highlighted that building an open and inclusive environment through an understanding of one another is key to successful collaborative work.

‘I think the most important thing is being open to each other. If you’re in a group and you’re afraid to say something, then you’re going to miss out on a lot, because every input is valuable because you can grow from it.’
(Participant 1, Male, Eastern European, GPA = 6.67, Cluster 2)

‘That you don’t feel like you’re lost, or you don’t belong in that group, that’s really important. So you feel included, that’s really important. That you can talk to each other, like in a familiar way and that you harmonise. I think that’s really important. That’s the main thing or main goal of an intercultural group you’re supposed to work on.’
(Participant 16, Male, German, GPA = 4.83, Cluster 3)

An additional common theme among all 20 participants was the importance of the use of the lingua franca (in this case, English) in encouraging collaboration and communication in group work.

‘It’s [people speaking their native language during group work] very, very frustrating. I think it really de-motivates the class because if you’re trying to speak and you’re trying to say something, and everyone is having these little conversations that you don’t even understand, it de-motivates the group, and they can’t focus. It just means that everyone can’t communicate.’
(Participant 11, Female, Dutch, GPA = 4.33, Cluster 3)

‘Alright, we say lingua franca, but for example somebody, a German guy who does not work on English, he asks in German, and that makes the first step into speaking German. Then it starts slowly, slowly, slowly speaking more and more German. So I really think the communication plays a very important role in the group bonding.’
(Participant 15, Male, Greek, GPA = 5.67, Cluster 2)
Similarly, many participants (16 of the 20) highlighted that the teacher or tutor plays an essential role in encouraging the use of a common language between group members in the module. In this regard, participants particularly wanted teachers to assign them to highly diverse groups with peers from other countries.

‘I think the mix of countries is better because it will improve your communication skills. I think people always get used to speaking their mother tongue. Like if I have a Chinese student that is with me, sometimes I will forget the lingua franca, to speak English. So sometimes I will turn to speak Chinese with my Chinese mates.’
( Participant 17, Female, Chinese, GPA = 7.33, Cluster 1)

‘They should try to make, especially with tutors, the groups as international as possible, because if they put only domestic students in one group, it becomes really easy for them to work. They should challenge them to the max so that they cannot speak their mother language and can cooperate with others on other activities.’
( Participant 6, Female, Eastern European, GPA = 4.83, Cluster 3)

In addition to language, nearly all participants (19 of the 20) noted that the opportunity to work with diverse peers was a positive challenge that could help them gain essential skills.

‘I feel you need to know we live in a convoluted world with all sorts of nationalities, and the world is getting more international every day. I feel like you need that to be part of the real world.’
( Participant 18, Male, Latin American, GPA = 5.00, Cluster 2)

Yet, the reasons for why participants wanted to build social relationships with peers varied between those in different clusters, which is highlighted in the following sections.

Cluster 1: High-performing students
The five participants in Cluster 1 tended to think of themselves as leaders and all viewed intercultural group work as an opportunity to gain skills for future employment. Yet, when high-performing students talked about forming social relationships with diverse group members, they did not typically refer to educational benefits of getting to know their group members. Instead, four of the five highlighted that forming social bonds can make group work more fun or entertaining, and less ‘boring’. For example:
‘For me, I think some social talk is much easier than the academic topics, and people are more willing to speak about their daily life, for instance, their hobbies, than speaking about the [group work] topic. It’s boring.’
(Participant 17, Female, Chinese, GPA = 7.33)

‘It’s boring to be with always the same people because you have nothing to tell them if they are from the same places and the same country.’
(Participant 20, Male, Belgian, GPA = 8.67)

When discussing the role of the teacher or university in decreasing social tensions between group members, those in Cluster 1 all referred to the benefits for other, less active students rather than themselves. For instance:

‘Sometimes they [less active students] need to be pushed into this, pushed into the cold water of saying something and trying it out…I think it is a necessary experience and if you push such students here at [university name] to be socially active, especially those from other regions or continents, this is something which is only going to help them in the long run.’
(Participant 9, Male, American, GPA = 9.67)

‘I think it’s just with these people [foreign students] that they need two months to get acquainted to you and then, in the end, they will probably be more likely to share their ideas or to give more input.’
(Participant 14, Male, Dutch, GPA = 8.67)

In this sense, participants in Cluster 1 all felt that interventions to decrease social tensions, such as more in-depth introductions or icebreaker activities, may benefit less active students. However, they tended to feel that these should be the responsibility of the group members (i.e. students), rather than the teacher.

‘I think introduction is not enough, but for tutor…I don’t know; I think it depends on the students themselves. I don’t think the tutor can do much to help this.’
(Participant 17, Female, Chinese, GPA = 7.33)

Instead, those in Cluster 1 all viewed the teacher’s role as that of developing students’ ‘soft skills,’ such as communication and collaboration skills. Yet, these were often viewed in addition to teaching about academic content and as separate from building social relationships.
‘Especially for business, the university has to prepare not just the academic part and business knowledge, because in business you need not just theoretical skills, but also soft and practical skills. The university has to push them [less active group members] into developing their soft skills.’

(Participant 9, Male, American, GPA = 9.67)

Four of the five participants in Cluster 1 additionally felt that students at the university were already open to working with those from different countries. There was frequent mention that openness between peers in intercultural situations is ‘natural’.

‘So here in [university name] especially, everybody comes from different countries, at least at this uni. That really helps because you just get a larger point of view. You cannot only look at yourself as yourself, but you can look at yourself in the world. I don’t know how to explain it, but you feel part of something. You feel like you belong.’

(Participant 13, Female, Italian, GPA = 7.83)

Altogether, high-performing students were often highly driven individuals who viewed social relationships within group work as a benefit to their personal enjoyment rather than their learning. However, these participants clearly highlighted that social relationships are necessary for the adjustment of ‘other,’ lower performing students.

**Cluster 2: Mid-performing students**

In comparison, the eight participants in Cluster 2 discussed more how social tensions could negatively impact group dynamics and productivity, unlike participants in Cluster 1 who frequently viewed social relationships and group productivity separately. Cluster 2 participants often commented that forming social bonds with their group members would benefit communication and co-creation of knowledge. For example:

‘Wasn’t there a thing in management, like the water fountain thing? That people in the break room, they learn more and get more work done because they got to know each other in the break room and socially than just working. So I mean, if that works in the real life why wouldn’t that work in the classroom?’

(Participant 18, Male, Latin American, GPA = 5.00)

Similarly, all but one in Cluster 2 noted the importance of group members being comfortable with one another in order to encourage participation and sharing of personal experiences.
‘I think the most important thing is to make people comfortable, because if you don’t feel comfortable, then you won’t say anything.’
(Participant 19, Female, German, GPA = 6.17)

Participants in Cluster 2 were also more likely to discuss negative social experiences in group work. Unlike those in Cluster 1, who often felt that intercultural communication was relatively natural, there was more of a recognition of existing social tensions for all those in Cluster 2.

‘When you are not speaking socially, you might feel kind of rejected. I think you’re always feeling that awkward moment when you are not speaking with people. I think that maybe the others don’t know how to get on with them [those who are quiet] because they are not speaking so they will not be willing to speak to them. It will always be weird.’
(Participant 2, Male, Swedish, GPA = 6.33)

The role of the teacher in providing resources to overcome social tensions was discussed more frequently with participants in Cluster 2. However, five of the eight participants were unconfident in their teacher’s ability to decrease group tensions successfully.

‘I don’t really want to say all the things that everybody used to say, like ‘everybody work together,’ blah, blah, blah. I mean, so many advice and so many times we have heard everything from high school teachers, from tutors, from professors. But the thing is, it doesn’t really make a change in people’s minds.’
(Participant 15, Male, Greek, GPA = 5.67)

Two of the remaining three participants felt that teacher intervention, although well-intentioned, might not be received positively by students.

‘Maybe if they had some kind of social activities before the starting of the group, like team-building and stuff. It kind of makes the people feel more comfortable. But I think it won’t be accepted so well because we are not in the kindergarten, we are in university.’
(Participant 6, Female, Bulgarian, GPA = 4.83)

Altogether, students in cluster 2 felt that social relationships were a necessary component of successful group collaboration and were more likely to demonstrate tensions as a natural component of working with students from other backgrounds.
Cluster 3: Low-performing students

The seven participants in Cluster 3 tended to feel less comfortable with group work and often admitted to contributing less than their peers. At the same time, all participants in Cluster 3 frequently noted that social relationships are essential and necessary components for productivity in intercultural group work, using stronger language than participants in Cluster 1 or 2. Six of the seven participants highlighted that knowing their group members on a more personal level helps them feel more comfortable and more likely to participate.

‘I was in that situation as well when I was in a group, and I didn’t know anyone, and they...all knew each other and didn’t want to do anything with me or something. I didn’t feel as part of the group. I think that’s the main goal of a group: to get to know each other, to feel comfortable in that group.’
(Participant 16, Male, German, GPA = 4.83)

‘This tutorial...I’m not as close with them, and I don’t feel as comfortable with them. I’m less likely to put myself out there. I’ll restrict myself just a tiny bit because there’s something subconsciously holding me back.’
(Participant 11, Female, Dutch, GPA = 4.33)

Although participants in Cluster 1 typically felt that collaboration happens naturally, those in Cluster 3 all felt that intercultural group work is inherently socially awkward. This was typically expressed in more definite terms than participants in Cluster 2.

‘The first time we met, we didn’t know each other, but then we kept working together. I think you should discover the people you’re working together, like when you start talking with them. If you don’t, it’s sometimes an awkward situation.’
(Participant 7, Male, Romanian, GPA = 4.78)

‘I came in class, and I was just looking at random strangers and like, “I have to work with them for eight weeks?” And we were sitting there like “oh my god,” and we were all, like, having the same feeling.’
(Participant 16, Male, German, GPA = 4.83)

Participants in Cluster 3 also all discussed the role of the teacher or tutor in creating a positive social atmosphere in the module. Unlike those in Cluster 2, participants in Cluster 3 were much more positive about the teacher’s ability to decrease social tensions, even in small ways:

‘Well, our first tutor was awesome. He was there during the groups and talking to us, asking our plans for the weekend. Now...we have absolutely no personal contact with them [my current tutors]. They never ask, “How was your weekend?” That’s just a small sentence, but it makes you more comfortable.’
(Participant 10, Female, Eastern European, GPA = 3.83)
Six of the seven participants in this cluster also demonstrated more of a desire for the teacher to play an active role in developing the social atmosphere, by providing more activities such as icebreakers.

‘What I’ve seen that helps a lot, like the first day that I got to [university name] we had this introduction day. What we started doing first, I think we played a few games. That helped people ease up. I think if the group work starts with a social activity first, that can definitely help make everybody feel at ease and more likely to interact better.’
(Participant 3, Male, African, GPA = 4.50)

‘There was this one tutor, a German woman, really organized, and she made criteria for us [in our introductions] like, “You have to say your name, you have to say your age, and you have to tell us the most embarrassing moment that happened to you in [university name]”... But because of that, because of how she made us do these things, we really got along good.’
(Participant 8, Male, Eastern European, GPA = 3.33)

In summary, participants in cluster 3 were much more likely to feel that social relationships are an essential component of group work. They were also more likely to highlight the prevalence of social tensions in group work and express a desire for more interventions and resources to create a more comfortable environment.

5.3.2 Internationalised Academic Content in Intercultural Group Work

Common themes in all clusters

RQ4 considered the role of internationalised academic content in providing an avenue for studies to overcome sociocultural tensions in intercultural group work. Again, there are several common themes prevalent in all three clusters which are important to note.

For example, nearly all of the participants (18 out of 20) highlighted that working with diverse peers in intercultural group work helped them learn more about the taught subjects in their module. One reason for this was the opportunity to hear different perspectives and viewpoints on topics.

‘It’s [working in diverse groups] actually pretty great because you have contact with other people who maybe have a different point of view and this makes you change yours, or maybe see where you could have done better.’
(Participant 13, Female, Italian, GPA = 7.83, Cluster 1)
‘Essentially taking something away from someone else’s culture, someone else’s background. If you’re just, in my personal experience, working with the same kind of people, with the same backgrounds, then you get a very narrow view. It’s not just for your outcome, but for your own personal knowledge. It’s just fun to know about how things work in different parts of the world and how people do things. But most importantly, just hearing someone else’s experiences and how they did stuff in their country.’

(Participant 5, Male, African, GPA = 6.67, Cluster 2)

Beyond this, there was a high amount of discussion from 17 of the 20 participants about how diverse peers can (and, for some participants, should) act as primary sources for learning about students’ countries or cultures. In some cases, these diverse perspectives were essential to completing the group work assignment. For instance:

‘There was one task we had to work on. I think it was; you know the company Coca-Cola? We were supposed to discuss how their marketing campaigns work in different countries. That was very useful because where I come from, Coca-Cola is often associated with things like soccer and the like. With other people, like some person said usually it’s with clothing in their county. So we had perspectives of how Coca-Cola is all over the world.’

(Participant 3, Male, African, GPA = 4.50, Cluster 3)

In addition to learning about internationalised contexts, the opportunity to discuss culturally-relevant subjects helped some students (5 of the 20) build bridges between different cultures and experiences. For example:

‘I had an Italian friend in my group… and when she starts talking about Italy and the politics and everything: I can connect it with [my country]. It somehow made me happy, because I realised that these things happen in different countries as well.’

(Participant 12, Female, Middle Eastern, GPA = 5.67, Cluster 2)

‘It [working with diverse peers] makes me personally feel more at home. It helps you realise that you’re not alone and that there are other people that come from further away than where you were living and where your parents are.’

(Participant 11, Female, Dutch, GPA = 4.33, Cluster 3)

At the same time, a common complaint by 14 of the interviewees was that many of their group work assignments did not lead to genuine collaboration between group members. Instead, participants felt that many of the group work tasks assigned by their teachers simply required a division of tasks between group members, when students would have preferred a stronger sense of engagement and discussion among group members, particularly those from different backgrounds.
‘It [discussion between group members] was quite invisible. I mean, we just divided everything up and then went home and brought the result...When you send in your part, it was like, “Oh okay, thanks for your part. I changed this and this and this.”’
(Participant 14, Male, Dutch, GPA = 8.67, Cluster 1)

‘There were some lessons where it’s kind of hard to work in groups, like in math. It wasn’t really group working that we did, more like we were doing the exercise at home and then coming together.’
(Participant 2, Male, Swedish, GPA = 6.33, Cluster 2)

‘If I have issues, I use it [group work] to fill in the gaps. But if I don’t really have an issue and I understood that week’s material pretty good, then I don’t really need clarification, and I think it’s a waste of time. I mean I have everything, literally everything, that’s in the book. I don’t really learn anything else besides what’s in the book.’
(Participant 8, Male, Eastern European, GPA = 3.33, Cluster 3)

In this sense, students desired more opportunities to bring their background knowledge and experiences to the forefront of group work conversations.

‘What I think we don’t do enough is give real-life examples, like everybody says, “Oh, I did that” or “I was involved with this and did that before.” We never do that. We just stay focused on the book and things. But we all have experiences. We’ve all done things before.’
(Participant 20, Male, Belgian GPA = 8.67, Cluster 1)

Although many students saw their peers as resources for first-hand knowledge from other countries, it was highlighted by seven participants that some students, especially those from countries without a large cohort of students present at the university, felt that their group members had little understanding of their country or culture. These students highlighted potential tensions when students are expected to act as tools for internationalisation in the module. For example:

‘We had some, like from Cyprus for example or from countries that are not that well known. They were really quiet. Yeah, they were at times quiet. They didn’t feel as included or they didn’t get a grip on it [group work].’
(Participant 16, Male, German, GPA = 4.83, Cluster 3)

‘I know what’s going on in Europe and the lifestyle, but I think that people sometimes have a prejudice in their minds because I’m from [outside Europe]. Even a girl asked me; she said “Maybe you can talk about religion,” and I’m not religious at all, so I was just thinking, “No way!”’
(Participant 12, Female, Middle Eastern, GPA = 5.67, Cluster 2)
Another consideration is whether students feel comfortable or prepared to discuss their cultural experiences with group members. For example, one student who grew up in both China and Germany explained:

‘I don’t have anything interesting to share. Because I remember during introductions, everyone was like “I was in Japan” and “I lived in India”’ I was just like, yeah, I’m just a normal girl. I just graduated from high school, and now I’m here.’

(Participant 19, Female, German, GPA = 6.17, Cluster 2)

A final prominent theme across all clusters was the topic of cultural distance and the notion that domestic or European students might feel more comfortable in intercultural group work due to their familiarity with the context of the university and the locally-based academic content. For nine participants, they felt this leads to higher participation for domestic or European students in comparison to international (and, in particular, non-European) peers.

‘Task group works are basically similar around Europe, that’s why they participate more. They know the situation of group work. Which maybe guys from East Asia or Latin America don’t know as well because of the differing school models or just because they are away from home. What I think, they basically feel on safe ground, because they didn’t have the experience of moving into a completely new society.’

(Participant 9, Male, American, GPA = 9.67, Cluster 1)

‘It might be that if you’re in a different country, you might feel like at first you say less and restrict yourself, while if you’re from the Netherlands, then you are at home. Maybe that will contribute to how confident you feel.’

(Participant 4, Female, German, GPA = 4.50, Cluster 3)

‘He’s [a Dutch person] local to the area and understands things more. Maybe he feels a need to represent the area and wants to make sure that things work better in the Netherlands, so he feels more confident with himself and in this environment. He can speak freely with the other people and coordinate with them, and make sure they know what they are doing. I think it also just depends on the context and what they are actually talking about. If a Dutch student is working on a task that has to do with Dutch things, then, of course, they feel more pressure to have all the knowledge on the topic and lead the discussion.’

(Participant 5, Male, African, GPA = 6.67, Cluster 2)

Yet, despite these common themes, there were a few key differences between the three clusters, which is outlined next.
**Cluster 1: High-performing students**

As previously highlighted, students in Cluster 1 often viewed themselves as leaders and viewed social tensions as issues that ‘other’ students must overcome. When it came to discussing student contributing experiences from their diverse backgrounds to small groups, similar sentiments were echoed. Indeed, all students in Cluster 1 recognised that that diverse peers have valuable experiences and background knowledge to bring to group work. Yet, they recognised that some students might encounter challenges to bringing those to the forefront of conversation. With this in mind, many (3 of the 5) noted that they felt a responsibility to take a leadership position in order to encourage those less comfortable to participate.

‘It’s really important if you have such people in the group [low participators], I always try to make them feel important. To not let them just see what the European students who have lived their lives here are doing, but doing something to show us what they can do. I think this is the most important because they have come here not to follow the European guy, but to share their experiences because they have learned something in their home countries which we didn’t learn.’

( Participant 9, Male, American, GPA = 9.67)

‘It [participating] is really a matter of personality, but also the other students. If the other students are, not mean, but just don’t really care to get to know the other person’s opinions, then he will push them away. It should be 50/50.’

( Participant 13, Female, Italian, GPA = 7.83)

In particular, much of the sentiments from Cluster 1 students focused on individual agency and the need for other, less active group members to gain more confidence in themselves and their ability to contribute valuable information to their groups.

‘I think my suggestion to some students is that you don’t need to care about other people’s feelings and you don’t need to care about your pronunciation. Just speak up. I think most of my group members, like from Europe or America, I think they are very welcoming. They feel welcome to listen to your opinions. So don’t be afraid. Be more confident. Confidence is the most important thing.’

( Participant 17, Female, Chinese, GPA = 7.33)

‘I think for the Chinese guy [in my group], I would recommend him to…I mean it would probably be hard for him and stuff, but to get a bit more daring and try to say, like, “Hey can we do this?” or “Hey couldn’t we do this, wouldn’t that be better?”’

( Participant 14, Male, Dutch, GPA = 8.67)

In terms of teacher intervention or curriculum design, Cluster 1 students tended to view group work participation improvement as a product of soft skill acquisition combined with personal effort. In this sense, they felt their tutors should provide the tools for individuals to obtain agency in making
valuable contributions to their peers, while factors such as the group work task or academic content were simply a ‘means to an end’ to be dealt with as part of the group work process.

**Cluster 2: Mid-performing students**

In Section 5.3.1, Cluster 2 students highlighted a need for social relationships in order to promote productive collaboration. When discussing aspects of contributing content, these participants discussed sharing personal knowledge as a benefit to their own learning experience. Indeed, Cluster 2 students all talked about intercultural group work as an ‘opportunity’ to encounter new ideas and build their own collaboration skills. This is in contrast with Cluster 1 students, who often felt that building these soft skills were more valuable for ‘other’ students, rather than themselves.

‘You receive new ideas, which is always good. You get to express your ideas and learn how to express them. Just by doing simple things as communicating with other people that you usually don’t communicate with, it is definitely going to help you in your future, and in our future, depending on what we want to do. It teaches us how to express ourselves and how to take in new information, how to process that and how to work with it.’
(Participant 1, Male, Eastern European, GPA = 6.67)

‘Just the differences in culture and I think maybe someone from Asia doesn’t have the same life experiences as Dutch people. It’s like a new or fresh look on the case study.’
(Participant 2, Male, Swedish, GPA = 6.33)

Participants in Cluster 2 all also provided strong arguments that students should take a more pro-diversity approach in their group work tasks in order to encourage collaboration.

‘One of the things I’ve learned is not to ignore the differences, not to ignore the culture or religious or social differences, but to embrace it and celebrate it. So I would tell them [students] to be proud of their cultures and to put it at the forefront of conversation. Don’t ignore it or diminish it. If you feel comfortable with it, you should wear it proudly as your identity.’
(Participant 5, Male, African, GPA = 6.67)

‘I would say don’t hesitate to show off your background, like your culture, your nationality, your own language...Just share your experience and reflect it in your task because I think it’s more efficient to have personal experience rather than just academic sources.’
(Participant 12, Female, Middle Eastern, GPA = 7.50)

For some Cluster 2 students (4 of the 8), the ability to share experiences and knowledge from their own backgrounds and cultures was natural, much like those in Cluster 1.
'It [our group work experience] was very smooth. We all had an idea of how it was to work with people from different backgrounds, so we were able to not just ignore our backgrounds, but to really bring it to the forefront of conversations. The task was to actually talk about our personal experiences with the subject, so we could all say like, for example, “When I lived in [my country], I learned to do this, this and this. I experienced this.” Then we would ask someone else, ‘so what did you do in Swaziland’ or Australia or wherever.’

(Participant 5, Male, African, GPA = 6.67)

At the same time, others (3 out of 8) mentioned that some students face barriers to adding personal information and experiences to group work activities.

‘Especially for the first period, some of the students aren’t familiar with the system, so the tutor can motivate them to speak up by maybe helping them find a way to show their skills and background.’

(Participant 12, Female, Middle Eastern, GPA = 7.50)

Altogether, Cluster 2 students more strongly highlighted the benefits of intercultural group work and the need for diverse experience to be brought to the forefronts of collaboration.

Cluster 3: Low-performing students

Analysis of RQ3 highlighted that Cluster 3 typically experienced stronger tensions and discomfort when working in group work activities. Yet simultaneously, these students all readily highlighted the opportunity to share and learn from experiences and knowledge of diverse peers as an essential benefit of group work.

‘You need to have people with sort of different experiences and personalities. That way, each person can contribute meaningfully what they have, as opposed to two people who are more or less the same.’

(Participant 3, Male, African, GPA = 4.50)

‘They [group members] might have very different ideas. I think the key here is that you should learn to accept others or understand them maybe to a certain extent, and then just try to get the best answer out of everyone’s contribution.’

(Participant 8, Male, Eastern European, GPA = 3.33)

Despite this, five of the eight students in Cluster 3 discussed difficulties with making personal connections to the group work content and formulating information of value to provide to group work discussions.
‘It’s not good to have that thought in the back of your head like, “Oh, I need to say something, I need to say something.” That’s not good. That what I’ve noticed, that I’m sitting in the second half of class and thinking, “Oh man, I really need to say something.” I block out all the conversation and am just thinking, “What can I say?”’

(Participant 11, Female, Dutch, GPA = 4.33)

“Well, I have to participate, but I don’t feel comfortable with it, and I’m just saying something because I have to say something. It’s not like “Ah, I have a good idea.” It’s more like, “I’m saying something because I need to say something.”’

(Participant 10, Female, Eastern European, GPA = 3.83)

Students in this cluster (4 of the 8) also noted the need for more tolerance from group members so that others feel more confident to contribute.

‘I think it’s important to sometimes respect the experiences of others, even if you don’t feel the same way to just say ‘Okay, we’ll do it this way,’ and to work with that. To get the best outcome from that, even if you might not feel fully behind it and aren’t of the same opinion. That’s something I think everyone should learn.’

(Participant 4, Female, German, GPA = 4.50)

In summary, students in Cluster 3 voiced a stronger opinion on the value and role of diversity in enhancing educational experiences and noted a desire for a more prominent role in sharing their diverse experiences with peers.

5.4 Study 2 Discussion

5.4.1 Implications of Findings

In this chapter, Study 2 considered student experiences with sociocultural tensions in intercultural group work and their views on contributing their diverse experiences to their groups. In terms of RQ3, all students interviewed felt that social connections with peers and co-creation of knowledge between diverse group members are necessary components of intercultural collaboration. In every case, students wanted more opportunities to get to know their peers in order to work together on group-related tasks, particularly when group members were from countries other than their own. Indeed, many participants in this study believed that intercultural group work tensions derived in part from a lack of social connections between diverse group members. These important findings shed light on the analysis undertaken in Study 1 (Chapter 4), as well as previous research related to the challenges of intercultural collaboration (See Table 2.1). These findings are particularly remarkable considering social relationships was an emergent theme of interviews, with no interview questions specifically focused on the topic.
With these findings in mind, it is worth considering if the challenges of intercultural group work highlighted in previous research (Kimmel & Volet, 2012; P. Moore & Hampton, 2015; Takahashi & Saito, 2013) could be alleviated with increased opportunity for group members to form social relationships within and outside the module. Further research, therefore, should consider which evidence-based interventions can support social elements in collaborative work, particularly in the early stages of study when students are still undergoing processes of social and academic adjustment (Zhou et al., 2008).

Participant perspectives on the role of social relationships did, however, have subtle variations, which can in part be explained by academic performance level. While high-performing students often demonstrated a desire for stronger relationships with group members to make assignments more ‘fun’, and to help ‘other,’ less confident students felt more uncomfortable in group scenarios. At the same time, mid- to low-performing students were much more likely to cite social tensions that disrupt the group work process. Lower performing students, in particular, felt that their academic experience could be improved with increased opportunities to build social relationships and connections with peers. This gives deeper insight into previous quantitative research, which highlighted that lower performing students are more likely to have fewer social learning connections with classmates in comparison to high-performing students (see Chapter 4 and Gašević et al., 2013; Hommes et al., 2012). Yet, this present study sheds only a partial light on why these views differ between those of varying academic performance levels, which gives cause for more needed research on this phenomenon. Understanding the root cause for poor social relationship building is important, after all, as Maunder, Cunliffe, Galvin, Mjali, and Rogers (2013) have previously highlighted social support as an essential factor for successful student transitions to university.

One possible explanation for the differences in these perceptions is that high-performing students are more likely to demonstrate larger social networks and more diverse relationships, as demonstrated in previous research (Rienties et al., 2015). However, more research is needed in future work to understand whether poor social relationship building is a symptom or a cause of low performance. One explanation could be that lower performing students enter university with fewer competencies needed to encourage social network building, as has been suggested in related research (see, for example: Parker, Hogan, Eastabrook, Oke, & Wood, 2006). Yet, it is equally plausible that low academic performance leads students to withdraw from the module social space, as suggested previously (Wilcox et al., 2005). Therefore, future research should unpack the factors (and their sequencing) that lead low-performing students to experience more social tensions than their higher-performing peers.
One strong variation between participants of varying academic performance levels was their expectations of their teachers. High-performing students demonstrated self-autonomy and often believed that decreasing social tensions between diverse students was an individual responsibility. They were also more likely to depict a ‘Utopian’ vision of attitudes towards diversity at the university, often highlighting that social stratification and cultural clashes did not occur and that harmony among students is ‘natural.’ However, mid- to low-performing students were much more likely to desire teacher intervention to decrease social tensions and help them feel more comfortable with sharing their diverse background experiences and knowledge. Low-performing students, in particular, felt that improving social conditions within the module was the duty of their teachers. Therefore, low-performing students were more likely to blame poor social conditions on the lack of teacher intervention. This adds depth to previous literature on the role of social transitions and its influence on academic performance and progression (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015), a notion which has important implications for institutions and practitioners. Indeed, these findings suggested that resources for building social relationships are needed and desired by certain student demographics, as suggested in related research on student adjustment experiences (see: Gareis, 2012; Maunder et al., 2013). It is worth considering in future research, therefore, which evidence-based interventions by the module teacher can encourage low-performing students to feel more socially integrated with their peers.

RQ4 considered one such avenue for encouraging engagement in intercultural group work: the incorporation of internationalised academic content in order to support students through opportunities to make valuable contributions from their own backgrounds and experiences. Many students in this study, particularly mid- to low-performing students, desired such opportunities to share their experiences and knowledge about their home country or culture with their peers. Indeed, students in all clusters argued that the ability for students to act as primary resources from their diverse backgrounds added depth to group work discussions and positively benefited their learning experiences. This notion has been highlighted in the literature, for example by Brookes and Becket (2010), who argued that international students should serve as ‘ready-made resources’ for discussing international topics with peers. Indeed, other work suggested that both domestic and international students’ knowledge and experiences should be incorporated into the curriculum (Bodycott et al., 2014; Leask & Carroll, 2011).

The findings from this study suggested that the opportunity to share personal experiences and engage with culturally-relevant assignments with diverse peers may help alleviate social tensions and individual discomfort in group work. After all, many students, especially those in Cluster 3, struggled to find information of value to contribute to their group members. There was also an overall feeling by many students that group work favoured those from domestic or European
backgrounds, particularly when the academic content centred on locally-relevant subjects. Indeed, previous work has highlighted that internationalised content can encourage engagement and participation (Arkoudis et al., 2013; de Haan & Sherry, 2012; Liu et al., 2010; Middleton, 2014), particularly when ‘they cannot be completed satisfactorily without meaningful intercultural interaction’ (Leask & Carroll, 2011, p. 655). Yet, most research on the subject relies on anecdotal evidence through, for example, case study methodologies, and there have been relatively few empirical studies that have measured the added benefit of internationalisation. Therefore, it is worth considering in future work whether internationalised academic content and assignments can lead to higher engagement and less disparity in participation between diverse group members (as suggested in Study 1).

5.4.2 Study Limitations

In this chapter, a cluster analysis was used to select 20 students from a larger module of 860 students to participate in an in-depth interview about their experiences with social tensions and teacher expectations in intercultural group work. In doing so, several limitations are recognised. First, this study took place in just one context, and replication in other contexts is necessary to confirm findings. Secondly, the focus of this study was on student reflections on intercultural group work, and, therefore, did not include more objective measures of their experiences, such as by using social network analysis (Chapter 4) or observations of group work activities (Chapters 4 and 6). Thirdly, it is recognised that individual students should not be essentialised as collective identities from entire countries or regions. Indeed, more research is needed in the future to further unpack variations in group work experiences between groups of students from different cultural backgrounds. Fourthly, the focus of this study was on the differences in experience between students based on academic performance level. Given the sample size and that typically only one student from each country participated, it was not possible to establish variations in associations relating to cultural traits. Therefore, it may be worth comparing in the future how students from different countries reflect on their group work experiences and the role of social relationships.

Finally, it should be noted that there are potential methodological implications for the change in setting between Study 1 and Study 2. A more nuanced picture of specific student experiences during the group work activity in Study 1 would have been provided had the interviews described in this chapter been elicited from participants in Study 1 or students at the same institutional setting. As this was not possible due to the personal circumstances of Study 1’s module lecturer, this meant that interview questions for Study 2 had to be designed to ask about experiences in group work more generally, rather than in a specific instance. This also meant that follow up analysis on the
specific experiences of Study 1 participants was not possible. Future research, therefore, should be
done to qualitatively unpack the nuances in student reflections in relation to specific group work
experiences (see Study 4 and Chapter 7).

However, in contrast to previous quantitative and qualitative studies, this study was conducted by
selecting a representative, broad sample of students using cluster analysis techniques of academic
performance. Also incorporated was a unique mediating artefact method to elicit in-depth
responses about personal topics, such as culture and social transitions. Therefore, this chapter
provides a comprehensive and complex picture of how international and home students overcome
intercultural group work tensions. In doing so, these findings, combined with findings from Study 1
(Chapter 4), provide a foundation for the final studies in this thesis, which are highlighted in
Chapters 6 and 7.

5.4.3 Links to Other Studies in this Thesis
In Chapter 4, Study 1 reviewed an online intercultural group activity, where cultural traits and social
network diversity were found to influence measurable group work behaviours. The study described
in this chapter has triangulated these findings by corroborating the existence and prevalence of
sociocultural tensions in intercultural group work with qualitative evidence. At the same time, this
study has expanded the understanding of findings in Study 1. Indeed, Study 2 has provided a strong
understanding of how and why sociocultural factors impacted the group work behaviours measured
in the online task. Altogether, the strong links between findings in Study 1 and Study 2 added depth
to the contributions so far in this thesis.

The in-depth analysis of experiences between students of different academic performance
backgrounds provided in Study 2 also unpacked the link between social relationships and
performance, in line with previous work (Gašević et al., 2013; Hommes et al., 2012; Rienties et al.,
2015). The quantitative analysis of Study 1 demonstrated a potential indirect relationship between
performance (i.e. grades) and participation. This was confirmed by the qualitative work in Study 2,
which has highlighted strong differences in students’ experiences and perceptions of group work
based on performance level. In doing so, perceived sociocultural tensions and discomforts for low-
performing students were emphasised in this study. This added precedence to the need for
universities and teachers to provide resources and interventions to help low-performing students
feel more comfortable and confident when working in intercultural teams, particularly considering
that those in Cluster 3 of this study would most likely fail their first undergraduate term.
One intervention for encouraging group work success that was explored in the second half of this thesis was the role of internationalised academic content. After all, previous research has highlighted that internationalised academic content may provide students with an avenue for contributing their unique experiences and backgrounds in group activities (Brookes & Becket, 2010; J. Knight, 2004; Leask, 2009; Leask & Carroll, 2011), therefore increasing participation and engagement (Arkoudis et al., 2013; de Haan & Sherry, 2012; Middleton, 2014). These suggestions were explored in Study 2 against the backdrop of sociocultural tensions in intercultural group work. Altogether, the findings support the consideration that internationalisation may positively benefit students collaborations. Yet, no known studies have compared student behaviours and experiences with internationalised academic content against a baseline condition of ‘local’ content with materials from within the host country context in order to measure the added value of internationalisation. Indeed, there are currently substantial gaps in empirical research on the measurable benefits of internationalising the curriculum.

To address these gaps, Chapter 6 describes a randomised control trial study which compared students’ measurable participation when working in online group work assignments that incorporated local versus internationalised academic content. In Chapter 7, issues related to student experiences and reflections of local versus internationalised academic content in the study are explored. Finally, Chapter 8 provides a discussion and conclusion in light of the findings of these four studies.
Chapter 6 - Study 3 Methods and Results

The previous chapter (Chapter 5) outlined the methods and findings of Study 2, which was an in-depth qualitative analysis of student experiences of sociocultural tensions and the role of internationalised academic content to support intercultural group work success. This chapter describes the third study in this thesis, which was a randomised control study that compared student behaviours in online intercultural group work when assigned local versus internationalised academic content. The final study, Study 4 (described in Chapter 7), built off of the activity adopted in this study to analyse student reflections of their experience when working in online intercultural groups using local versus internationalised academic content.

This chapter is divided into four sections. The Introduction (Section 6.1) reviews the research questions addressed in this chapter. Next, the Methods section (6.2) provides an overview of the specific methods used for Study 3, including information about the setting, participants, procedure, instruments and data analysis undertaken. The Results section (6.3) then outlines an overview of the findings in relation to the chapter’s research questions. Finally, the Discussion (Section 6.4), reviews the implications of Study 3’s findings, including limitations and influence on future analysis undertaken in Study 4 (described in Chapter 7).

6.1 Introduction

This chapter outlines an empirical comparison of student participation when using local versus internationalised academic content. In Study 1 (Chapter 4), an analysis of an online collaborative activity identified differences in participation to online intercultural group work among students based on cultural background and the amount of diversity present in their social networks. Study 2 (Chapter 5) provided another way to understand and probe in more depth these findings through a series of qualitative interviews. These findings revealed deep divides between students from different academic performance levels in their experiences of sociocultural challenges when working with peers from different countries. In this sense, findings from the first two studies in this thesis have built upon previous work on group work participation (Angeli & Schwartz, 2016; Caspi et al., 2003; Hannon & D’Netto, 2007; Liu et al., 2010; Strijbos & de Laat, 2010) and experiences (Fozdar & Volet, 2012; Gašević et al., 2013; N. Harrison & Peacock, 2010; P. Moore & Hampton, 2015) by providing a more nuanced understanding of how and why students encounter challenges.

\footnote{This chapter is based upon the following submitted journal article: Mittelmeier, J., Rienties, B., Tempelaar, D., Hillaire, G. & Whitelock, D. (submitted). The influence of internationalised versus local content on online collaboration in groups: A randomised control trial study in a statistics course.}
(as indicated in Figure 2.1). With the recognition of clear sociocultural tensions in intercultural group work, the next phase of this research focused on the need for an intervention to support group work success.

One suggested intervention highlighted in the literature (see Section 2.4) and in findings from Study 2 is the incorporation of internationalised academic content. Indeed, one prominent finding in Chapter 5 was that many students, especially mid- and low-performing students, would like more opportunities to share their diverse experiences and background knowledge with peers. This is in line with previous work, which has suggested that internationalised academic content may increase engagement and participation in highly diverse modules (Arkoudis et al., 2013; de Haan & Sherry, 2012; Liu et al., 2010; Middleton, 2014). However, previous work has primarily focussed on student reflections of experiences with internationalisation or case study analyses of programmes that have incorporated international elements. At present, no known study has measured actual student behaviours and experiences in an internationally-focused assignment and compared with a baseline activity incorporating locally-based content. Therefore, it is difficult to understand the added value of internationalisation.

In order to measure differences in behaviours and experiences when working with international versus locally-based content, an RCT method was adopted in Study 3 (outlined in Section 3.3.3). Torgerson and Torgerson (2001) have highlighted that the RCT is a robust and reliable methodology for testing the evidence of an educational intervention’s success. Kendall (2003, p. 164) further noted that ‘RCTs are the most stringent way of determining whether a cause-effect relation exists between the intervention and the outcome.’ This comparison is important, as one alternative suggestion might be that internationalised content makes students feel uncomfortable or uncertain, as evidenced by some participants in Study 2 (Chapter 5), who felt unsure about how to share their cultural backgrounds and experiences with group members. For a more in-depth rationale of RCTs in education research, see Section 3.3.4.

Beyond comparing local versus internationalised academic content, Study 3 also defined the ‘space and place’ of internationalised academic content. If, as argued by recent research (Brookes & Becket, 2010; L. Brown, 2009; Chang, 2006; Cruickshank et al., 2012), international students are to serve as resources for intercultural learning, one assumption is that content is relevant to their background and experiences. Yet, it is the case in many higher education programmes that academic content is incorporated more broadly from simply outside the local context (for example, a module in the Netherlands studying a case study in Brazil). More research is needed, therefore, to further unpack the meaning of ‘international’ in internationalised context and how the location of content impacts student behaviours and experiences.
Altogether, Study 3 considered the effects of internationalisation on two levels. First, how the incorporation of internationalised academic content impacted measurable behaviours was analysed. This was deemed important, as findings from Study 1 (Chapter 4) highlighted differences in participation due to sociocultural factors. Second, differences in students’ group work experiences and reflections between the research conditions were considered. This second component was necessary, as findings from Study 2 (Chapter 5) highlighted qualitative differences between participants in their group work experiences. These two approaches are highlighted in two separate chapters. In this present chapter, the following research questions were addressed:

**RQ5:** How does local versus internationalised academic content impact upon measurable participation in intercultural group work?

**RQ6:** How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work?

Chapter 6, therefore, focuses on comparing measurable behaviours of students when working with local versus internationalised academic content. The next section outlines the research setting and methods used to address these research questions.

### 6.2 Methods

#### 6.2.1 Settings and Participants

This laboratory study took place in the same institutional and module setting as Study 2 (see Section 5.2.1), in a multidisciplinary statistics module at a Dutch business school with students in their first undergraduate term. Students in this programme have frequent opportunities to work with content and case studies that are international in scope and are explicitly taught skills in communicating and collaborating with diverse peers (Tempelaar et al., 2012; Tempelaar et al., 2015; Tempelaar, Rienties, et al., 2013; Tempelaar, Rienties, & Nguyen, 2017a; Tempelaar & Verhoeven, 2016). Each week, students have face-to-face lectures, which are followed by online collaborative activities that take place in a physical computer laboratory. Group work is also an important part of the curriculum, and students are regularly assigned collaborative activities in weekly tutorials and online computer laboratory activities. Modules in this programme are fully taught in English, meaning the vast majority of students study in a non-native language. Outside the module, the university has a vibrant schedule of social programming aimed at promoting intercultural exchange.
Therefore, this study looks at student experiences with internationalised academic content against the backdrop of an already internationally-minded formal and informal curriculum.

Altogether, 428 participants took part in this study, who were divided into 90 small and intercultural groups with approximately 5 members each \((m = 4.74, SD = .87)\). 76.9% \((n = 329)\) of the participants were international students. This large proportion of international students and their distribution of backgrounds were typical in this particular program (see Section 5.2.1). Table 6.1 provides a breakdown of student backgrounds organised by the GLOBE country cluster system (House et al., 2004). Within the international student population, a large group was from Germany \((n = 178, 41.5\%)\), which is the largest international student subgroup at the wider university. 24.1\% \((n = 99)\) of participants were local Dutch students. Of the remaining students, 123 were European students representing 23 countries, and 28 were non-European. In terms of gender, slightly more males than females participated \((n = 259, 60.5\%)\), which is also representative of the wider student population in this academic programme.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>No. of students</th>
<th>Countries (samples, ordered by relevance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo</td>
<td>6</td>
<td>Ireland (1), United Kingdom (1), United States (4)</td>
</tr>
<tr>
<td>Confucian Asian</td>
<td>10</td>
<td>China (6), Hong Kong (1), Japan (1), Korea (1), Singapore (1)</td>
</tr>
<tr>
<td>Eastern European</td>
<td>21</td>
<td>Albania (1), Croatia (2), Hungary (2), Poland (4)</td>
</tr>
<tr>
<td>Germanic European</td>
<td>277</td>
<td>Germany (179), Netherlands (98)</td>
</tr>
<tr>
<td>Latin American</td>
<td>2</td>
<td>Mexico (2)</td>
</tr>
<tr>
<td>Latin European</td>
<td>97</td>
<td>Belgium (55), France (11), Italy (14)</td>
</tr>
<tr>
<td>Middle East</td>
<td>3</td>
<td>Egypt (1), Saudi Arabia (2)</td>
</tr>
<tr>
<td>Nordic</td>
<td>7</td>
<td>Finland (4), Norway (1), Sweden (2)</td>
</tr>
<tr>
<td>South Asia</td>
<td>5</td>
<td>Indonesia (1), Malaysia (1) Vietnam (3)</td>
</tr>
</tbody>
</table>

### 6.2.2 Discussion Task

Both RQ5 and RQ6 required the collection of behavioural data from an online intercultural group work activity. Therefore, an online learning activity was conducted in a physical computer laboratory setting in this study in order to record and analyse student contributions. At this university, students attended weekly lectures, as well as breakout small tutorial groups of approximately 14 participants (Tempelaar et al., 2012; Tempelaar et al., 2015; Tempelaar et al., 2017b; Tempelaar, Wosnitza, et al., 2013). In addition, participants were assigned to a weekly physical computer laboratory, in which they frequently completed online collaborative assignments. This present study took place during the regularly scheduled computer laboratory session in week six of their first term. Previous research has found that this context and the
computer laboratory setting, in particular, allow for rich forms of data collection of complex learning processes and outcomes (S. Knight, 2016; S. Knight et al., 2017; Mittelmeier, Tempelaar, et al., 2016; Tempelaar et al., 2017a).

Students were recruited to participate in the laboratory activity through their module lecturer by email and verbally during the weekly lecture. In the email, an introduction from the researcher and the study information sheet was included (see Appendix 5 and 6), which allowed students to make an informed decision about attending the laboratory. The information sheet covered both Study 3 and 4 (described in Chapter 7). Upon arrival at the laboratory, the information sheet was summarised verbally, and informed consent was given online via electronic signature using Qualtrics. Students in the module did receive a participation credit for attending the laboratory. However, no marks for their performance were given. There was additionally an alternative assignment of equal length for those who did not wish to participate (see also: S. Knight, 2016; S. Knight et al., 2017).

Before the individual laboratory sessions, the computers were logged into using a generic log-on provided by the university’s IT department. Computers were prepared so that the Qualtrics consent form was open when students arrived, which gave them time to review the consent form as they were waiting for the laboratory to begin. In line with S. Knight (2016), the browser cache was cleared in between laboratory sessions so that participants would not find hints to the activity through auto-filled responses. As in Study 1, participants in Study 3 were randomly divided into small groups of approximately 5 members and worked together online using a messenger to communicate (described below). As the research questions required culturally diverse groups, care was taken to ensure that at least three countries were represented in each group by a sampling of the researcher prior to the computer laboratory task. Beyond demographic background, participants were assigned at random to groups in order to mimic real-world experiences where they must work with new and diverse group members. Students were not made aware of their fellow group members until they arrived at the laboratory. The computer laboratory was comprised of students from several small tutorial groups, meaning students within their assigned groups had not had the opportunity to work with most of their group members previously. Altogether, there were 20 laboratory sessions, with approximately 20-25 students in each session.

After being seated, the researcher was introduced, and the study was described to the students by their regular computer laboratory tutor. Afterwards, the researcher verbally summarised the study information sheet. Students were additionally reminded at that time that participation was voluntary and that there was an alternative assignment available for those who did not wish to partake in an activity for research purposes. The laboratory was assisted by the regular computer
laboratory tutor and an additional PhD researcher, who both helped students get logged into the online platform and answered any questions related to the activity, which is described in the next section.

**Laboratory activity**

The laboratory activity was developed in coordination with the module lecturer to provide groups with a case study that asked participants to use the World Bank EdStats online database (available at: http://datatopics.worldbank.org/education/) to explore real-world education statistics. An example of the data used by students is provided in Figure 6.1. The group task was to analyse, compare and discuss data from assigned countries to collectively decide on which country or area of education should receive additional funding from the World Bank to build programmes to encourage university attendance. As RQ5 and RQ6 sought to understand differences in student behaviours when working with local versus internationalised academic content, subtle variations were made to the specific task and content assigned to various groups (explained in depth in Section 6.2.4). In order to mimic the style and design of participants’ regular academic assignments, this activity was designed in coordination with the module teacher and in reference to learning materials used in this academic programme. By focusing the activity on a mathematics and statistics task, this study was able to test the effects of internationalisation in the context of content that is often perceived to be culturally ‘neutral.’ The assignment was also similar in nature to the assignment in Study 1; both tasks required students to solve a real-world problem by comparing and discussing data. This aids in the comparability of Study 1 and 3 findings.

*Figure 6.1 Study 3 case study data screenshot*
Participants were instructed to begin the task by first introducing themselves to their group members and providing a fun fact about themselves. As findings from Study 2 indicated that many students felt uncomfortable when working with unknown peers, this warm-up activity gave them the opportunity to get to know their group members. Next, participants were given approximately 10-15 minutes to read through the task instructions, open the EdStats dashboard and become familiar with finding data. In order to incentivise collaboration, groups were assigned more data than would be possible for one person to analyse in the timeframe provided for the laboratory, and students were made aware that they should divide up the task (as in Study 1). Participants were additionally asked to use their team members as resources to make inferences beyond the data in order to collectively decide on an answer to the task. After approximately 30-40 minutes of online discussion, participants were instructed to provide a final solution in the messenger to complete the task. Altogether, the task took approximate 75 minutes. A breakdown of study timings and procedures is provided in Table 6.2.

<table>
<thead>
<tr>
<th>Time (minutes)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>Introduction to laboratory session and oral summary of study information sheet</td>
</tr>
<tr>
<td>5-10</td>
<td>Consent signing, logging into Udio and group page</td>
</tr>
<tr>
<td>10 - 15</td>
<td>Introductions to group members</td>
</tr>
<tr>
<td>15 - 30</td>
<td>Reading of instructions and materials in EdStats (5-minute warning given)</td>
</tr>
<tr>
<td>30 - 1:10</td>
<td>Online discussion with group members (10- and 5-minute warnings given)</td>
</tr>
<tr>
<td>1:10 - 1:15</td>
<td>Debrief</td>
</tr>
</tbody>
</table>

After the laboratory, students were asked to complete a post-activity reflection task. This task is described and analysed in Chapter 7.

The research instruments, including the activity instructions, laboratory timings and collaboration tool (described in the next section) underwent two rounds of pilot testing. In the first pilot test, five research students at the Open University (none of whom had a background in business and economics) participated in a mock laboratory activity. This pilot laboratory was in a computer laboratory environment under similar conditions and timings as the full study. The focus of the first round of pilot testing was to fine-tune the activity design and instructions. After participating in the full activity, pilot participants took part in a focus group discussion designed to highlight points of
confusion and suggestions for improving the activity. Afterwards, the activity instructions were revised to incorporate participant suggestions. From the first round of pilot testing, it was clear that the original activity required more work than was possible for students to complete within the allotted one hour for the laboratory. This meant that a dramatic simplification of the task design was necessary. One additional suggestion from pilot participants was to break down the instructions into clearer steps, rather than present them as one long text. Other participants whose native language was not English also made suggested clarifications and simplifications of the language used for the instructions throughout the activity. Altogether, the first round of pilot testing aided the development of the activity design and instructions.

In the second pilot test, ten Open University research students and research staff members, including a member of the researcher’s supervision team, participated in a mock laboratory activity, of which two had a business and economics background. The second round of pilot testing focussed on the online communication tool and overall facilitation of the laboratory activity, including issues such as logging into the online collaboration tool and practising oral instructions. These pilot participants similarly took part in a facilitated group discussion after the activity, in order to gain feedback about suggested changes to ensure a smooth experience for students in this study. An additional round of revision to the activity’s materials and laboratory schedule were made following the second pilot study. One lesson learned from this piloting phase was that participants encountered difficulties understanding their assigned username (further explained in Section 6.2.3), which led to the decision to create documents to show on an overhead projector in the laboratory for clarification. Participants also commented on issues related to the pacing of the steps in the activity, as well as complexities in understanding terminology on the World Bank data website. The two participants who were trained in economics and business did not experience these issues as they were familiar with the jargon. In order to address any potential ambiguities or confusions, however, explicit definitions of terms were included in final instructions for laboratory participants. The pacing of the lab was also revised to address concerns and provide for a smoother experience. Altogether, the research methods and tools used in this study were rigorously tested and piloted prior to data collection.

6.2.3 Online Collaboration Tool

As in Study 1, an online communication tool was used in order to address previous research, which has demonstrated strong variations in in student participation during online collaboration (Bento, Brownstein, Kemery, & Rawson Zacur, 2005; D. Hall & Buzwell, 2013; S. Knight et al., 2017; Strijbos & de Laat, 2010). Participants used an online synchronous messenger for communication, similar
in nature to the one adopted in Study 1. In Study 1, a built-in instant messenger feature of the university’s VLE was used. However, there was not a comparable feature in the VLE used in the university setting of Study 3. Therefore, an online platform called Udio was used (more information is available about the platform at: http://cet.cast.org/udio/). The Udio platform functioned within a web browser (Chrome) and could incorporate any XML-structured content. In Study 3, the case study tasks (described in Section 6.2.2) were loaded into the Udio platform in the form of group assignments. Assignments were numbered, and participants were assigned a specific number to work on during the laboratory, along with their assigned group members. Upon opening the assignment, participants used a messenger feature for communication, which was similar in nature to an online chat or instant messenger. A screenshot of the messenger feature used for Study 3 is provided in Figure 6.2.

Figure 6.2 Study 3 online collaboration tool (Udio)

Students were required to log into Udio in order to access their assignment. Usernames were auto-populated prior to the laboratory using students’ names as ‘FirstSurname’ (example: JohnSmith). Their group number and username were shown at the front of the laboratory via projector. Each laboratory used the same password. In addition to the EdStats database, students were free to use online sources to complete the task (such as within the World Bank website or by web search).
6.2.4 Randomised Control Trial Design

RQ5 and RQ6 required an explicit comparison of student behaviours when working with local versus internationalised online content. The comparison element of this study was important, as no known study has demonstrated measurable improvements in student participation when incorporating internationalised academic content against a baseline set of data on student behaviours in an activity incorporating content from the local context. This makes it difficult to judge the added value of internationalisation. Therefore, a randomised control trial design was incorporated into this study to address this gap. For an in-depth justification of randomised control trial designs in education research and its appropriateness to the research questions of Study 3, see Section 3.3.

In Study 3, participants were divided into three conditions with subtle variations in the ‘space and place’ of the online content used for their collaborative activities. In all cases, participants were asked to compare educational statistics, which were assigned to their group based on their study condition. Groups in all conditions were asked to discuss the data with one another and collectively decide which country was most in need of additional resources or funding from the World Bank. In this sense, the task asked students to make inferences beyond the data in order to complete the task. Therefore, international and intercultural experiences, particularly in relation to the assigned context, were highly valuable to the group’s decision-making process and incentivised collaboration. An example of instructions provided to students is available in Appendix 7.

In the Control condition, participants were asked to evaluate education statistics from the Netherlands (the local context of the host university) and compare regionally to determine what area of Dutch education to award additional funding. This condition required students to discuss and make inferences about the Dutch education system. The focus on the Dutch context in this condition was chosen as a baseline with which to compare behaviours with internationalised content. At the same time, one argument could be that locally-based content encourages participation. After all, many students choose in part to study abroad in order to learn about and engage with the local culture (see, for example: Bodycott, 2009).

At the same time, previous research has suggested that international students should serve as ‘ready-made resources’ in diverse modules (Brookes & Becket, 2010). This assumes, however, that assignments are focused on content from students’ own backgrounds and situated within their own knowledge and experiences. Therefore, those in Intervention 1 were asked to compare education data from their own countries of origin with one another (or, in the case of those with mobile upbringings, the country in which they completed the majority of high school) and to select which country to award additional funding. This meant that, as suggested by Leask and Carroll (2011, p. 655), the activity could not be completed without ‘meaningful intercultural interaction.’
An alternative suggestion is that simply incorporating content from outside the local context, regardless of students’ personal experiences, can encourage interest and participation (J. Knight, 2004). Indeed, one common approach in internationalised curriculums is the inclusion of content such as case studies from countries around the world (Guo & Guo, 2017). To test this, those in Intervention 2 were randomly assigned three non-Dutch countries around the world from which their group members were not domiciled (for example: Botswana, Nicaragua and Thailand).

Throughout the remainder of this thesis, these conditions are simply referred to as 'Control, Intervention 1' and 'Intervention 2.' Students were allocated to the research conditions using a cluster approach based on their assigned laboratory time, as is suggested good practice in social science and educational research (Boruch, 1994). Altogether, Study 3 included 79 participants (17 small groups) in the Control condition, 175 participants in Intervention 1 (38 small groups) and 176 participants (35 small groups) in Intervention 2. More students were purposefully sampled in the intervention conditions in order to test the subtle impacts of internationalisation.

One consideration was whether participants were sampled equally across the three conditions in terms of gender, academic performance and cultural background (using Hofstede dimensions, described in Section 3.2.3). Employing ANOVA, only one significant difference was found (as illustrated by Table 6.3 in Section 6.3.1) in Hofstede’s Pragmatism scores, but the overall effect was small (1.5%) (J. Cohen, 1988). Altogether, confidence in the similarity of participants in each condition was determined. An additional consideration was whether group dynamics were sampled equally across the three conditions in terms of average academic performance and cultural background within groups. Employing an ANOVA, significant differences were found (illustrated in Table 6.4 in Section 6.3.2) in Hofstede scores. However, the mean differences between the conditions for these scores were relatively small in comparison to the wider Hofstede scale, and the effect sizes were small to medium (less than 10%) (J. Cohen, 1988). Therefore, confidence in the similarity between assigned small groups in each condition was established.

6.2.5 Data Used for Analysis

Learning Analytics Data

Discourse and Participation in the Activity

As in Study 1 (RQ1 and RQ2), participation was measured on an individual level by assessing the number of posts and summed word count submitted to the group work activity. Because Study 3 included a much larger sample size than Study 1, it was possible also to incorporate an analysis of group-level participation in this study in order to examine and compare student behaviours on multiple levels (Field, 2013). As with individual-level participation, two characteristics of collective
group participation were considered: the total number of submitted posts and the total group word count submitted.

Findings in previous research (Carr et al., 2004; Caspi et al., 2003; Hämäläinen & Arvaja, 2009; Hrastinski & Jaldemark, 2012; Strijbos & de Laat, 2010; Wise et al., 2012), Study 1 (Chapter 4) and Study 2 (Chapter 5) also demonstrated measurable differences in quantity between student contributions to group work. Therefore, one further group-level analysis consideration is the equality of contributions between group members. To measure this, a ‘participation range’ was calculated for each group. First, individual percentages of contributions to the group were computed by dividing individual posts and word counts by the group total submissions. The lowest contribution percentage was then subtracted from the highest contribution percentage within each group to determine the participation range. Therefore, a smaller participation range is seen in groups where there was more equal participation among group members, while a larger participation range indicates more disparity in contribution levels between group members.

Cultural Dimensions

Findings from Study 1 indicated that cultural traits were a powerful influence on participation in intercultural group work. Therefore, demographic information about participants’ countries of origin was obtained from their university records and converted to Hofstede’s cultural dimensions scores (Hofstede et al., 2010), as done in Study 1. For an in-depth description of Hofstede’s cultural dimensions, including a definition of each trait, see Section 3.2.3).

Student Background Information

Data related to students’ background and individual circumstances were also included in the analysis of Study 3. First, information about students’ gender identity was obtained from their university records. Findings in Study 1 and 2 (Chapter 4 and 5) indicated that academic performance influences students’ social experiences and connections with peers, which is line with previous work (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015). Therefore, academic performance was also included in the analysis.

As described in Study 2 (see section 5.2.2), students in this academic programme were required to take three multidisciplinary modules in their first term. Therefore, academic performance in this study was calculated as an average of students’ final grades in these three modules, which is scored out of ten. A score of 5.5 was considered the cut-off for a ‘passing’ grade. The final examinations for the modules took place the week following Study 3 and were cumulative. As the largest
percentage of the total grades were calculated from the final examinations, these scores best demonstrated students’ performance in the module and overall understanding of module materials, including the statistical comprehension required to complete this Study 3’s task. The decision to use an average of these three final scores was confirmed in consultation with the module lecturer.

6.2.6 Data Analysis
Given the large sample size, the data from Study 3 was compared on both an individual and a group level. These two perspectives are clearly outlined in the Results section (6.3). For both levels, the first step in the data analysis phase was a comparison of average participation between the three RCT conditions. To accomplish this, the learning analytics data (i.e. total individual/group posts and word count submitted, participation ratio within groups, etc.) were compared using ANOVA, with research condition allocation as the independent variable and participation measures as dependent variables. These are outlined in table form in Section 6.3, with significance levels of $p < .01, .05$ and $.10$ flagged. When the ANOVA indicated significant differences between the research conditions, planned contrasts between the control and intervention conditions were tested using the method described by Field (2013).

Regression analyses were next conducted with individual word count, individual posts and participation range as dependent variables. The independent variables included individual-level traits (cultural traits, gender and grades) and group-level traits (average cultural traits, diversity ratio and average grades). Dummy variables for research condition allocation were also included as independent variables. To avoid autocorrelation, only the dummy variables for the intervention conditions were included in the models, as is common practice (Muijs, 2011).

Given the thematic similarities between several Hofstede cultural traits, it was important to consider issues surrounding collinearity in the regression models. As suggested by Rienties and Tempelaar (2013) and adopted in Study 1 analysis, only Power Distance, Masculinity and Uncertainty Avoidance were included in the analysis in order to avoid collinearity or risking degrees of freedom. Collinearity diagnostics were conducted to test for collinearity of the remaining independent variables. All variation inflation factors were under 3.00, suggesting no collinearity issues (Field, 2013). To aid in the analysis and interpretation of findings, independent variables were converted to z-scores.

Normality of the collected data was also considered by a visual review of normal distribution curves. Normality was indicated for all data except the number of posts and word count submitted, which
demonstrated a slight negative skew. However, analysis of the skewness and kurtosis found that all data was within the acceptable limits of ±2.00 (Field, 2013).

6.3 Results

6.3.1 Effects on Individual Participation

RQ5 considered the effects of internationalised academic content on participation. Altogether, participants collectively submitted a total combined word count of 76,305 words in 6,347 posts. A breakdown of average word count and posts submitted by individuals in each research condition is highlighted in Table 6.3. In terms of word count submitted, those in the Control (i.e. local content) and Intervention 1 (i.e. content from students’ own backgrounds) conditions participated relatively equally on average, while a decrease in participation was observed on average in Intervention 2 (i.e. content from randomly assigned countries). In terms of posts submitted, those in the Intervention conditions posted slightly more than the control condition.
Table 6.3 Average individual characteristics by research condition

<table>
<thead>
<tr>
<th></th>
<th>Control Condition (local content)</th>
<th>Intervention 1 (own country content)</th>
<th>Intervention 2 (assigned country content)</th>
<th>F value</th>
<th>Eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg word count</td>
<td>186.62 ± 130.35</td>
<td>194.69 ± 121.16</td>
<td>159.07 ± 103.25</td>
<td>4.34*</td>
<td>.020</td>
</tr>
<tr>
<td>Avg posts</td>
<td>13.32 ± 7.31</td>
<td>16.02 ± 6.86</td>
<td>14.39 ± 7.49</td>
<td>4.44*</td>
<td>.021</td>
</tr>
<tr>
<td>Avg grade</td>
<td>6.37 ± 2.07</td>
<td>6.46 ± 2.13</td>
<td>6.24 ± 2.24</td>
<td>0.422</td>
<td>.002</td>
</tr>
<tr>
<td>Avg Hofstede scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Distance</td>
<td>44.71 ± 14.67</td>
<td>44.71 ± 14.92</td>
<td>45.88 ± 15.46</td>
<td>0.311</td>
<td>.001</td>
</tr>
<tr>
<td>Individualism</td>
<td>70.05 ± 11.62</td>
<td>68.74 ± 13.49</td>
<td>66.62 ± 15.33</td>
<td>1.919</td>
<td>.009</td>
</tr>
<tr>
<td>Masculinity</td>
<td>50.23 ± 22.51</td>
<td>46.79 ± 22.99</td>
<td>51.92 ± 20.52</td>
<td>2.430</td>
<td>.011</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>73.36 ± 12.54</td>
<td>71.39 ± 14.52</td>
<td>75.03 ± 12.92</td>
<td>3.151*</td>
<td>.015</td>
</tr>
<tr>
<td>Indulgence</td>
<td>48.05 ± 14.63</td>
<td>50.60 ± 14.91</td>
<td>47.26 ± 13.99</td>
<td>2.423</td>
<td>.011</td>
</tr>
</tbody>
</table>

* $p < .05$
In all conditions, wide participation variations between participants were recorded, as demonstrated by the large standard deviations in Table 6.3. These have been depicted graphically in Figure 6.3 with a scatterplot comparing academic performance with the summed word count submitted. This demonstrated there were large differences in participation levels across academic performance levels in all conditions, regardless of the type of content assigned. This is in line with previous research that has highlighted unequal participation among group members in online collaboration (Hämäläinen & Arvaja, 2009; Strijbos & de Laat, 2010). This indicated that there may be remaining tensions between students that are in need of further unpacking.
Figure 6.3 Scatterplot of individual word counts submitted and student grades
Differences in average individually submitted word count were compared between research conditions using ANOVA and found to be significant ($F = 4.34, p < .01$). However, the effect size was small ($\eta^2 = .020$) (J. Cohen, 1988). Planned contrasts were then used to compare the conditions on two levels. First, the Control (local content) condition was compared with both internationalisation conditions (Intervention 1 and 2). To this, findings suggested that working with internationalised content, in general, did not increase participation compared to working with content from the host country in terms of word count ($t = 0.437, p > .05$). The next planned contrast compared the two intervention conditions (Intervention 1 and 2) in order to determine if there were differences in participation when working with content from one’s own background versus a randomly assigned international context. This time, findings suggested that word count submissions were significantly higher when working with content from one’s own country (i.e. Intervention 1) ($t = 5.603, p < .01$).

ANOVA also demonstrated a significant difference between conditions in terms of individual posts submitted ($F = 4.44, p < .01$), again with a small effect size ($\eta^2 = .021$) (J. Cohen, 1988). The same planned contrasts were again used to compare posts in the Control versus Intervention conditions. To this, findings again suggested, that internationalised academic content, in general, did increase the number of posts submitted in comparison to local content ($t= 4.360, p < .05$). The second planned contrast compared Intervention 1 and 2, and highlighted that participants made more posts when discussing content from their own cultural background ($t = 7.692, p < .01$) compared to a randomly assigned country.

Altogether, analysis on the individual level demonstrated that participation did increase slightly when diverse groups of students were assigned content from their own cultural backgrounds (as suggested by previous research - for example, de Haan & Sherry, 2012), but the overall effect is limited.

### 6.3.2 Effects on Group-Level Participation

As depicted in Table 6.4, a slight increase in the average total words submitted per group was demonstrated on average in Intervention 1 (i.e. content from students’ own backgrounds) compared to the Control (i.e. local content) condition. At the same time, a sizeable decrease in total word count submitted per group was found on average in Intervention 2 (i.e. content from a randomly assigned international context). In terms of posts submitted, more were made on average in the Intervention conditions (working with internationalised content) in comparison to the Control condition (working with local content).
### Table 6.4 Average group characteristics by research condition

<table>
<thead>
<tr>
<th></th>
<th>Control Condition (local content)</th>
<th>Intervention 1 (own country content)</th>
<th>Intervention 2 (assigned country content)</th>
<th>F value</th>
<th>Eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg word count</td>
<td>856.24 (274.71)</td>
<td>896.51 (376.16)</td>
<td>790.80 (321.30)</td>
<td>.989</td>
<td>.020</td>
</tr>
<tr>
<td>Avg posts</td>
<td>61.12 (18.79)</td>
<td>73.36 (22.29)</td>
<td>71.77 (26.45)</td>
<td>1.696</td>
<td>.038</td>
</tr>
<tr>
<td>Avg grade</td>
<td>6.58 (1.01)</td>
<td>6.60 (0.99)</td>
<td>6.39 (0.86)</td>
<td>.539</td>
<td>.012</td>
</tr>
<tr>
<td>Avg Hofstede scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Distance</td>
<td>44.59 (4.67)</td>
<td>44.19 (6.86)</td>
<td>45.57 (4.49)</td>
<td>.516</td>
<td>.012</td>
</tr>
<tr>
<td>Individualism</td>
<td>69.95 (4.69)</td>
<td>68.93 (5.54)</td>
<td>66.91 (5.90)</td>
<td>2.099</td>
<td>.046</td>
</tr>
<tr>
<td>Masculinity</td>
<td>49.99 (10.47)</td>
<td>47.09 (8.02)</td>
<td>51.92 (6.03)</td>
<td>3.437*</td>
<td>.074</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>66.87 (6.32)</td>
<td>63.82 (6.56)</td>
<td>67.93 (5.46)</td>
<td>4.336*</td>
<td>.091</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>73.50 (5.51)</td>
<td>71.44 (6.23)</td>
<td>75.25 (5.88)</td>
<td>3.711*</td>
<td>.079</td>
</tr>
<tr>
<td>Indulgence</td>
<td>48.16 (5.97)</td>
<td>50.30 (5.27)</td>
<td>47.24 (5.34)</td>
<td>2.989</td>
<td>.064</td>
</tr>
</tbody>
</table>

* *p < .05
As demonstrated at the individual level, a wide range of participation was found between groups in each condition. This is highlighted by the large standard deviations in each condition in Table 6.4. Larger standard deviations were found in the Intervention conditions, however, which suggested stronger variations between groups when working with internationalised content. These differences are visualised graphically in Figure 6.4 via scatterplot of average group member grade and total submitted word count for the group. As Schellens and Valcke (2005) suggested that more posts are indicative of higher quality discussions, one consideration is whether internationalised content leads to variation in conversation depth and quality between groups. This issue is explored further in Chapter 7.

*Figure 6.4 Scatterplot of average group grades and total group word count submitted by condition*
One consideration was whether there were significant variations in participation at the group level between our research conditions. However, when conducting ANOVA with both total submitted word count and total submitted posts per group as dependent variables, no significant differences were found. This means that, regardless of whether participants were working with local or internationalised content, there are strong variations between active and inactive groups. This suggested that, beyond the content assigned for group work, other group level dynamics were responsible for the quantity of total group contributions to the activity.

6.3.3 Effects on Equality of Contributions among Group Members

In Table 6.3, the standard deviations of average individual contributions were smaller in the intervention conditions, which suggested less disparity between group member contributions. However, in Table 6.4, the standard deviations of average group level contributions were larger in the Intervention conditions. This initially suggested that, while internationalisation may lead to less variation between students on a module level, there are still strong differences between groups in their collaborative experiences.

To analyse the equality of contributions between group members, the percentage of word count submitted to the group by each participant was calculated by dividing their individual submitted word count with the group total. This is depicted graphically in Figure 6.5 with each line representing one group and each plot point representing the percentage contributed by one group member. As groups were comprised of approximately 5 group members, equal participation among group members would be characterised by a relatively flat line at the .20 level on the y-axis. However, the visualisations depicted wide variations in participation levels within groups in all three conditions.
Figure 6.5 Intergroup participation rates by condition (each line representing one small group)
On a group level, one indication of more equal contributions is the disparity between the highest and the lowest contributor. To analyse this, a participation range was calculated by subtracting the lowest contribution percentage from the highest contribution percentage within each group. A more equal group, therefore, would demonstrate a lower participation range on the x-axis. As depicted in Figure 6.6, high variation of group-level participation within each research condition was again demonstrated.

**Figure 6.6 Scatterplot of group level participation range and total word count submitted**

<table>
<thead>
<tr>
<th>Research Condition</th>
<th>Participation Range</th>
<th>Total Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On average, the participation range within groups in the Control condition was 31.1% ($SD = .101$), while the participation range for Intervention 1 was 24.9% ($SD = .080$) and Intervention 2 was 27.7% ($SD = .105$). However, using ANOVA it was found that these differences were not statistically significant ($p > .05$, $F = 2.706$, $\eta^2 = .059$). This suggested that internationalised academic content alone does not lead to more equal participation between group members. As with the individual level analysis, it seems there were other group-level dynamics that influenced equal participation between diverse group members.
6.3.4 Further Unpacking Sociocultural Influences on Participation

The analysis so far has suggested that, while internationalisation has small impacts on participation, particularly at the individual student level, other factors may continue to play a role in encouraging or discouraging participation. This is in line with findings from Study 1 (Chapter 4) and Study 2 (Chapter 5). Therefore, there was a need to unpack further the role of sociocultural influences and group dynamics on participation in this study through regression analyses, which are outlined in Table 6.5.

The first model considered predictors for individual-level word count submission. To this, findings indicated that 7.0% of the variation in individual-level word count submission could be explained by a lack of participation in Intervention 2 (i.e. randomly assigned countries), which is a small to medium effect (J. Cohen, 1988). Individual demographics and group dynamics also had an effect on participation, with higher participation predicted by higher-performing students, low levels of individual Uncertainty Avoidance, and a lower average group Individualism score.

The second model considered predictors for individual-level posts submitted. This accounted for 5.3% of the variation between participants, which is a small effect size (J. Cohen, 1988). In this regard, participation in Intervention 1 (i.e. content from students’ own country backgrounds) encouraged participation. As with individual word count submitted, the number of posts submitted was influenced by academic performance, cultural background and group dynamics. In this case, higher-performing students, more feminine cultures and groups with lower average Individualism scores contributed more.

Finally considered was the participation disparity between group members, categorised by the participation range. In this model, a more equal group would be represented by a lower participation range and a negative beta coefficient. To this, findings suggested that working with data from students’ own country backgrounds (Intervention 1) led to more equality in participation between group members (i.e. a lower range of participation difference). At the same time, a higher amount of diversity present in the group, categorised by a higher diversity ratio within groups, led to inequality in participation among group members. This model overall explained 9.8% of the variation between groups, which is a medium effect size (J. Cohen, 1988).
Table 6.5 Regression analyses of participation and individual/group level demographics (standardised beta coefficients)

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (individual word count submitted)</th>
<th>Model 2 (individual posts submitted)</th>
<th>Model 3 (participation range within group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention 1 (own country content)</td>
<td>.034 .025 .033</td>
<td>.184** .173** .189**</td>
<td>-.325* -.400**</td>
</tr>
<tr>
<td>Intervention 2 (randomly assigned country)</td>
<td>-.116* -.101 -.152*</td>
<td>.073 .086 .050</td>
<td>-.179 -.185</td>
</tr>
<tr>
<td>Individual-level factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hofstede Individualism</td>
<td>-- .039 .103*</td>
<td>-- .059 .097*</td>
<td>-- --</td>
</tr>
<tr>
<td>Hofstede Masculinity</td>
<td>-- -.076 -.088</td>
<td>-- -.090* -.113*</td>
<td>-- --</td>
</tr>
<tr>
<td>Hofstede Uncertainty Avoidance</td>
<td>-- -.087* -.111*</td>
<td>-- -.045 -.037</td>
<td>-- --</td>
</tr>
<tr>
<td>Gender</td>
<td>-- .005 .003</td>
<td>-- -.053 -.070</td>
<td>-- --</td>
</tr>
<tr>
<td>Grade</td>
<td>-- .135** .158**</td>
<td>-- .107* .121*</td>
<td>-- --</td>
</tr>
<tr>
<td>Group-level factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg Hofstede Individualism</td>
<td>-- -- -.167**</td>
<td>-- -- -.131*</td>
<td>-- .036</td>
</tr>
<tr>
<td>Avg Hofstede Masculinity</td>
<td>-- -- .051</td>
<td>-- -- .056</td>
<td>-- -.156</td>
</tr>
<tr>
<td>Avg Hofstede Uncertainty Avoidance</td>
<td>-- -- .055</td>
<td>-- -- -.026</td>
<td>-- .188</td>
</tr>
<tr>
<td>Diversity ratio within group</td>
<td>-- -- -.013</td>
<td>-- -- -.077</td>
<td>-- .258*</td>
</tr>
<tr>
<td>Avg grade</td>
<td>-- -- -.040</td>
<td>-- -- -.022</td>
<td>-- .006</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.015 .046 .070</td>
<td>.016 .042 .053</td>
<td>.037 .098</td>
</tr>
</tbody>
</table>

** p < .01
* p < .05

Altogether, the regression findings suggested that internationalised academic content which is personal and relevant (i.e. from students’ own backgrounds) can predict higher individual-level participation and decrease in participation variation among group members. At the same time, internationalised academic content that is impersonal (i.e. randomly assigned from outside students’ own background knowledge) can discourage participation. Yet, beyond internationalisation, the findings suggested that factors such as cultural backgrounds and academic performance levels are still important influences on individual and group-level participation.

6.4 Study 3 Discussion

6.4.1 Implications of Findings

This study has analysed the role of internationalised academic content in supporting student participation in an online intercultural group work activity. In terms of RQ5, the findings in this chapter indicated that internationalisation can lead to small increases in measurable participation on an individual level. The regression analyses also suggested that participation in the personally relevant internationalisation condition could predict the level of contribution equality between group members. These findings are in line with previous anecdotal research on the benefits of internationalised curricula (Arkoudis et al., 2013; Brookes & Becket, 2010; Leask, 2009; Middleton, 2014). However, it is important to note that the effect sizes were small to meaning, meaning

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researchers and universities should take caution not to overstate the relationship between internationalisation and participation.

However, the notion that internationalisation of academic content can positively impact student participation on an individual assignment level does have implications for curriculum design. It further suggested that internationalisation might be a useful tool for teachers in diverse modules. After all, this study found improvements in participation with students who already studied at a university with a strong international focus, within a highly internationalised academic programme and with frequent opportunities to work with diverse peers. One reasonable consideration, then, could be that the measured participation differences between students might be even larger in settings that have just started to internationalise (see, for example: Study 1 and N. Harrison & Peacock, 2010; Popov et al., 2012), and therefore have a wider gap for improvement. These improvements also suggested that internationalised content may help increase distance students’ overall sense of belonging (Diep et al., 2016) and encourage engagement with diverse peers in online learning contexts, to which previous research has noted a deficiency (Angeli & Schwartz, 2016; Hannon & D’Netto, 2007; Liu et al., 2010). The findings from this study may additionally have wider reaching implications for areas such as MOOCs, where recent research has highlighted a positive relationship between participation and completion (Swinnerton, Hotchkiss, & Morris, 2017).

At the same time, there were still deep disparities between groups in terms of total participation when using both local and internationalised content (RQ5), with some groups contributing only a small number of total messages. As studies have suggested that the number of posts is indicative of conversation quality (H.-T. Hou & Wu, 2011; Schellens & Valcke, 2005), this means that internationalisation did not necessarily lead to deeper or more engaging conversations for all small groups. Indeed, the findings highlighted in this chapter demonstrated that other factors, such as academic performance and cultural background, also influenced individual and group-level participation, which is in line with previous work (Fozdar & Volet, 2012; Popov et al., 2012; Rientes et al., 2015; Renties et al., 2009; Strauss et al., 2011) and findings in Study 1 (Chapter 4). These findings build upon findings from Study 2 (Chapter 5), in which wide variations in student reflections of social and cultural tensions during collaborative activities based on academic performance level were identified. Therefore, while internationalisation of academic content may be useful for enriching higher education learning experiences (Arkoudis et al., 2013; de Haan & Sherry, 2012; Liu et al., 2010; Middleton, 2014), it alone cannot overcome the sociocultural challenges encountered by students in highly diverse settings. Therefore, it will be important for future research to unpack further how teachers can best support students in building the interpersonal skills needed to work
successfully with diverse peers in face-to-face, blended and online collaborative environments (Slof et al., 2016).

Also considered in this study were variations in what ‘internationalisation’ means in the context of academic content (RQ6), and whether content should be personally relevant (i.e. from students’ own backgrounds) or simply broadly intercultural (i.e. randomly assigned). To this, findings indicated that the benefits of internationalisation on participation derived almost exclusively from when students had the opportunity to work on content from their own country or background. Simply assigning content using case studies from countries around the world with which students did not have a personal connection actually decreased participation on average. One explanation for this might be that working on subjects outside of students’ immediate or background experiences meant that groups were unable to form a shared mental model necessary for successful collaboration (Decuyper et al., 2010; H.-T. Hou & Wu, 2011; Van den Bossche et al., 2011). This further suggested that there is indeed value in utilising student experiences as module resources (Brookes & Becket, 2010; Leask & Carroll, 2011).

At the same time, few studies have considered whether students want to act as ambassadors or resources from their country and whether they feel comfortable being put in such a position. It is worth considering in future research, therefore, if students rate their social and educational experiences differently when working with local, internationally relevant or broadly international content. These notions are addressed in a follow-up analysis of the post-laboratory reflection activity assigned to participants in this study, which is described in detail in Chapter 7.

6.4.2 Study Limitations

In Chapter 6, a randomised control trial method was used to explore the role of internationalised online content in supporting participation in an intercultural group work assignment. In doing so, several limitations of the study are noted. First, the purpose of this study was to analyse measurable behavioural differences of students based on the location of their assignment context. As such, this study provides only a small snapshot of one activity against the backdrop of a wider internationalised curriculum. Nonetheless, the robust RCT method of this study provided a nuanced understanding of student behavioural differences when internationalised academic content is incorporated on an individual assignment level. However, to understand more fully the long-term effects of incorporating internationalised online content, a longitudinal design is a logical next step for future research on this topic. After all, one consideration could be whether there are measurable effects on learning behaviours as a result of repeated exposure to diverse content. For example, previous research on internationalised academic content has indicated that it may
improve students’ intercultural competencies (Caffrey et al., 2005; Deardorff, 2006). Second, it is recognised that quantifying cultural traits using Hofstede’s dimension scores may not fully represent the multicultural and multi-ethnic backgrounds represented within individual nations, as highlighted in Section 3.2.3. Therefore, follow-up qualitative research can illuminate individual voices and experiences (see Chapter 7). Finally, the intention of this study was to analyse student participation in terms of quantities of submissions, and attempts have not been made to analyse issues of quality or measure intercultural competencies that might be gained as a result of interaction with internationalised content. However, these are valuable topics in need of future consideration beyond the scope of this research.

6.4.3 Links to Further Analysis of this Study

The laboratory study of Study 1 (Chapter 4) indicated that cultural traits and social network composition were powerful influences on behaviours in intercultural group work. Analysis of in-depth qualitative interviews in Study 2 (Chapter 5) suggested that students, particularly low-performing students, would be encouraged to participate with the opportunity to discuss culturally-relevant academic content with their peers. Therefore, this study compared student participation in an online group work assignment when using local versus internationalised academic content using an RCT design. The findings indicated that internationalisation can increase individual participation and predict the equality of participation among group members. Therefore, in addition to unpacking sociocultural impact on group work behaviours and experiences, this thesis has contributed one potential intervention for supporting students in intercultural group work. Although the overall effect size was small to medium, focusing assignments within culturally-relevant spaces is relatively easy and cost-free to incorporate into the curriculum. Coupled with the previously highlighted benefits of cultural competency building (Caffrey et al., 2005; Tran & Pham, 2016), these findings have highlighted internationalisation as an attractive option for higher education programmes.

At the same time, these findings do not provide a comparison of student experiences between these three conditions beyond their measurable behaviours. However, this analysis can add depth to understanding the usefulness of internationalised academic content as an intervention for increasing intercultural group work success. One recurrent theme in all four studies is the notion of sociocultural challenges in intercultural group work. Although there were small increases in participation through content internationalisation in this chapter, one lingering question is whether internationalisation can increase or decrease the individual and interpersonal tensions felt by group members. Findings from Study 2 add precedence to understanding these themes, as many students
(particularly low-achieving) demonstrated difficulties with determining how best to share personal experiences and cultural backgrounds in meaningful ways. Similar findings from recent literature note that many students prefer to work with those from their own cultural backgrounds (Dunne, 2011; N. Harrison & Peacock, 2010; Strauss et al., 2011; Volet & Ang, 2012), and many feel that peers are disinterested in learning about their backgrounds or hold biased opinions about their cultures (P. Moore & Hampton, 2015). Therefore, one potential finding could be that students in Intervention 1 rate their group work experiences lower than those in the Control condition. Although students from diverse backgrounds are frequently referred to as useful resources in the module learning environment (Brookes & Becket, 2010; Chang, 2006), they may alternatively feel uncomfortable and unprepared to embrace such a role. These notions were essential to address in order to understand whether academic content internationalisation is a viable intervention for supporting intercultural group work experiences.

To address these notions, Chapter 7 describes a mixed methods, reflective post-activity questionnaire assigned to participants in this study, which focused on the benefits and challenges of their laboratory experience. In the next chapter, this data is compared between the research conditions to provide a well-rounded understanding of the implications of incorporating internationalising academic content.
Chapter 7 - Study 4 Methods and Results

As highlighted in Section 1.3, this thesis is comprised of four studies, and this chapter describes the methods and findings of the final study, Study 4. In doing so, the chapter is divided into four sections. First, the Introduction (Section 7.1) reviews the research question used to evaluate the role of internationalised academic content in supporting student experiences in intercultural group work. While Chapter 3 provided an overview of the overarching methodologies adopted in this research, Section 7.2 (Methods) describes in detail the specific methods adopted in Study 4, including information about the setting, participants, procedure, instruments and data analysis approach. The next section, Results (Section 7.3), outlines the findings in relation to the study’s research question. The final section, Discussion (Section 7.4), comments on the implications of Study 4’s findings, including limitations and consequences for future work on this topic.

7.1 Introduction

The final study of this thesis compared student perceptions of their group work experiences when local versus internationalised academic content is incorporated. The first two studies in this thesis (Chapters 4 and 5) explored factors that impacted measurable differences in student behaviours in online intercultural group work, as well as student reflections of their experiences when working with diverse peers. These studies arose out of previous work (Angeli & Schwartz, 2016; Caspi et al., 2003; Fozdar & Volet, 2012; Gašević et al., 2013; Hannon & D'Netto, 2007; N. Harrison & Peacock, 2010; P. Moore & Hampton, 2015; Strijbos & de Laat, 2010) by further defining and unpacking the multidimensional sociocultural challenges that students experience during intercultural group work. From these two initial studies, it was clear that intercultural group work assignments required intervention to support positive and beneficial experiences for a wide range of students.

The previous chapter (Chapter 6) provided a justification for one potential intervention: the incorporation of internationalised academic content into intercultural group work activities. This intervention was supported by findings in Study 2 (Chapter 5) and recent literature (see Section 2.4). In Chapter 6, an RCT method (described in detail in Section 6.2.4) was used to explore the effects of internationalised academic content on measurable group work behaviours, such as participation in the activity. A summary of the RCT conditions in Study 3 is provided in Figure 7.1.

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4 This chapter is based upon the following manuscript in preparation:

*Unpacking student experiences and reflections with local versus internationalised academic content: A randomised control trial study in a statistics course.*

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This final study was closely linked to the group work activity and RCT conditions described in Chapter 6, as Study 4 sought to evaluate student experiences and reflections of sociocultural tensions when participating in an intercultural group work assignment using internationalised versus local academic content. This evaluation was important, as one common weakness of the RCT approach is that it may not establish causality (i.e. how and why an intervention succeeded or failed) (Cook, 2002; Cook & Campbell, 1979; Cook & Payne, 2002; Hutchinson & Styles, 2010; Torgerson & Torgerson, 2008). Indeed, Hutchinson and Styles (2010) suggested that parallel research should be incorporated alongside RCTs in order to analyse the cause and effect relationship of measured outcomes. Therefore, Study 4 has unpacked the nuances of student experiences in order to understand further whether internationalised academic content can serve an evidence-based support for students during intercultural group work.

With this in mind, Study 4 addressed the following research question:

**RQ7:** How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content?

An in-depth mixed quantitative and qualitative questionnaire was designed as a reflective post-activity after the group work assignment described in Study 3 in order to accomplish this goal. In the following section, an in-depth review of the methods employed in Study 4 is outlined.
7.2 Methods

7.2.1 Setting and Participants

The research question outlined in Section 7.1 required a comparison of student reflections of a group work experience when using local versus internationalised academic content. Therefore, it was necessary for participants to have recently participated in a group work activity with controlled variations in the contexts of the assigned academic content. For this reason, the students who participated in the group work activity for Study 3 (described in Chapter 6) were an ideal sample for analysing variations in group work experiences. By targeting the same participant population, it allowed for an in-depth comparison and triangulation of student behaviours and experiences when using local versus internationalised academic content. For more information about the setting, participants and procedure of Study 3, see Section 6.2.

Following the computer laboratory activity described in Section 6.2.2, participants in Study 3 were invited to complete an additional post-activity reflective questionnaire for Study 4 (described in detail in Section 7.2.2). In order gain a well-rounded understanding of student experiences between the research conditions (summarised in Figure 7.1), the post-activity was sent to all 428 Study 3 participants. Altogether, 422 participants completed the post-activity questionnaire, which is a high completion rate of 98.6%. Only six potential participants opted not to participate in Study 4. In regards to the RCT conditions, 76 participants were in the Control (i.e. local content) condition, 172 were in Intervention 1 (i.e. internationalised content from their own backgrounds) and 174 were in Intervention 2 (i.e. internationalised content from randomly assigned countries), representing 89 of the 90 small groups in Study 3, which were comprised of approximately 5 members each ($m = 4.71, SD = .83$). A comparison of non-completers’ demographics was conducted using chi-square analysis and ANOVA, including gender, cultural background and academic performance (i.e. grades), but no nonresponse bias was determined. The sample for Study 4 is, therefore, nearly perfectly representative of Study 3 participants (who, as highlighted in Section 6.2.1, were representative of the wider module and university demographics).

7.2.2 Procedure

Study 3 (described in Chapter 6) took place during students’ regularly assigned weekly computer laboratory session. In this module, students typically completed a post-activity at home after the laboratory, the contents of which linked thematically with the laboratory activity (see also: S. Knight et al., 2017). Therefore, Study 3 participants were accustomed to completing an additional assignment at home after their weekly laboratory session. This regularly scheduled post-activity after Study 3 was designed as a questionnaire for the final study in this thesis (Study 4), which was
a personal reflective task about their group work experience. Section 7.2.3 outlines in detail the questionnaire contents.

Study 3 participants were made aware of the post-activity in the initial recruitment emails for Study 3, which was sent by their module lecturer (described in Section 6.2). They were also given a verbal reminder during their assigned laboratory time, as well as an email with a link to the questionnaire directly after the laboratory. Information about the questionnaire was included in the study information sheet for Study 3 (see Appendix 6), which was sent to students via email before the laboratory. Upon arrival to the laboratory, the information sheet, including information about the post-activity questionnaire, were summarised verbally to participants. Informed consent was given initially online in the Study 3 laboratory via electronic signature using Qualtrics. The study information sheet was again available at the start of the online questionnaire, and students gave additional consent again to participate by typing their name and Student ID on the first page of the questionnaire. Students in the module did receive a participation credit for completing the questionnaire. However, no marks were given to their specific answers. There was additionally an alternative assignment of equal length for those who did not wish to participate. After completing the questionnaire, participants were sent individualised feedback about their group work participation in Study 3 and reflections on their group work experience in Study 4 with resources and advice for improving group work experiences in the future.

In order to elicit more accurate reflections and experiences, participants were given 48 hours after their assigned laboratory time in Study 3 to complete Study 4’s reflective questionnaire. In this sense, biased responses based on impartial memory were limited. Participants were sent an email reminder approximately 12 hours before their questionnaire was due. The questionnaire was completed during the participants’ own time in the location of their choosing. In the next section, a detailed description of the questionnaire contents is provided.

7.2.3 Questionnaire Instrument

As highlighted in Section 3.3.5, questionnaires can take on a variety of forms in order to suit the needs of the research questions. Given the large number of participants in this study, the incorporation of quantitative, Likert scale questions was useful in order to understand the wider, macro-level trends related to student experiences with local versus internationalised academic content. At the same time, it was important for an inclusion of individual voices to balance this macro view and outline subtleties in experiences between research conditions. Therefore, qualitative, open-ended questions were also included in the questionnaire. The inclusion of the open-ended questions is also in line with Hutchinson and Styles (2010)’s suggestion that RCT studies
be accompanied by qualitative research in order to unpack the causal relationship between the intervention and outcomes.

As summarised in Figure 7.1, Study 3 incorporated an RCT design in which participants took part in a group work activity that incorporated either local content (Control), content from their own countries (Intervention 1) or content from a randomly allocated international context (Intervention 2). In Study 4, participants in all research conditions were given the same questionnaire about their reflections and experiences in their group work activity. However, data were compared between research conditions their assigned research conditions in the analysis phase (described in Section 7.2.4). The following sections describe in detail the questionnaire items incorporated into this study design.

**Quantitative Portion**

Wolf et al. (2016) highlighted that one strength of quantitative questionnaires is the ability to obtain large amounts of data to make inferences about a population, which was useful in this research considering the large sample size. The first part of the questionnaires contained quantitative, Likert-scale questions which scored participants’ agreement to statements (described below). A Likert scale was chosen, rather than a dichotomous yes/no or multiple choice question because it did not ‘force’ participants to take a particular stance on a question. This was important, as the questions were complex and the scale allowed for nuanced or detailed analysis of participant reflections. At the same time, it accommodated neutral or undecided responses.

In order to measure student reflections of their group work experience, several validated questionnaire scales were incorporated into the quantitative portion of the questionnaire. These scales are described in the sections that follow.

**Team Effectiveness**

One underlying concern driving the RCT investigation of internationalised academic content was understanding the extent to which internationalisation can support students’ abilities to participate positively and effectively in intercultural group work assignments. After all, Studies 1 and 2, as well as previous literature (see Section 2.3) have highlighted that intercultural groups face challenges in working effectively together. Therefore, it was important to measure whether students in the intervention (i.e. internationalisation) conditions reported higher team effectiveness than peers working with content from the local context. Hackman (1989) classically defined team effectiveness as a combination of group work process (i.e. the group’s capability of addressing the assigned task)
and product (i.e. the appropriateness of the group’s final output). In this study, team effectiveness was measured using Van den Bossche et al. (2006)’s scale, which is outlined in the first section of Table 7.1 with the exact phrasing of the four items and the Cronbach’s alpha. The scale was originally designed and tested at the same university context as Studies 2, 3 and 4, which adds to the appropriateness of its inclusion in Study 4’s questionnaire.

<table>
<thead>
<tr>
<th>Scale</th>
<th>N items</th>
<th>Question</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Team Effectiveness</td>
<td>4</td>
<td>1.1 ‘We have completed the task in a way we all agree upon.’</td>
<td>.756</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 ‘I am satisfied with the performance of our group.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 ‘I would wish to work with this group in the future.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 ‘As a group, we have learned a lot.’</td>
<td></td>
</tr>
<tr>
<td>2. Group Interaction</td>
<td>4</td>
<td>2.1 ‘This assignment encouraged all group members to participate in the discussion’</td>
<td>.772</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2 ‘Students were invited to share their ideas and knowledge by this assignment.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3 ‘Students were encouraged to ask questions to group members and were given meaningful answers in this assignment.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 ‘Students were encouraged to express their own ideas to their group members in this assignment.’</td>
<td></td>
</tr>
<tr>
<td>3. Learning</td>
<td>4</td>
<td>3.1 ‘I found the assignment intellectually challenging and stimulating.’</td>
<td>.713</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2 ‘I learned something which I consider valuable in this assignment.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.3 ‘My interest in the subject has increased as a consequence of this assignment.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.4 ‘I have learned and understood the subject matter of this assignment.’</td>
<td></td>
</tr>
<tr>
<td>4. Agreement with final answer</td>
<td>1</td>
<td>4.1 ‘Please rank your agreement with your group’s final answers to the laboratory activity’s question.’</td>
<td>--</td>
</tr>
<tr>
<td>5. Individual rating from group members</td>
<td>1</td>
<td>5.1 ‘Please rate the helpfulness of this group member’s contributions.’</td>
<td>--</td>
</tr>
</tbody>
</table>

All rated on a 1-7 agree/disagree scale (1 = strongly disagree, 7 = strongly agree)

**Group Interaction**

A second concern driving this research was unpacking the social tensions that students encounter when working with peers from different countries, as outlined in Study 1 and Study 2 and previous literature (outlined in Section 2.3.2). As previous literature (described in Section 2.4) highlighted
that internationalised academic content can help foster positive interactions between students, it was important to measure whether the RCT internationalisation interventions did indeed alter students’ perceptions of their interaction with peers. The group interaction construct from the Students’ Evaluations of Educational Quality (SEEQ) (Marsh, 1982) was incorporated into this questionnaire to measure this. The SEEQ is a 9-construct instrument which measures students’ evaluations of their overall teaching and learning experiences. Although originally designed as a measure of teaching quality, it has been previously altered and used in multiple contexts and for multiple purposes without compromising its validity or reliability (for instance, see descriptions in: Corbalan, Plaza, Hervas, Zaragoza, & Arcega, 2013; Grammatikopoulos, Linardakis, Gregoriadis, & Oikonomidis, 2015; J. T. E. Richardson, 2005; Silva, Vasconcelos, Almeida, Mota, & Andriola, 2013). The full study was not incorporated into this questionnaire as it is relatively long (35 questions) and not all constructs related directly to the activity being evaluated (for example: examinations, lecturer rapport, module organisation, etc.). In this study, the original text of the incorporated scale was slightly altered to reflect experiences in one activity rather than one entire module (see the second section of Table 7.1). Altogether, the group interaction scale of the SEEQ measured student reflections of how well interaction between peers was fostered as a result of the learning activity.

Learning
As the ultimate goal of educational assignments is to increase student learning and knowledge, it was important for this questionnaire to also include an evaluation of student reflections on their learning process within their small groups. In this study, reflections of learning were measured using the learning scale of Marsh (1982)’s SEEQ questionnaire (described in the above section). As with the group interaction scale, the original text of questions related to this scale were slightly altered to reflect experiences in one activity rather than the entire module (outlined in the third section of Table 7.1). In this study, the learning scale measured reflections of how highly participants rated the educational value of the group work activity and experience.

Agreement with Final Answer
Participants were additionally asked to rate their agreement with their group’s final answer. As Hackman (1989) outlined that group work outcomes are an important measure of teamwork effectiveness, this rating serves as an additional proxy for understanding whether students deemed their group experience collaboration to be effective. The rating also highlighted whether students felt their ideas were incorporated into the group output.
Individual Rating from Group Members

Previous literature on curriculum internationalisation highlighted that students can serve as valuable resources for first-hand knowledge about their country or cultural backgrounds (Brookes & Becket, 2010; L. Brown, 2009; Chang, 2006; Cruickshank et al., 2012). Therefore, one consideration is whether the incorporation of internationalised academic content increases students’ evaluations of their peers’ contributions to a group work activity. Participants were asked to rate the contributions of each individual group member on their team to measure this. These scores were then aggregated by individual and averaged to determine a peer rating score for each participant. In total, 1863 peer ratings were completed by 411 participants, which led to an overall average of 4.12 ratings per student (SD = 0.73).

A list of questionnaire questions for each of aforementioned scales is provided in Table 7.1.

Qualitative Portion

The second part of the questionnaire contained open-ended reflective questions about participants’ experiences in the Study 3 activity. The goal of the qualitative portion of the questionnaire was to unpack the subtleties and nuances in experiences between students across the three RCT conditions. Connecting back to Studies 1 and 2 and in light of the research questions, it was important to understand the benefits and challenges as a result of the group work experience, as well as participants’ views on whether positive collaborations were encouraged. As the RCT evaluated variations in the ‘space and place’ of academic content, it was also important to collect participant views on how the content of the assignment encouraged or discouraged collaboration. With this in mind, the qualitative, open-ended questions asked in Study 4’s questionnaire are outlined in Table 7.2. These questions were drafted in relation to the research questions and in light of recent research on the topic of internationalisation.
Table 7.2 Qualitative questions included in Study 4 questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Please reflect on the processes and outcomes of working together</td>
<td>with your group members during this computer laboratory</td>
</tr>
<tr>
<td></td>
<td>assignment.</td>
</tr>
<tr>
<td>2 In what ways was working with diverse group members a benefit to</td>
<td>you and your group?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3 In what ways did working with diverse group members in this</td>
<td>assignment lead to difficulties or tensions for you or your group</td>
</tr>
<tr>
<td></td>
<td>members?</td>
</tr>
<tr>
<td>4 In what ways did the content of this assignment (i.e. your group’s</td>
<td>assigned task and the data used) encourage collaboration among</td>
</tr>
<tr>
<td></td>
<td>diverse group members and sharing of personal knowledge?</td>
</tr>
<tr>
<td>5 In what ways did the content of this assignment discourage</td>
<td>collaboration among diverse group members and sharing of personal</td>
</tr>
<tr>
<td></td>
<td>knowledge?</td>
</tr>
</tbody>
</table>

Questionnaire Validity and Reliability

As suggested by Groves et al. (2009) and Wolf et al. (2016), questionnaires should be evaluated for validity (i.e. has the questionnaire measured what it intended to measure?) and reliability (i.e. are response consistent?) in order to assess their dependability. One important weakness of the questionnaire method is that participants may interpret questions or scales in different ways than intended by the researcher (Gay et al., 2016; Groves et al., 2009; Wolf et al., 2016). This is particularly in need of consideration when students are from a variety of cultural backgrounds (J. T. E. Richardson, 2004). For this reason, existing and well-validated constructs were used for the quantitative portion, which aided in its reliability. The full questionnaire also underwent rigorous pilot testing using the Think-Aloud Protocol (TAP) (Ericsson & Simon, 1980) in order to ensure synergy between the researcher’s intentions and participants’ interpretations. Eight research students at the Open University were recruited to participate in individual TAP activities, which lasted approximately one hour each. As it was known that Study 4 participants would come from a wide range of countries and backgrounds, care was taken to ensure that piloting participants were similarly diverse. As such, pilot participants were from six different countries, and five were non-native English speakers. Gender variety was also sought; four men and four women participated in the piloting activity.

Using the TAP method as guidance, pilot participants were asked to read through the questionnaire in front of the researcher and describe out loud their own interpretation of the questions. For each question, participants were asked to describe their interpretation of what the question was asking them and how they would formulate a response. Participants were also encouraged to comment to the researcher about any areas that felt ambiguous, confusing or unclear. After reading through
the questionnaire, pilot participants were then asked a series of questions related to their experience of reading the questionnaire (e.g. did they feel they would have the opportunity to adequately and accurately express their full experiences? Was there anything they would have liked to contribute but did not have a chance to? Did any questions feel too personal or sensitive?).

Afterwards, the questionnaire was revised to incorporate participant suggestions. From the pilot testing, it was clear that some of the qualitative, open-ended questions required editing to make the language less ambiguous. Several small language changes were also made to the questionnaire instructions to provide more clarification and to simplify the language for non-native speakers. Altogether, the pilot testing aided in the development of the questionnaire and confirmed the relative homogeneous interpretation of the questions it contained.

After the questionnaires were completed and data were collected from Study 4 participants, steps were taken to evaluate the reliability of the questionnaire. First, Cronbach’s alphas were calculated for the questionnaire constructs to measure their internal reliability. As outlined in Table 7.1, all constructs demonstrated good reliability, which is evidenced by Cronbach’s alphas above the commonly used .600 threshold (Field, 2013).

Next, exploratory factor analysis was used to assess the relationship between questionnaire items for the scales that incorporated multiple items (i.e. Team Effectiveness, Group Interaction and Learning scales). A principal components analysis was employed to determine the number of factors that should be extracted. The results identified three components with eigenvalues greater than 1, explaining 59.29% of the total variation. The identification of three components was additionally confirmed using a visual inspection of the scree plot, in which the ‘elbow’ on the plot appeared after the third component number. As suggested by Field (2013), a direct oblique rotation was used as there were strong theoretical grounds for assuming correlations between the constructs. Table 7.3 outlines the factor loadings of the questionnaire questions.

From this analysis, it was clear that there were three distinct components in the data. These components also matched the items that corresponded to the intended questionnaire constructs (Team Effectiveness, Group Interaction and Learning). Altogether, the rigorous piloting and statistical evaluation of collected data demonstrated good internal consistency and validity of the questionnaire instrument.
<table>
<thead>
<tr>
<th>Item</th>
<th>Learning (α = .713)</th>
<th>Group Interaction (α = .772)</th>
<th>Team Effectiveness (α = .756)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not learn something which I consider valuable in this assignment.</td>
<td>.831</td>
<td>.025</td>
<td>-.047</td>
</tr>
<tr>
<td>My interest in the subject has increased as a consequence of this assignment.</td>
<td>.847</td>
<td>-.140</td>
<td>-.025</td>
</tr>
<tr>
<td>I have learned and understood the subject matter of this assignment.</td>
<td>.487</td>
<td>.003</td>
<td>.249</td>
</tr>
<tr>
<td>I did not learn something which I consider valuable in this assignment.</td>
<td>.831</td>
<td>.025</td>
<td>-.047</td>
</tr>
<tr>
<td>This assignment encouraged all group members to participate in the discussion.</td>
<td>.036</td>
<td>.619</td>
<td>.191</td>
</tr>
<tr>
<td>Students were not invited to share their ideas and knowledge by this assignment.</td>
<td>-.108</td>
<td>.857</td>
<td>-.084</td>
</tr>
<tr>
<td>Students were encouraged to ask questions to group members and were given meaningful answers in this assignment.</td>
<td>.103</td>
<td>.650</td>
<td>.105</td>
</tr>
<tr>
<td>Students were encouraged to express their own ideas to their group members in this assignment.</td>
<td>.035</td>
<td>.836</td>
<td>-.040</td>
</tr>
<tr>
<td>We have completed the task in a way we all agree upon.</td>
<td>-.283</td>
<td>.056</td>
<td>.841</td>
</tr>
<tr>
<td>I am satisfied with the performance of our group.</td>
<td>-.019</td>
<td>-.036</td>
<td>.803</td>
</tr>
<tr>
<td>I would wish to work with this group in the future.</td>
<td>.122</td>
<td>.017</td>
<td>.704</td>
</tr>
<tr>
<td>As a group, we have learned a lot.</td>
<td>.471</td>
<td>-.035</td>
<td>.521</td>
</tr>
<tr>
<td>Eigenvalues</td>
<td>4.605</td>
<td>1.409</td>
<td>1.101</td>
</tr>
<tr>
<td>% of variance</td>
<td>38.38</td>
<td>11.74</td>
<td>9.18</td>
</tr>
</tbody>
</table>

Notes: Factor loading over .40 appear in bold
Negatively worded questions have been reverse coded for analysis
Other Factors Considered

Cultural Dimensions
Findings in Studies 1-3 indicated that cultural traits were important influences on measurable student behaviours in intercultural group work. Therefore, one consideration was whether reflections of the group work experience varied based on cultural dimensions. For this reason, demographic information about students’ countries of origin was obtained from their university records and converted to Hofstede’s cultural dimension scores (Hofstede et al., 2010), as done in previous work throughout this thesis. For an in-depth description of Hofstede’s cultural dimensions, see Section 3.2.3.

Student Background Information
Data related to students’ backgrounds and individual circumstances were also included in the analysis of Study 4. First, students’ university records provided information about their gender. As findings in previous studies in this thesis suggested that academic background impacted students’ views about sociocultural tensions in intercultural group work, academic performance was an important variable to include in the analysis. This was calculated by averaging the final grades for the three required modules that all participants take in the first term, as described in Section 6.2.5.

In the next section, the quantitative and qualitative data analysis methods are described.

7.2.4 Data Analysis
Quantitative Analysis
The quantitative analysis in Study 4 sought to address RQ7 by a comparison across the RCT conditions of individual scores on questionnaire constructs related to group work experiences. As such, relationships between collected responses and condition allocation were first compared with bivariate analysis using Pearson’s $r$. These findings outlined in table form in Section 7.3, with significance levels of $p < .01$, .05 and .10 flagged.

Average scores within the three conditions were next compared by employing an ANOVA. The independent variable was the research condition allocation as the independent variable and the questionnaire construct scores as dependent variables. As with the bivariate analysis, these are outlined in table form with significance levels of $p < .01$, .05 and .10 flagged. Significant differences outlined by ANOVA were further analysed with planned contrasts using the method described by Field (2013).
To investigate the suggestion that international students can act as valuable resources for their peers (Brookes & Becket, 2010; L. Brown, 2009; Chang, 2006; Cruickshank et al., 2012), average individual peer ratings were further unpacked using regression analysis. In this test, the average peer rating was used as the dependent variable, with independent variables of the remaining questionnaire scales, gender, academic performance (i.e. grades), the word count contributed to the group activity and dummy variables for research condition allocation. To avoid autocorrelation, only the dummy variables for the intervention conditions were included in the models, as is common practice (Muijs, 2011).

As in Study 1 and 3, steps were taken to check for collinearity. Once again, only Power Distance, Masculinity and Uncertainty Avoidance were included in the analysis in order to avoid collinearity or risking degrees of freedom, as suggested by Rienties and Tempelaar (2013). Collinearity diagnostics were also conducted to test for collinearity of the remaining independent variables. All variation inflation factors were under 3.00, suggesting no collinearity issues (Field, 2013). To aid in the analysis and interpretation of findings, independent variables were converted to standardised z-scores.

Normality of the collected data was also considered by a visual review of normal distribution curves. Normality was indicated for all data except the Learning scale, which appeared slightly positively skewed. However, analysis of the skewness and kurtosis found that all data was within the acceptable limits of ±2.00 (Field, 2013).

**Qualitative Analysis**

As in Study 2 (Section 5.2.4), thematic analysis was used for the open-ended, qualitative questions in the questionnaire, using the protocol suggested by Braun and Clarke (2006). As the questionnaire was distributed online and participants typed their own answers, there was no need for transcription. Therefore, the first step of the analysis was a data familiarisation process, during which time the researcher undertook an active and in-depth reading and rereading of the responses to the open-ended questions. After the researcher was sufficiently familiar with the data, a preliminary list of potential codes was created with reference to relevant literature, findings from Studies 1 through 3, the questionnaire questions and the data familiarisation process. During this step, the researcher made extensive notes of potential codes or themes using a research journal. After this stage, the list consisted of 38 potential code ideas. These codes were then critically reviewed for relevance to the collected data and research questions, and combined or reduced to 30 codes.
In the next step, the researcher reviewed the preliminary coding structure for potential themes. Influenced by recent research (Akyol & Garrison, 2013; Garrison et al., 1999), codes were arranged into three overarching themes: social elements, teaching elements and cognitive elements. Using this overarching thematic framework also allowed for synergy between this study and the qualitative study undertaken in Study 2 (Chapter 5). With these overarching themes in mind, the questionnaire data was then reread with a critical reflection of the coding system’s validity and applicability to the data. At this point, the themes and codes were given explicit definitions in a codebook, which served as a guide map for the coding process. This act of explicitly defining the codes also aided in the consolidation process, and the coding system was reduced to 27 codes.

The reliability of the coding system was validated in two stages. First, after an initial development of the themes and codes, an independent reviewer outside of the supervision team individually coded a selection of 42 questionnaires (i.e. 10% of the collected data). Cohen’s kappa was used to analyse inter-rater reliability, which indicated good agreement (κ = .812). Afterwards, notes were compared between the researchers, which led to several revisions, additions and deletions to the coding system to better fit the data and counter any disagreements. In the second stage, a member of the supervision team analysed an additional selection of 42 questionnaires (i.e. a different 10% of the collected data) using the revised coding system. Cohen’s kappa was used to establish inter-rater reliability, which again indicated good agreement (κ = .746). At this point, confidence in the coding system was established.

After consolidation from the piloting process, altogether 20 codes were used to analyse the open-ended questions in the questionnaire, which were organised into the three themes (social, teaching and cognitive). Table 7.4 highlighted the theme and code definitions, while Figure 7.2 depicts these themes and codes visually. The resulting final coding system was applied in nVivo to assist in coding and analysing the large amounts of data. The unit of analysis selected was one full answer to one questionnaire question (i.e. one paragraph), and responses could be given multiple codes. Following the first round of coding, the questionnaire data was reread for a critical assessment of the assigned codes.
### Table 7.4 Summary and definition of codes for open-ended questions

<table>
<thead>
<tr>
<th>Code</th>
<th>Definition of code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social elements</td>
<td>Codes related to social relationships between students and students’ ability to share their background, experiences and personalities in intercultural group work</td>
</tr>
<tr>
<td>Communication</td>
<td>Statements about communication issues and factors that relate to good communication between group members</td>
</tr>
<tr>
<td>Language</td>
<td>Statements about language barriers, skills and use</td>
</tr>
<tr>
<td>Interpersonal comfort with sharing</td>
<td>Statements related to students’ level of comfort and sense of ease about sharing and discussing topics related to their peers’ countries of origin</td>
</tr>
<tr>
<td>Personal comfort with sharing</td>
<td>Statements related to students’ level of comfort and sense of ease about sharing and discussing topics related to their own country of origin</td>
</tr>
<tr>
<td>Diverse behaviours</td>
<td>Statements related to diversity in behaviours and ways of approaching the task</td>
</tr>
<tr>
<td>Diverse views</td>
<td>Statements related to diversity in personal views and experiences among group members</td>
</tr>
<tr>
<td>Biases or prejudices</td>
<td>Statements related to prejudices or biases for or against the group’s assigned countries in the activity</td>
</tr>
<tr>
<td>Social relationships</td>
<td>General statements about the impacts of social relationships and building connections between group members</td>
</tr>
<tr>
<td>Teamwork</td>
<td>Comments related to group dynamics and the team’s general ability to work together well and efficiently to accomplish the group goal</td>
</tr>
<tr>
<td>Teaching elements</td>
<td>Codes related to the facilitation of intercultural group work and the learning process when working in groups</td>
</tr>
<tr>
<td>Communication tool</td>
<td>Statements related to Udio and the online communication medium</td>
</tr>
<tr>
<td>Data</td>
<td>Statements related to the World Bank site and the data provided for the activity</td>
</tr>
<tr>
<td>Division of labour</td>
<td>Statements related to the group’s decisions to divide the task between group members</td>
</tr>
<tr>
<td>Task design and clarity</td>
<td>Statements related to the individual or group’s ability to understand the task instructions and goals</td>
</tr>
<tr>
<td>Time pressures</td>
<td>Statements related to the amount of time allocated to complete the task</td>
</tr>
<tr>
<td>Cognitive elements</td>
<td>Codes related to students’ learning processes and ability to contribute and construct meaning during collaboration</td>
</tr>
<tr>
<td>Effort and engagement</td>
<td>Statements about the amount of effort put into the group or group members’ engagement with the activity</td>
</tr>
<tr>
<td>Participation</td>
<td>Statements related to participation levels in the activity, including issues of free-riding and leadership</td>
</tr>
<tr>
<td>Local knowledge and experiences</td>
<td>Statements related to experiences with the location (i.e. country) of the assigned content</td>
</tr>
<tr>
<td>Topical knowledge and experiences</td>
<td>Statements related to experiences with the topic area of the assigned content (i.e. education)</td>
</tr>
<tr>
<td>Sharing personal information</td>
<td>Statements related to the role of sharing personal information and experiences in order to make inferences beyond the data</td>
</tr>
<tr>
<td>Cognitive outcomes</td>
<td>Statements relate to student views on the skills, abilities or knowledge gained as a result of completing the group work task</td>
</tr>
</tbody>
</table>
Figure 7.2 Visual representation of codes and themes for Study 4 qualitative analysis

Social
- Communication
- Language
  - Interpersonal comfort with sharing
  - Personal comfort with sharing
  - Diverse behaviours
  - Diverse views
  - Biases or prejudices
  - Social relationships
  - Teamwork

Teaching
- Communication tool
  - Data
    - Division of labour
    - Task design and clarity
    - Time pressures

Cognitive
- Effort and engagement
  - Participation
  - Local knowledge and experiences
  - Topical knowledge and experiences
  - Sharing personal information
  - Cognitive outcomes
In the final stage, a detailed analysis and comparison of responses within each code was undertaken in order to understand the nuances in student experiences and reflections of Study 3’s laboratory activity. As the key goal of RQ7 was to understand differences in student experiences based on the academic content they were assigned, the data were compared between research conditions.

As Study 2 (Chapter 5) outlined differences in student reflections of group work experiences based on academic performance level, a second-level comparison was made within each research condition between students based on their academic performance level. Using the method outlined in Section 5.2.2 (see also Mittelmeier et al., 2017), k-means cluster analysis was used to group participants based on academic performance level. Study 4 took place in the same institutional context as Study 2, meaning all students were required to take three modules during this term: Quantitative Methods (QM) (the module this chapter describes), Marketing and Management (MoM) and Accounting (ACC). Grades are marked on a 0-10 scale, with 10 indicating a perfect score and 5.5 required to pass. As Study 2 included three clusters, this method was chosen for this study in order to ease the comparison process between the two studies. This decision was confirmed by comparing the ANOVA F-value scores as a proxy for cluster accuracy (Field, 2013). As highlighted in Table 7.5, Cluster 1 included high performers (n = 130, 30.8%). Cluster 2 (n = 164, 38.9%) contained mid performers, while lower performers were included in Cluster 3 (n = 128, 30.3%). A comparison was made to determine if the clusters were equally divided between the research conditions using chi-square analysis and ANOVA, and no bias in allocation was determined.

Table 7.5 Study 4 average grades by cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Total # of students</th>
<th>Avg QM grade</th>
<th>Avg MoM grade</th>
<th>Avg ACC grade</th>
<th>% of Control</th>
<th>% of Int. 1</th>
<th>% of Int. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1: high performers</td>
<td>130</td>
<td>9.1</td>
<td>8.2</td>
<td>7.9</td>
<td>30.3</td>
<td>29.7</td>
<td>32.2</td>
</tr>
<tr>
<td>Cluster 2: mid performers</td>
<td>164</td>
<td>6.3</td>
<td>6.9</td>
<td>5.5</td>
<td>40.8</td>
<td>37.8</td>
<td>39.1</td>
</tr>
<tr>
<td>Cluster 3: low performers</td>
<td>128</td>
<td>4.2</td>
<td>4.9</td>
<td>4.5</td>
<td>28.9</td>
<td>32.5</td>
<td>28.7</td>
</tr>
</tbody>
</table>

In the next section, the results from the quantitative and qualitative analysis of the questionnaire are outlined.
7.3 Results

7.3.1 Quantitative Results

RQ7 considered how internationalised academic content impacted student reflections of their group work experiences. This section outlines the quantitative constructs included in the questionnaire. Table 7.6 outlines the mean scores for each of the questionnaire constructs, which indicated in general positive learning experiences. In particular, strong agreement was demonstrated on average with the final answer submitted by the group. However, substantial variations between the research conditions, especially in relation to individual ratings from group members. To measure these variations, mean differences in the scales between the RCT conditions were analysed by employing an ANOVA. These results are also highlighted in Table 7.6.

<table>
<thead>
<tr>
<th>Table 7.6 ANOVA of scales between research conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Condition (local content)</td>
</tr>
<tr>
<td>M</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Team Effectiveness</td>
</tr>
<tr>
<td>Group Interaction</td>
</tr>
<tr>
<td>Learning</td>
</tr>
<tr>
<td>Individual ratings from group members</td>
</tr>
<tr>
<td>Agreement with final answer</td>
</tr>
</tbody>
</table>

** p < .01

In this analysis, only one significant difference was found between the RCT conditions: average individual rating from group members. However, the effect size was small ($\eta^2 = .035$) (J. Cohen, 1988). Planned contrasts were then used to compare individual average peer ratings between the conditions on two levels. First, the Control condition (local content) was compared with both internationalisation conditions. Findings suggested that working with internationalised content in general actually decreased student assessments of their peers’ contributions ($t = -2.327, p < .05$). The next planned contrast compare the two internationalisation conditions (Intervention 1 and 2) with one another in order to determine if there were differences in peer assessments when working from content from students’ own backgrounds versus randomly assigned countries. To this, findings indicated that working with internationalised content from students own backgrounds led to higher peer ratings ($t = 3.096, p < .01$). Altogether, this suggested that students appreciate their peers’ contributions more when working with internationalised content that is personally relevant.
Next, bivariate analysis using Pearson’s *r* was conducted to compare research condition allocation with the scale scores, as demonstrated in Table 7.7.

**Table 7.7 Bivariate analysis of scale scores and research condition allocation**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Control condition</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Intervention 1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intervention 2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Team Effectiveness</td>
<td>.032</td>
<td>.023</td>
<td>-.048</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Group Interaction</td>
<td>.067</td>
<td>.058</td>
<td>-.110*</td>
<td>.555**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Learning</td>
<td>.008</td>
<td>.073</td>
<td>-.080</td>
<td>.458**</td>
<td>.466**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Individual rating from group members</td>
<td>-.113*</td>
<td>.182**</td>
<td>-.094*</td>
<td>.017</td>
<td>.087</td>
<td>.012</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Agreement with final answer</td>
<td>.046</td>
<td>-.066</td>
<td>.029</td>
<td>.421**</td>
<td>.244**</td>
<td>.037</td>
<td>-.027</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Gender</td>
<td>.051</td>
<td>-.071</td>
<td>.031</td>
<td>-.012</td>
<td>.054</td>
<td>.070</td>
<td>-.087</td>
<td>-.070</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10. Grades</td>
<td>.003</td>
<td>.041</td>
<td>-.043</td>
<td>-.234**</td>
<td>-.118*</td>
<td>-.159**</td>
<td>.100*</td>
<td>-.075</td>
<td>-.064</td>
<td>1</td>
</tr>
</tbody>
</table>

**p < .01**  
* * p < .05

One noticeable difference between conditions was the Group Interaction scale, in which allocation to Intervention 2 (i.e. randomly assigned international context) correlated negatively. This means that students who were assigned internationalised content from randomly assigned countries may reflect upon more negative experiences with group interaction.

There were also were significant and positive correlations between participation in Intervention 1 (i.e. own country context) and individual ratings from peers. At the same time, individual contributions ratings correlated negatively with participation in the Control (local content) and Intervention 2 (randomly assigned international content) conditions. This adds further precedence to the suggestion that allowing students to work on content from their own diverse backgrounds leads peers to value their contributions more. This notion links well with the literature, which highlighted that international students can act as valuable resources about their own backgrounds to assist their peers’ learning (Brookes & Becket, 2010; L. Brown, 2009; Chang, 2006; Cruickshank et al., 2012).

One further consideration was whether there were cultural differences in student reflections of their group work experience. After all, findings from Study 1 (Chapter 4) and Study 3 (Chapter 6) noted variations in participation based on cultural background. Therefore, one suggestion might be that cultural backgrounds impacts reflection of intercultural group work experiences in different ways. To measure this, bivariate analysis using Pearson’s *r* was conducted in order to compare the scale scores with Hofstede’s cultural dimensions. These findings are highlighted in Table 7.8.
In this regard, only Hofstede’s Power Distance Index seemed to have an effect, correlating positively with student ratings in the Team Effectiveness and Group Interaction scales. This suggested that cultures which value stronger hierarchies and submission to authority reflect more positively on group dynamics. One explanation for this might be that perceived differences in participation are viewed as natural, whereas lower Power Distance cultures might value decision-making as a collective, group responsibility and, therefore, requiring more equal contributions (Hofstede, 1986; Hofstede et al., 2010).

One additional consideration was in regards to student ratings of their peers. On the one hand, it is important to understand whether there were cultural variations in the ways in which students rate their peers. This would, after all, bias any intended results based on individual ratings. On the other hand, it is worth considering whether there were cultural variations in the ratings that individuals received from their peers. After all, previous research has highlighted that students often are biased towards working with peers from their own background or culture (N. Harrison & Peacock, 2010; Kimmel & Volet, 2012; Peacock & Harrison, 2009; Rienties et al., 2014; Spencer-Oatey & Dauber, 2017; Volet & Ang, 2012). In Table 7.9, a bivariate analysis using Pearson’s $r$ was used to compare these student ratings with Hofstede’s cultural traits.

### Table 7.8 Bivariate analysis of scale scores and Hofstede cultural traits

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Team Effectiveness</th>
<th>Group Interaction</th>
<th>Learning</th>
<th>Agreement w/ group answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hofstede traits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Distance Index</td>
<td>.143**</td>
<td>.116*</td>
<td>.074</td>
<td>.055</td>
</tr>
<tr>
<td>Individualism</td>
<td>-.026</td>
<td>-.051</td>
<td>.005</td>
<td>-.027</td>
</tr>
<tr>
<td>Masculinity</td>
<td>-.010</td>
<td>.024</td>
<td>.004</td>
<td>.031</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>.085</td>
<td>.090</td>
<td>.062</td>
<td>.075</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>-.063</td>
<td>-.021</td>
<td>.038</td>
<td>-.042</td>
</tr>
<tr>
<td>Indulgence</td>
<td>.022</td>
<td>-.014</td>
<td>.007</td>
<td>-.018</td>
</tr>
</tbody>
</table>

* $p < .05$

** $p < .01$

### Table 7.9 Bivariate analysis of group member ratings and Hofstede cultural traits

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Avg rating of group members</th>
<th>Avg rating from group members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hofstede traits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Distance Index</td>
<td>-.093</td>
<td>.162**</td>
</tr>
<tr>
<td>Individualism</td>
<td>.083</td>
<td>.103*</td>
</tr>
<tr>
<td>Masculinity</td>
<td>.032</td>
<td>-.010</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>.009</td>
<td>-.093</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>.062</td>
<td>.004</td>
</tr>
<tr>
<td>Indulgence</td>
<td>.011</td>
<td>.045</td>
</tr>
</tbody>
</table>

* $p < .05$

** $p < .01$
Cultural background did not appear to influence the ways in which participants rated their peers. However, cultures with higher Power Distance and Individualism (i.e. those from more individualistic, hierarchy-centred societies) impacted the average rating that participants received from their peers.

As bivariate and ANOVA results indicated significant (but relatively weak) variations between the research conditions in terms of individual average ratings from peers, regression analysis was conducted to further unpack factors that predicted these ratings. As demonstrated in Table 7.10, findings suggested that research condition assignment alone could explain a small amount of variation between participants’ individual ratings (3.1%). The model was slightly improved with the inclusion of demographic factors (4.9%) and questionnaire scales (5.2%). However, the model was substantially improved when individual participation was added as a variable, explaining a full 20.9% of the variation in individual average contribution ratings. At the same time, allocation to the Control (local content) condition decreased average group member ratings while allocation to Intervention 1 (own country content) increased average group member ratings. As the previous analysis in Study 3 (see Section 6.3) suggested that personally relevant internationalised content can positively impact individual participation, one suggestion could be that internationalised academic content also indirectly impacts students’ ratings of their peers by encouraging participation.

**Table 7.10 Regression analysis of individual rating from group members**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Model 1 (individual rating from group members)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control condition (Local content)</td>
<td>-.049 -.064 -.081 -.106*</td>
</tr>
<tr>
<td>Intervention 1 (Own country content)</td>
<td>.163** .148** .122** .102*</td>
</tr>
<tr>
<td>Hofstede traits</td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td>-- .120* .101* .091*</td>
</tr>
<tr>
<td>Masculinity</td>
<td>-- .071 .076 .102*</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>-- -.094 -.112* -.074</td>
</tr>
<tr>
<td>Gender</td>
<td>-- -.050 -.068 -.059</td>
</tr>
<tr>
<td>Grade</td>
<td>-- .064 .066 .010</td>
</tr>
<tr>
<td>Team Effectiveness</td>
<td>-- -- -.065 .094</td>
</tr>
<tr>
<td>Group Interaction</td>
<td>-- -- .152* .122*</td>
</tr>
<tr>
<td>Learning</td>
<td>-- -- -.009 -.053</td>
</tr>
<tr>
<td>Agreement with final answer</td>
<td>-- -- -.019 -.046</td>
</tr>
<tr>
<td>Individual participation (word count)</td>
<td>-- -- -- .412**</td>
</tr>
</tbody>
</table>

Adjusted $R^2$: .031 .049 .052 .209

** $p < .01$
* $p < .05$
Altogether, these quantitative findings suggested that there are subtle variations in student reflections of their group work experience and, in particular, the value of peers’ contributions, when comparing the use of local versus internationalised content (RQ7). In the next section, these notions are further unpacked through the qualitative analysis of open-ended comments.

7.3.2 Qualitative Results

Summary of Codes

Thematic analysis was used as a tool for analysing over 2000 open-ended question responses (outlined in Section 7.2.4). Overall, a total of 1,942 codes were recorded. The coding of these open questions led to an average of 5.24 coded responses per participant ($SD = .83$). In terms of the number of words contributed per individual, on average 469 words were submitted per participant ($SD = 85.21$), indicating that most participants provided substantial discourse for the qualitative analysis.

In Table 7.11, a descriptive summary of codes across the social, teaching and cognitive codes are depicted. This highlighted whether there were differences between RCT research conditions in terms of quantity of statements for each code. Altogether, Table 7.11 outlined how much participants discussed topics relevant to RQ7. In reviewing Table 7.11, it is important to keep in mind that the open-ended questions (outlined in Table 7.2) were relatively broad in nature, and coded responses reflect fully emergent themes as brought forth from the participant’s own volition and reflection. Responses were also collected via an online medium in which participants were required to type out their responses. This collection method differed substantially from the thematic analysis in Study 2 (see Table 5.4), in which face-to-face interviews resulted in in-depth probes about a smaller collection of topics, often leading to multiple coding of the same topic for each individual. In this study, it is recognised that the questionnaire method does not allow for the same manner of in-depth questioning or clarifications, and as such participants often brought up topics or themes only once throughout their questionnaire responses.
Table 7.11 Number of codes by category and cluster

<table>
<thead>
<tr>
<th>Code</th>
<th>Total N</th>
<th>% of total codes</th>
<th># of participants coded</th>
<th>Control (n = 76)</th>
<th>Intervention 1 (n = 172)</th>
<th>Intervention 2 (n = 174)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Average Individual</td>
<td>SD</td>
<td>Average Individual</td>
</tr>
<tr>
<td><strong>Social elements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>818</td>
<td>42.1</td>
<td>421</td>
<td>2.01</td>
<td>0.26</td>
<td>1.74</td>
</tr>
<tr>
<td>Language</td>
<td>40</td>
<td>2.1</td>
<td>40</td>
<td>0.12</td>
<td>0.32</td>
<td>0.13</td>
</tr>
<tr>
<td>Interpersonal comfort with sharing</td>
<td>58</td>
<td>2.9</td>
<td>52</td>
<td>0.23</td>
<td>0.30</td>
<td>0.11</td>
</tr>
<tr>
<td>Personal comfort with sharing</td>
<td>56</td>
<td>2.9</td>
<td>56</td>
<td>0.00</td>
<td>0.00</td>
<td>0.29</td>
</tr>
<tr>
<td>Diverse behaviours</td>
<td>66</td>
<td>3.4</td>
<td>64</td>
<td>0.11</td>
<td>0.28</td>
<td>0.12</td>
</tr>
<tr>
<td>Diverse views</td>
<td>285</td>
<td>14.7</td>
<td>251</td>
<td>0.92</td>
<td>0.11</td>
<td>0.58</td>
</tr>
<tr>
<td>Biases or prejudices</td>
<td>61</td>
<td>3.1</td>
<td>59</td>
<td>0.14</td>
<td>0.27</td>
<td>0.15</td>
</tr>
<tr>
<td>Social relationships</td>
<td>80</td>
<td>4.1</td>
<td>80</td>
<td>0.23</td>
<td>0.30</td>
<td>0.17</td>
</tr>
<tr>
<td>Teamwork</td>
<td>110</td>
<td>5.7</td>
<td>101</td>
<td>0.38</td>
<td>0.49</td>
<td>0.21</td>
</tr>
<tr>
<td><strong>Teaching elements</strong></td>
<td>428</td>
<td>22.0</td>
<td>391</td>
<td>1.09</td>
<td>0.51</td>
<td>0.92</td>
</tr>
<tr>
<td>Communication tool</td>
<td>174</td>
<td>9.9</td>
<td>174</td>
<td>0.41</td>
<td>0.49</td>
<td>0.42</td>
</tr>
<tr>
<td>Data</td>
<td>77</td>
<td>3.9</td>
<td>75</td>
<td>0.20</td>
<td>0.29</td>
<td>0.17</td>
</tr>
<tr>
<td>Division of labour</td>
<td>91</td>
<td>4.7</td>
<td>88</td>
<td>0.16</td>
<td>0.38</td>
<td>0.15</td>
</tr>
<tr>
<td>Task design and clarity</td>
<td>59</td>
<td>3.9</td>
<td>59</td>
<td>0.24</td>
<td>0.43</td>
<td>0.12</td>
</tr>
<tr>
<td>Time pressures</td>
<td>27</td>
<td>1.4</td>
<td>27</td>
<td>0.05</td>
<td>0.23</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Cognitive elements</strong></td>
<td>696</td>
<td>35.8</td>
<td>372</td>
<td>1.54</td>
<td>0.71</td>
<td>1.71</td>
</tr>
<tr>
<td>Effort and engagement</td>
<td>92</td>
<td>4.7</td>
<td>72</td>
<td>0.13</td>
<td>0.34</td>
<td>0.20</td>
</tr>
<tr>
<td>Participation</td>
<td>177</td>
<td>9.1</td>
<td>162</td>
<td>0.33</td>
<td>0.47</td>
<td>0.44</td>
</tr>
<tr>
<td>Local knowledge and experiences</td>
<td>147</td>
<td>7.6</td>
<td>119</td>
<td>0.32</td>
<td>0.46</td>
<td>0.52</td>
</tr>
<tr>
<td>Topical knowledge and experiences</td>
<td>45</td>
<td>2.3</td>
<td>45</td>
<td>0.22</td>
<td>0.42</td>
<td>0.09</td>
</tr>
<tr>
<td>Sharing personal information</td>
<td>180</td>
<td>9.3</td>
<td>173</td>
<td>0.46</td>
<td>0.50</td>
<td>0.46</td>
</tr>
<tr>
<td>Cognitive outcomes</td>
<td>55</td>
<td>2.8</td>
<td>49</td>
<td>0.09</td>
<td>0.29</td>
<td>0.18</td>
</tr>
</tbody>
</table>
Table 7.11 highlighted that, while participants across the research conditions roughly spoke about most topics in similar quantities, there were a few differences worth noting. First, issues surrounding personal and interpersonal comfort with sharing personal experiences about assigned contexts was almost exclusively discussed in Intervention 1 (own country content). Second, the role of diverse views in intercultural group work was more frequently discussed in the Control (local content) and Intervention 2 (randomly assigned country content) conditions, in comparison with Intervention 1. Finally, participants in Intervention 1 were more likely to talk about sharing local knowledge, while those in the Control condition more frequently discussed the role of topical knowledge (in this case, education).

Beyond this general overview, RQ7 was particularly interested in understanding qualitative similarities and differences in group work experiences between students in the three RCT conditions. Therefore, comparisons of the coded statements by research condition (i.e. local, internationalised and personally relevant, or internationalised and randomly assigned) are discussed below.

**Common Themes in All Conditions**
RQ7 considered variations in student reflections of their group work experiences when using internationalised versus local academic content. Several themes were common to participants in all conditions and are important to note. As in Study 2, a large number of students (n = 237, 56%) across the research conditions believed that the opportunity to participate in an intercultural group work assignment was a positive challenge that allowed them to practice essential communication skills and encounter diverse viewpoints. This was evident across academic performance levels, with students in all grade clusters noting that they appreciated working with diverse peers.

‘*So at the end, it empowers our work in the group since everyone has another background and can add something new, different ideas, thoughts and knowledge and it empowers each one of us individually.*’
(Participant 403, Female, German, Intervention 2, GPA = 5.23, Cluster 2)

‘*I think the main benefit to work with different people is that I gain multiple experiences with different kinds of people. I believe this will help me in the future to communicate with various people at work.*’
(Participant 2, Male, Chinese, Control, GPA = 8.73, Cluster 1)

‘*The diversity of our group enabled different point of views which led to a better result.*’
(Participant 277, Female, German, Intervention 1, GPA = 3.66, Cluster 3)
A benefit of working with diverse group members was the fact that diverse opinions are a good source for critical thinking. If everyone would have had the same opinion regarding the topic nobody would question the assumptions of other members.’
(Participant 380, Female, Egyptian, Intervention 2, GPA = 3.10, Cluster 3)

Indeed, these participants frequently noted that they enjoyed the assignment and the opportunity to work with their peers (particularly those from other countries).

‘I enjoyed cooperating with my group members because we took everyone’s opinion into consideration and I believe we learn something new.’
(Participant 128, Female, Greek, GPA = 5.33, Cluster 2)

‘From my point of view, I have to admit that I really liked to work together with my classmates, due to the different opinions we ended sharing with each other.’
(Participant 29, Male, Italian, GPA = 3.12, Cluster 3)

‘In general, I liked the idea of the research project and the possibility for us, the students, to experience how data analysis works in the “real world”.’
(Participant 76, Male, German, GPA = 9.20, Cluster 1)

‘This kind of problem solving tasks really motivates me, I get really excited about it. Therefore I was really into it. I also liked to share my ideas with my fellow classmates, and I really wanted to find an “answer” to the case, because this subject really interests me.’
(Participant 345, Female, Belgian, GPA = 6.41, Cluster 2)

Similar to Study 2, some participants (n = 41, 10%) also noted the importance of the use of a common language (English) in order to encourage collaboration and communication. In some cases, participants reflected positively on their group’s ability to use English as a tool for communication.

‘I had group members from both Germany and France. We used English as lingua franca so that everyone was equally likely to participate in the process.’
(Participant 7, Male, Romanian, Control, GPA = 4.78, Cluster 3)

‘It helped us communicate because the group kept English as lingua franca and didn’t switch to their mother tongue, even though there were members speaking the same language.’
(Participant 245, Female, German, Intervention 1, GPA = 6.42, Cluster 2)

‘We were able to communicate in an appropriate and friendly way, even though we did not know each other personally. We stuck to the lingua franca (English), which meant we did not exclude each other.’
(Participant 406, Male, German, Intervention 2, GPA = 9.53, Cluster 1)

As participants were working on group work projects in an online environment, many participants (n = 147, 33%) made comments related to difficulties encountered using an online communication
medium. The online element, they noted, often made communication ambiguous or confusing, particularly in an intercultural setting. These suggestions were, again, common across the academic performance clusters and the research conditions.

‘It might have discouraged collaboration with the use of this chatting tool as people might stick to their own thoughts rather than reading each other’s work.’
(Participant 9, Female, Dutch, Control, GPA = 4.65, Cluster 3)

‘I feel that the main challenge was that it was all over an online forum and therefore the discussion was kept very professional. I feel had we been working together face-to-face, then it would have gone more casual, and I would have gotten to know them better. Being in an international environment, it is also sometimes difficult to assess whether something you might find funny is also funny to them or an insult.’
(Participant 101, Male, German, GPA = 8.25, Cluster 1)

‘Since the assignment was done online I hadn’t met the other group members, and I did not know how many people I was working with, I felt like this [the online communication medium] made it a lot harder to form any sort of relationship with the group and therefore made it harder to communicate effectively with them.’
(Participant 304, Male, German, Intervention 2, GPA = 7.33, Cluster 2)

Yet, there were subtle (and, at times, not so subtle) differences in the interpersonal and intercultural experiences that participants had between the research conditions. These differences are highlighted in the following sections.

**Control (local content)**

Participants in the control condition were asked to use content from the local Dutch content. Therefore, one assumption is that Dutch students would have an advantage in this assignment due to their country-specific knowledge and experiences. Yet, no Dutch students responded that they felt personally advantaged or more knowledgeable than their peers. In fact, several (4 of the 20 Dutch students in the Control condition) noted the opposite:

‘Working with diverse group members with different cultural backgrounds led to a broad range of views and perspectives on the data and topic. Other group members could come up with things that I did not think of. Because the task was all about The Netherlands, there was a possibility that I, as a Dutch person, would know more about it. But it turned out that this was not the case. I think it was interesting that everyone had their own opinion, partly because of different beliefs and expectations, and this led to thinking about the data from several angles.’
(Participant 58, Female, Dutch, GPA = 6.00, Cluster 2)
Yet, at the same time, many non-Dutch students (14 of the 52 international students in the Control condition) commented that Dutch students were advantageous group members in this assignment, as they were able to shed light on the local situation in order to build their understanding of the content. This trend was particularly apparent for mid- and low-performing students.

‘Because we mainly had to focus on the Netherlands data and just compared a little with other countries, it was more difficult to include your own knowledge about your home country.’
(Participant 7, Male, Romanian, GPA = 4.78, Cluster 3)

‘As a not Dutch person, you could not add as much extra information about the Dutch school system as our Dutch group member could.’
(Participant 32, Male, Dutch, GPA = 4.55, Cluster 3)

‘In this case, it was a huge advantage to work with people from the Netherlands, because we were able to hear the opinion and facts from locals, and could compare them with our, which led to a faster result. Otherwise, we would have to do research.’
(Participant 6, Male, Hungarian, GPA = 5.33, Cluster 2)

‘It was really good that we had someone from the Netherlands in our group, who actually experienced the Dutch school system. She could tell us that they split the high school education, which makes it hard for many students to attend college at all.’
(Participant 18, Female, German, GPA = 4.75, Cluster 3)

Several mid- to high-performing participants (5 of the 23 Cluster 1 students in the Control condition), at the same time, speculated about ‘other,’ non-Dutch students’ inability to make connections with the locally-centred material. These statements were made by both domestic and international students.

‘This assignment was specifically about The Netherlands, and because I worked together with people from different nationalities, some of them did not understand what the assignment was about. So, in this case, the understanding of the topic was a difficulty.’
(Participant 25, Male, Irish, GPA = 5.05, Cluster 2)

‘The content was focused on the Dutch education, and for non-native-Dutch students, it was difficult for them to understand the Dutch culture.’
(Participant 42, Female, Dutch, GPA = 8.50, Cluster 1)

These comments mimicked the language used by mid- to high-performing students in Study 2 when they described the lack of participation or engagement by low-performing students in group work (see Section 5.3.1). In some ways, then, the incorporation of local content reinforced stereotypes.
of lower-performing and less active students. However, there was only a weak relationship between peer ratings and academic performance in the quantitative analysis.

Relatedly, some Control condition participants \((n = 9, 12\%)\) suggested that the diverse makeup of their small groups did not add to the learning experience when using local content from the Netherlands. This was again true for students across academic performance levels.

‘Honestly, there was not much of a discussion, because we agreed with almost all answers of our group members. All in all, the impact of diversity on our group work was quite low.’

( Participant 74, Male, American, GPA = 9.53, Cluster 1)

‘It didn’t encourage collaboration among diverse group members because if anyone would have to do it with group members of the same nationality, the results would be the same.’

( Participant 72, Male, Belgian, GPA = 1.72, Cluster 3)

‘It wasn’t any different than from working in a non-diverse group, so I cannot say that there were any additional benefits.’

( Participant 57, Female, Chinese, GPA = 6.67, Cluster 2)

At the same time, it noted by a number of other Control condition students \((n = 18, 24.3\%)\), regardless of academic performance level, that the inclusion of local content allowed for a ‘common ground’ for all diverse participants in the module. In this regard, they believed that all students would be able to engage with the assignment topic due to the shared experience of living in the local context.

‘The content of this assignment was related to the Netherlands’ education system and, as long as we all live in the Netherlands and we all study, we were very concerned and interested in the topic. For these reasons we’ve been able to work together and to come up with a common conclusion.’

( Participant 8, Female, Dutch, GPA = 3.33, Cluster 3)

‘The content of this assignment was interesting because we were familiar with the subject. Education in the Netherlands is related to us since we are all students and we are concerned about the education of the country in which we are living.’

( Participant 64, Male, Hungarian, GPA = 5.67, Cluster 2)

Altogether, participants in the Control condition (particularly those from outside the Netherlands) noted a relative advantage for Dutch students when completing activities using locally-based academic content. For these students, it was perceived that the advantages of working on intercultural small groups were diminished as diverse peers were not provided with adequate
opportunities to share their backgrounds and experiences within this activity. Yet, a sizeable number of Control condition participants noted that working with local content allowed for a common ground upon which to build their collaboration.

**Intervention 1 (own country content)**

Intervention 1 participants were asked to work with content from their own countries of origin. In doing so, a large number of Intervention 1 participants ($n = 48, 28\%$) felt that working with content from their countries encouraged participation among group members. This sentiment was particularly apparent in comments from mid- to high-performing students.

‘As the matter was about our own countries, it was more stimulating, and the members were willing to participate and know more about the matter.’
(Participant 158, Male, Italian, GPA = 9.21, Cluster 1)

‘I think that the fact that we had to discuss aspects of our own countries really encouraged our collaboration. Everyone had the urge to share his personal knowledge about the education of its own country.’
(Participant 155, Male, French, GPA = 5.23, Cluster 2)

‘The content of this assignment allowed each group member to share their own personal experience or feelings towards the subject matter and group members were also encouraging one another -- asking for other opinions and for other group members to share their thoughts.’
(Participant 112, Female, Belgian, GPA = 5.50, Cluster 2)

‘It actually did, at least from my point of view, really encourage all the group members to participate or at least provide some kind of distribution.’
(Participant 239, Male, Belgian, GPA = 10.00, Cluster 1)

‘The group task encouraged collaboration among diverse groups as every group member represented the expert of his home country, so it was easy to seek important information by cooperating with them.’
(Participant 238, Male, German, GPA = 8.33, Cluster 1)

Mid- to high-performing Intervention 1 participants (51 of the 118 Cluster 1 and 2 participants in Intervention 1) also often noted that they felt group members were valuable resources for sharing personal experiences and making inferences beyond the data. This is in line with the internationalisation literature, which highlighted international students as resources for peer learning about intercultural contexts (Brookes & Becket, 2010; L. Brown, 2009; Chang, 2006; Cruickshank et al., 2012).
‘As the task had individual elements to it, every member had to provide the information of their respective country, it sort of forced every single member to participate and share their knowledge.’
(Participant 196, Female, Belgian, GPA = 5.20, Cluster 2)

‘I think that the collaboration was encouraged by the internationalities. As we were expected to focus on our country, we were stimulated to share/compare what we found about our country.’
(Participant 205, Male, Belgian, GPA = 5.33, Cluster 2)

‘It [the assignment] requires knowledge about different countries. Members must be ready to share their knowledge about their own countries so that everyone can give appropriate assessment. When you learn about a country, it is best to hear from the people coming from the country. This urged members to share their personal knowledge.’
(Participant 117, Female, German, GPA = 9.45, Cluster 1)

‘As we were asked to talk about our home countries only, personal knowledge about each of our home countries made us share it to the others and made us curious to get to know how it would be like in other countries.’
(Participant 220, Male, German, GPA = 7.00, Cluster 2)

‘Everybody had to participate and share their own information so that the whole group was on the same level of knowledge. Only after everybody shared their opinion and facts about their own country, it was possible to start a decision process.’
(Participant 229, Female, German, GPA = 6.76, Cluster 2)

At the same time, low-performing students (23 of the 54 Cluster 3 participants in Intervention 1) tended to downplay the role of diversity in this assignment. Although mid- to high-performing students frequently discussed the role of personal experiences in providing cultural inferences beyond the data, low-performing students typically argued that the assignment was data-focused and did not require students to share their personal experiences.

‘The assignment focused mostly on the statistics given, which is why we didn’t share a lot of personal knowledge.’
(Participant 219, Male, Spanish, GPA = 1.33, Cluster 3)

‘The focus was on the data given in the task, it was not on people’s experience with their education systems.’
(Participant 232, Male, Belgian, GPA = 2.53, Cluster 3)

‘What we mainly shared was the facts of our own countries. We didn’t really share any personal information.’
(Participant 79, Female, German, GPA = 4.50, Cluster 3)

‘Since all information was given, it was not really necessary to give any personal knowledge.’
(Participant 75, Male, Dutch, GPA = 3.77, Cluster 3)
‘Because the group was supposed to base their answer on statistics, it was a bit hard to bring in personal knowledge.’
(Participant 102, Male, Belgian, GPA = 3.58, Cluster 3)

Indeed, despite the allocation of approximately 3-4 countries to each small group, some low-performing students had difficulties recognising that diversity was present in their groups or that it was relevant to the assignment. This is interesting, considering many of these participants were international students themselves, living and working in contexts different than their own backgrounds.

‘I have to admit, that I did not feel that we were diverse or differ from each other in any way. It was good to know that people might have another opinion because of their background, but in the end, there was not an aspect where I can say that I felt that we were a diverse group.’
(Participant 110, Male, German, GPA = 3.66, Cluster 3)

‘We decided that everyone should look up the data for his/her own country and that was basically the only valuable thing that was being shared in the group. It was easy to extract our final answer out of these findings, so no real personal knowledge was used.’
(Participant 231, Female, Turkish, GPA = 3.50, Cluster 3)

‘We only had to compare analytical data and were not supposed to judge on our own experience / let our own experience change our opinion.’
(Participant 163, Male, Dutch, GPA = 4.42, Cluster 3)

One explanation for this, as highlighted in Study 2’s findings (Chapter 6), could be that low-performing students experience more sociocultural tensions in intercultural group work, thereby limiting their abilities to engage with the group’s diversity. As summarised by one participant:

‘I do not know in what way we are diverse because I do not really know them.’
(Participant 209, Female, Finnish, GPA = 3.33, Cluster 3)

Indeed, in addition to the benefits of working with content from their own backgrounds highlighted by mid- to high-performing students, sociocultural tensions were highlighted by Intervention 1 participants of all academic performance levels (n = 65, 38%). For instance, working with diverse peers using content from their own countries reinforced stereotypes for some students, particularly mid- to low-performing students:
‘I can see how some Germans still think they are superior. For example, we were comparing how the economy goes in the different countries, and they were not admitting or accepting that their tertiary rate is low in comparison to other countries.’
(Participant 84, Female, Ukrainian, GPA = 6.36, Cluster 2)

‘The different stereotypes were clearly there. For example, the fact that French people are very patriotic. In the first instance, this [French] person came up immediately with picking France as the answer.’
(Participant 75, Male, Dutch, GPA = 3.77, Cluster 3)

Participants (n = 48, 28%) also noted feeling uncomfortable with discussing their peers’ countries because they did not wish to appear insensitive. This was particularly the case when participants felt that the information portrayed ‘negative’ things about their group members’ countries of origin. The participants making these statements were typically those in a country highly represented in the module and perceived to be economically developed (Netherlands, Germany, Belgium, etc.).

‘I found it a bit hard to say to someone from a certain country that their country should need to change something about the school funding because it feels like saying that your country is doing better than theirs according to the statistics.’
(Participant 100, Female, German, GPA = 5.22, Cluster 2)

‘For the task, it was sometimes hard because you do not want to offend someone by saying they need extra funding because their education is not good enough.’
(Participant 101, Male, German, GPA = 8.25, Cluster 1)

‘I was afraid to offend somebody in stating that his/her country should be chosen.’
(Participant 106, Male, Dutch, GPA = 5.10, Cluster 2)

‘I had to pay attention to not offend any group member through commenting condescendingly on their country of origin.’
(Participant 169, Male, Belgian, GPA = 6.00, Cluster 2)

‘I think it was uncomfortable because we were talking about three strong Western European countries and a weaker economically and politically Eastern European country, and no one seemed to know anything about [that country or] be interested in talking about it.’
(Participant 85, Female, German, GPA = 6.66, Cluster 2)

‘People often feel very proud about their home country…so people could feel offended and therefore not willing to go with the answer if their home country is doing the worst.’
(Participant 115, Male, German, GPA = 7.75, Cluster 1)
Similarly, participants themselves \((n = 28, 16\%)\) sometimes felt uncomfortable with their own countries being in the spotlight. For many, there was a sense of discomfort around peers discovering ‘negative’ things about their country. This was more often the sentiment of students from lesser-represented countries at the university.

‘Sometimes it’s difficult to see in which things your country is not good at (and even more difficult to see that other countries see those things too)...it’s really important to accept the constructive critics on your country performance in a certain issue and to be able to build from it. Otherwise, this can lead you to some group dynamic difficulties.’
(Participant 186, Female, Italian, GPA = 8.56, Cluster 1)

‘Sometimes it is not easy, to be honest, when you talk about your country when the current condition is not the best compared to the others. Most people are proud of their country and don’t want to share its negative aspects.’
(Participant 170, Male, Japanese, GPA = 4.57, Cluster 3)

‘It got difficult because we didn’t want our respective country to be the analysed one since that’s implying a failure of the educational system.’
(Participant 147, Female, Belgian, GPA = 5.00, Cluster 2)

Other participants \((n = 16, 9\%)\) questioned whether it was possible to be objective in a learning task when working with content from their own countries. Participants felt this at times led to a biased discussion or inaccurate reflection of the situation within the country.

‘It led to tensions because some students thought their country was so great that they wouldn’t reason with our arguments and they didn’t really give any important information.’
(Participant 143, Male, Dutch, GPA = 5.23, Cluster 2)

‘The fact that we were supposed to compare our own countries against other countries had the potential of ruining a good discussion as people may tend to defend their countries.’
(Participant 188, Female, German, GPA = 7.89, Cluster 1)

‘Since the countries that we studied were the nationalities of the group members, it was easy to become biased based on your nationality. In my case, I felt that the Norwegian educational system was very well off when I looked at the data, but others might have perceived in a different and more critical way than what I did.’
(Participant 211, Female, Norwegian, GPA = 4.05, Cluster 3)

‘At the beginning, everybody was biased because they thought that it couldn’t be their own country to need help.’
(Participant 221, Female, Dutch, GPA = 8.76, Cluster 1)

‘It led to difficulties, because everyone thought that their country was the best in terms of education, so we could not really agree who was best for the World Bank funding. The discussion was very subjective since everyone analyzed their home country.’
(Participant 223, Male, German, GPA = 6.87, Cluster 2)
Similarly, preconceived notions or stereotypes about other countries were perceived to bias group members’ assessments of the peers’ countries in a few instances (n = 5, 3%).

‘At certain points, it seemed as though some were viewing the other countries from their own prior impressions.’
(Participant 188, Female, German, GPA = 7.89, Cluster 1)

‘Unfortunately, we did not share too much of our personal impressions or knowledges. I think the only thing was that we knew quite quickly that we should support a poor country rather an already developed country.’
(Participant 167, Male, Dutch, GPA = 4.76, Cluster 3)

Further complexities were explored, such as one participant noting a fear that their peers might think they were biased towards their own country, when they were, in fact, trying to be objective.

‘I feel my arguments weren’t taken seriously. My hypothesis on why this might be the case is that, because we compared countries, one might lead to think that one’s arguments are biased towards one’s respective home country...I feel like my peers were thinking that I was trying to embellish [my peer’s country’s situation] although I was just attempting to convey my point.’
(Participant 227, Female, German, GPA = 7.78, Cluster 1)

Altogether, the findings from Intervention 1 participants depict conflicting experiences. On the one hand, mid- to high-performing students outline benefits of engaging with personally relevant internationalised academic content, including encouraging participation and sharing personal experiences. On the other hand, low-performing students commented on the lack of importance of their diverse backgrounds in this assignment. In all students, a prevalence of sociocultural tensions or awkwardness resulting from personal intercultural interactions was noted by students across all academic performance levels.

**Intervention 2 (randomly assigned international content)**
Participants in Intervention 2 were randomly allocated content from a selection of countries around to the world (e.g. Thailand, Costa Rica and Russia), which had no connection to their own personal backgrounds. Although many participants in Intervention 1 (personally relevant internationalised content) noted benefits of internationalisation for group dynamics, many participants in Intervention 2 (n = 63, 36%) noted difficulties in working effectively together. This was true across academic performance levels.
‘It was annoying that some of us were suggesting how to cope with the task and the others just remained silent, not approving or disapproving with our suggestions. All this lead to poor communication and organization and to bad overall performance.’
(Participant 409, Female, Belgian, GPA = 5.50, Cluster 2)

‘I think we had difficulties in making the final decision because nobody really took initiative to make the final answer. So if you have diverse group members who you don’t know the roles are not distributed, and the group members do not know what exactly their role is.’
(Participant 271, Female, Portuguese, GPA = 2.33, Cluster 3)

‘Only one or two people doing most of the work, as in most group tasks. Lack of clear structure. Not enough communication.’
(Participant 404, Male, German, GPA = 9.20, Cluster 1)

Intervention 2 participants (n = 31, 18%) across academic performance levels also more frequently complained of group members not taking the assignment seriously or not being engaged in the activity. For example:

‘I got the impression that some of our group members did not take the exercise too seriously and therefore just agreed on everything without questioning it.’
(Participant 350, Male, German, GPA = 10.0, Cluster 1)

‘In a way, even though everybody was supposed to get through the whole data and then participate, some stayed quiet almost all the time, so I guess that they didn’t really care about the way we worked and what we had to do as long as it was done.’
(Participant 296, Male, German, GPA = 7.33, Cluster 2)

‘The assignment was not really interesting, and nobody had personal knowledge about it.’
(Participant 319, Male, Hungarian, GPA = 3.75, Cluster 3)

One explanation for this could be that the lack of personal background knowledge about the content discouraged the ability to build a ‘common ground’ or shared mental model necessary for productive teamwork (Decuyper et al., 2010; Mathieu, Rapp, Maynard, & Mangos, 2009). After all, many Intervention 2 participants (n = 33, 19%) highlighted that they felt they did not know much about the countries they were assigned.

‘We did not really know a lot about the countries we compared, so nobody had personal knowledge about this topic.’
(Participant 322, Male, German, GPA = 5.67, Cluster 2)
‘For me, sharing of personal knowledge about this theme was pretty hard, because I never informed myself about school education in other countries.’
(Participant 408, Female, French, GPA = 9.42, Cluster 1)

‘I was a little bit reserved at the beginning because I was not sure if I got all the information right and I personally could not show any previous knowledge about our given countries.’
(Participant 271, Female, Portuguese, GPA = 2.33, Cluster 3)

‘We mostly don’t have any connection to those countries, so we didn’t have any insightful views or personal experiences with those countries and their standard.’
(Participant 334, Male, Dutch, GPA = 7.33, Cluster 2)

Yet, at the same time, some Intervention 2 participants (n = 31, 18%) noted that personal knowledge of the contexts of their assigned content was not even necessary. Instead, they argued, the assignment was about the data, and there was little need to make inferences beyond the data. In Intervention 1, these sentiments were primarily limited to low-performing students. However, participants of all academic performances noted a reliance on factual information over personal experiences when working with internationalised content to which they had no personal connection.

‘Real personal knowledge wasn’t needed to solve the task as we were relying on the hard given facts. That had all necessary aspects to solve the question.’
(Participant 416, Male, Dutch, GPA = 5.33, Cluster 2)

‘There wasn’t that much sharing, I think, because it was more about looking at data than about knowledge you have.’
(Participant 400, Male, Finnish, GPA = 2.34, Cluster 3)

‘Our whole group worked together to come to a conclusion, but there was no need to share personal knowledge. We made our decision based on the data that was provided.’
(Participant 367, Male, Dutch, GPA = 9.55, Cluster 1)

‘The content of this assignment didn’t necessarily encourage any collaboration among diverse group members. Nobody shared any personal knowledge, rather we all analysed the data at hand. Perhaps this would be more relevant if any of the group members came from the countries we researched.’
(Participant 364, Male, German, GPA = 8.00, Cluster 1)

‘Since all my group members, except one girl from Vietnam, were from Western Europe, we couldn’t really relate to our given countries. Therefore, nobody had any personal experiences or knowledge to share...All we did was follow the tasks steps.’
(Participant 362, Female, German, GPA = 6.33, Cluster 2)

‘There was no sharing of personal knowledge, we just took the assignment as a task to be completed and collaborated to get data to analyse.’
(Participant 344, Female, Dutch, GPA = 4.20, Cluster 3)
‘Since we had the data right on our screens, we could look for the data ourselves and personal knowledge wasn’t really needed.’
(Participant 308, Male, Dutch, GPA = 6.33, Cluster 2)

‘The assignment was quite general and dealt with data of different countries all over the world that was not specifically linked to someone’s knowledge or interest, which could of discouraged some members to collaborate.’
(Participant 403, Female, German, GPA = 5.23, Cluster 2)

A sizeable number of participants assigned to Intervention 2 (n = 21, 12%) similarly noted that diversity did not influence their group work experience. This trend was noticeable across academic performance levels, again unlike Intervention 1, in which these trends were more prevalent in low-performing students.

‘I did not even realize that we had different diverse members in our group.’
(Participant 339, Male, Norwegian, GPA = 5.50, Cluster 2)

‘We had to make an analysis for countries we are not really familiar with and also the interest in these countries was not very high. This caused some discourage in our group.’
(Participant 359, Female, German, GPA = 9.33, Cluster 1)

‘I honestly wouldn’t say it was a special benefit either for me or the group, because of the task that was given. Since we basically just had to compare numbers, it was a very objective group talk, with no noticeable benefits from diversity.’
(Participant 247, Female, Dutch, GPA = 7.14, Cluster 2)

‘No one shared any personal knowledge because no one had any knowledge about the three countries or they thought that the knowledge they had wasn’t useful for the assignment.’
(Participant 311, Male, Italian, GPA = 4.49, Cluster 3)

‘One would have been able to complete the task on his/her own in a similar amount of time, so group work would not have been necessary.’
(Participant 353, Male, Dutch, GPA = 3.78, Cluster 3)

Yet, a small number of Intervention 2 participants (n = 10, 6%) reflected that some group members did have the ability to contribute personal knowledge about an assigned country. However, it was often coincidental (for example, some who had happened to have travelled to an assigned country) and the information provided was relatively shallow and often based on stereotypes. For example:
‘As I have an Arab background I could contribute my knowledge that Saudi Arabia does not need money because they have oil.’

(Participant 381, Male, German, GPA = 9.10, Cluster 1)

‘I recently went to Costa Rica, so I could share some personal experience about what I saw in the country. I passed in front of several schools so I could share my thoughts with my group members.’

(Participant 335, Female, Chinese, GPA = 9.88, Cluster 1)

‘One of our group members stated...the experience of two of his friends who live in Mali, which kind of contradicted the information we obtained through the website [World Bank] and led us to rethink our choice.’

(Participant 371, Female, German, GPA = 6.62, Cluster 2)

‘Some of us immediately knew that one of the countries was very poor and wouldn’t be a good choice because of that.’

(Participant 309, Male, Dutch, GPA = 5.33, Cluster 2)

‘As an American, I automatically felt as if South American countries needed the help the most because I’ve already been informed on the poverty and lack of educational basis in South America.’

(Participant 281, Male, American, GPA = 6.00, Cluster 2)

‘We had the 3 countries Qatar, Lebanon and Panama [in our assignment]. Somebody used to live in Qatar so he told us we could soon exclude Qatar because it is a rich country in his opinion and the education system is good.’

(Participant 372, Male, Dutch, GPA = 7.50, Cluster 2)

Although participants in Intervention 1 often highlighted discomfort when speaking negatively about peers’ countries, a few participants (n = 8, 5%) in Intervention 2 noted that group members used derogatory language when discussing their assigned countries.

‘There were some prejudices involved. For example, one person in my group mentioned that Qatar didn’t need money for education ‘because they were rich as [expletive] anyway.’ This doesn’t really stimulate discussion.’

(Participant 375, Male, Czech, GPA = 4.25, Cluster 3)

‘There might be some bias among the member in the group. For example, some members had prejudices about the fact that Saudi Arabia was involved in war and assumed that the country did not need any support.’

(Participant 410, Female, German, GPA = 3.98, Cluster 3)

Altogether, participants in Intervention 2 highlighted many more tensions related to intercultural group work in comparison to Intervention 1. Although both interventions incorporated internationalised academic content, those in Intervention 2 were more likely to comment on the
lack of influence diversity had on their group work experience. Similarly, more tensions related to bias or stereotypes were commented upon.

7.4 Study 4 Discussion

7.4.1 Implications of Findings

The goal of the second half of this thesis was to analyse whether internationalised academic content could support students through the challenges of working with peers from different countries. In Chapter 6, an analysis and comparison of measurable student behaviours highlighted that internationalised academic content that was personally relevant to students (i.e. was from their own backgrounds) led to small improvements in group work participation. However, as Study 1 and 2 highlighted that students experienced deep sociocultural tensions and challenges in intercultural group work, it was noted in Section 6.4.3 that there was need to further unpack student reflections across the research conditions to demonstrate whether there were improvements in the overall group work experience, as suggested by Reid and Garson (2016). Therefore, Study 4 considered differences in student experiences and reflections when participating in an intercultural group work activity using local versus internationalised academic content (RQ7).

In terms of the Control (i.e. local content) condition, one suggestion was that local content might encourage engagement, as it allowed for a common understanding between participants (Decuyper et al., 2010; Van den Bossche et al., 2011) and matched international students’ motivations for studying abroad (Bodycott, 2009; Eder et al., 2010). To this, Study 4’s findings did indeed raise questions about the role of ‘local’ content in internationalisation. On the one hand, many international students in this study suggested that the Control condition favoured the personal knowledge of Dutch students, which is in line with previous work (Colvin & Volet, 2014; Cotton et al., 2013; Cruickshank et al., 2012). Yet, on the other hand, a sizeable group of international students in the Control condition also reflected that the focus on the local context provided an equal footing for all students to participate, as all students had experiences living in the Netherlands. At the same time, Dutch students frequently noted appreciation for the opportunity to engage with local topics in diverse settings, allowing them to hear multiple perspectives that challenged their preconceived notions on the topic. Therefore, one suggestion is that the adoption of both internationalised and local perspectives can enrich students’ learning in diverse environments. This ties well with arguments of ‘glocalisation’ (i.e. the incorporation of both global and local perspectives in the curriculum) (boyd, 2006; Patel, Li, & Sooknanan, 2011; Patel & Lynch, 2013; Roudometof, 2017). As described by Patel and Lynch (2013, p. 225):
Learning is effective when contextualized within the local context because that context frames the learner’s experience and lived reality. The focus in glocalized teaching and learning is a critical reflection and understanding of important and relevant connections between the local and global perspectives of learners.’

The findings of this study similarly highlighted that it is important not to assume that local is an antonym of international. As some participants noted clear benefits to working with content from the local context, it is worth considering how domestic students’ experiences and local subjects can be positively incorporated into an internationalised curriculum.

Intervention 1 considered the role of personally relevant internationalised content in supporting group work interactions between peers from different countries. In this regard, the findings from Study 4 demonstrated that students on average rated their peers’ contributions more highly when working with content from one another’s own backgrounds. In the qualitative analysis, many Intervention 1 participants highlighted that students’ personal knowledge about the context of the content helped shed new light on the task and on their own understanding of the topic. This provides evidence for previous suggestions that international students can act as ‘ready-made resources’ for sharing their diverse experiences with peers (Brookes & Becket, 2010). Similarly, it provides a strong rationale that incorporating students’ cultures into module assignments leads to activities that ‘cannot be completed satisfactorily without meaningful intercultural interaction,’ as suggested by Leask and Carroll (2011, p. 655).

Yet, the benefits of Intervention 1 were not experienced universally, particularly not for low-performing students. On the contrary, many low-performing students did not recognise the benefits of sharing personal experiences to make inferences beyond the data in this activity. At the same time, they often downplayed their own diversity and did not identify that they had valuable, diverse life experiences worth sharing with their peers. Explanations for this can be found in the findings of Study 2, which highlighted that low-performing students perceived a need for more tolerance of diverse cultures from their peers and described social tensions when working with unknown peers in intercultural group work. Therefore, it is evident that incorporating international content alone is not enough to overcome the barriers faced by low-performing students in building social relationships and overcoming social tensions in diverse modules (Parker et al., 2006; Rienties et al., 2015; Wilcox et al., 2005).

However, these issues were not just concerns for low-performing students. Indeed, students of all academic performance levels highlighted social tensions in Intervention 1. Indeed, many students in Study 4 highlighted discomfort with reflecting on content from their own backgrounds. They were also unsure about how to best discuss diverse subjects unbiasedly and without offending their
peers. In Section 6.4.3 of Study 3, one question raised was whether students want to act as ambassadors or resources from their home country and whether they feel comfortable or prepared for such a role. In this study, it was clear that the incorporation of internationalised content and the expectation that students share personal and potentially sensitive experiences raised new sociocultural concerns. These findings further outline that students need to be provided with resources and tools to build the competencies to engage with content related to one another’s backgrounds in positive, effective ways.

Intervention 2 incorporated content that was from randomly assigned international contexts, but was not necessarily personally relevant to students’ own backgrounds or experiences. Study 3 outlined that participation waivered when students were assigned random internationalised content from contexts outside of their own knowledge. This study illuminates this trend, as participants expressed uncertainties and discomforts when working with materials with which they had no personal connection. Indeed, many students raised the issue that there was no need to make inferences beyond the provided data, thereby limiting their engagement with international and intercultural ideas and topics. These findings link to previous work, which highlighted that groups must be able to form a shared mental model to collaborate successfully (Decuyper et al., 2010; H.-T. Hou & Wu, 2011; Van den Bossche et al., 2011). In this case, when randomly allocated cultural contexts to which no group members had a personal connection, groups faced difficulties with engaging in in-depth discussions and developing positive team interactions. Further, there was more of a reliance on biased information and personal prejudices in Intervention 2. Therefore, it is evident that internationalisation goes beyond simply ‘being international.’ In order to gain the benefits of internationalisation highlighted in recent research (see Section 2.4), curriculum content must be designed in a way that is relevant (or is made to be relevant) to students.

7.4.2 Study Limitations
In Chapter 7, a reflective questionnaire was used as a follow-up investigation to Study 3’s RCT design in order to unpack student experiences using local versus internationalised academic content. In doing so, several limitations of the study are recognised. As in Study 3, it is important to note that this study provided only a small snapshot of student experiences in just one activity, against the backdrop of a wider internationalised curriculum. Therefore, a longitudinal design in future research will be able to provide an understanding of the long-term effects of incorporating internationalised content. Second, although the questionnaire method allowed for responses to be collected from a large sample of participants (nearly all of the Study 3 participants), it is noted that the method does not allow for as in-depth responses as methods such as interviews. Finally, as
noted in previous studies, it is recognised that individual students should not be essentialised as collective identities from entire countries or regions. As this study’s goal was to provide a macro-level understanding of student experiences, further work will be needed in the future to highlight variations between cultural groups in their group work experiences using local versus internationalised academic content.

However, in contrast to previous anecdotal work on internationalised curriculums, this study was conducted using an RCT method to compare student reflections within 48 hours of a group work experience. The study also elicited a multifaceted comparison of group work experiences using local versus internationalised academic content by incorporating both qualitative and quantitative perspectives, building off of Study 3’s analysis of measurable group work behaviours. Altogether, this chapter provides a comprehensive and complex picture of how diverse groups of student encounter and interact with the ‘space and place’ of their assigned academic content. In the next chapter (Chapter 8), a holistic discussion of the contributions made by this thesis to current knowledge is outlined, including implications for future work beyond this PhD.
Chapter 8 - General Conclusion and Discussion

The previous chapters have described the relevant research, methodologies, methods and results of the research that comprised this thesis. This final chapter provides general conclusions and discussions related to the research questions and gaps in current literature. First, the Introduction (Section 8.1) provides a summary of the overarching aims of the research. Section 8.2 then describes and discusses the novel contributions to knowledge to which the studies have contributed. Section 8.3 similarly outlines the methodological contributions of this research. A summary of the research limitations is provided in Section 8.4, followed by implications for practitioners in Section 8.5. Finally, Section 8.6 suggests considerations for further research related to online intercultural collaborations and internationalised academic content.

8.1 Introduction

There is a rising number of international students studying at universities outside of their home countries (Choudaha, 2017; OECD, 2016), with substantial numbers now enrolling in modules with blended or online elements (UKCISA, 2016). Coupled with the increased emphasis on collaborative learning activities (Bertucci et al., 2010), this means that higher education students now have frequent opportunities to work in blended and online settings with peers from different countries (O’Dowd & Lewis, 2016). As outlined in Section 2.2, these opportunities can potentially benefit students’ learning and enrich their lives. However, intercultural group work is challenging, and a plethora of research has outlined that students encounter tensions when working with peers from different countries in blended and online environments (see Table 2.1 for a summary), which limits the potential benefits of contact.

With this narrative in mind, this research has unpacked student experiences during the process of intercultural group work in blended and online settings, as well as evaluate the role of internationalised academic content in supporting collaboration. In doing so, the thesis has addressed the following research questions:

RQ1: How do students’ social relationship networks influence measurable participation in intercultural group work?

RQ2: How do students’ cultural traits influence measurable participation in intercultural group work?
RQ3: What sociocultural tensions do students experience when working with diverse peers in intercultural group work?

RQ4: What role do students feel internationalised academic content can play in supporting intercultural group work experiences?

RQ5: How does local versus internationalised academic content impact upon measurable participation in intercultural group work?

RQ6: How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work?

RQ7: How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content?

This first half of this thesis captured a detailed picture of student behaviours and experiences during online intercultural group work assignments. In doing so, it unpacked the intersection of three underlying challenges outlined in recent literature: differentiation in social relationship networks, cultural differences in behaviours and participation variations during group work activities (for a summary of the related literature, see Sections 2.3.1 through 2.3.3). As suggested in Section 2.3.4, a prominent gap in recent research was a lack of understanding about the overlaps between these three underlying challenges. Therefore, one goal was to provide a picture of students’ holistic experiences during online intercultural group work by analysing the relationships between these expressed group work challenges. The relationship between these elements that was illuminated by this research is represented in Figure 8.1. The contributions to current research that resulted from this work are discussed in Section 8.2.
The sociocultural tensions encountered by students in online intercultural collaborations made apparent that students required a resource or intervention to elicit positive group work experiences. Yet, as outlined in Section 2.3.4, there are gaps in current understanding about how to best support students when collaborating with peers from different countries. As such, this research focused specifically on the potential for internationalised academic content to act as a support system, as previous research provided evidence for its role in encouraging participation and engagement (see Section 2.3.3). However, the evidence to support this claim is sparse and relied primarily on anecdotal data without a baseline of student behaviours encountering local content, making it difficult measure the added value of internationalisation. Therefore, the second goal of this thesis was to critically evaluate and compare student behaviours and experiences across different ‘spaces and places’ of academic content. The variations adopted in this research are summarised in Figure 8.2.
With these ideas in mind, the sections that follow review the research’s novel contributions to knowledge in relation to three primary areas:

1. Unpackaging student behaviors and experiences during intercultural group work
2. Evaluating the role of internationalized academic content in supporting students during intercultural group work
3. Providing methodological insights

The key contributions are outlined in bullet form, followed by an in-depth discussion in relation to current research. The results of this research are of interest and value to both lecturers and higher education administrators as they consider incorporating international elements into their university curricula and online learning programmes.

8.2 Contributions to Knowledge

8.2.1 Intercultural Group Work Challenges

*RQ1: How do students’ social relationship networks influence measurable participation in intercultural group work?*

- The number of contributions to an online intercultural group work activity can be predicted by the amount of diversity present within students’ social relationship networks.
- The size of students’ social networks (i.e. how many friends they have) does not have an impact on measurable participation quantity.
RQ2: How do students’ cultural traits influence measurable participation in intercultural group work?

- The amount of contributions to an online intercultural group work activity can be predicted by the overarching cultural traits of students’ countries of origin.

RQ3: What sociocultural tensions do students experience when working with diverse peers in intercultural group work?

- Students experience challenges and discomforts when working with peers with whom they do not have established social relationships.
- The perceptions of sociocultural tensions in intercultural group work are more profound for low-performing students.

Previous work outlined that students face challenges in building social relationships with peers from different countries (Section 2.3.1), interacting with cultural differences in behaviours (Section 2.3.2) and coping with participation variations (Section 2.3.3). However, few studies have considered how these three underlying challenges interact with one another to influence the group work experience, particularly in online and blended settings. Previous work has also relied primarily on subjective evidence from student reflections of problems, which have been largely unverified by analysing whether actual, measurable differences in observed behaviours exist. By incorporating a mixed methods design that triangulated both measurable behaviours and student reflections on intercultural group work challenges, the findings have provided a stronger empirical foundation for understanding student experiences when working with peers from different countries. In many ways, this research focused on ‘myth-busting’ current understandings of this complex topic by corroborating and unpacking anecdotal findings with novel empirical evidence.

In terms of social relationships, the findings outlined that the amount of diversity present in students’ social relationships within their module impacted how much they contributed to online group work. This has provided empirical evidence for suggestions by previous researchers, such as Kimmel and Volet (2012), who argued that ‘cohort-like’ modules might improve student satisfaction in group work. This has also provided evidence for such claims that students require time for ‘socialising and a sense of group solidarity’ (Davies, 2009, p. 574). Indeed, the qualitative element of this research (Chapter 5) suggested that many students feel that social relationships are important supports for group productivity or, in some cases, even essential to the ability of groups to work together. This adds precedence to the suggestion that more attention is needed on the
social conditions that underpin collaboration (Decuyper et al., 2010; Kirschner et al., 2015), particularly when students are working in ‘impersonal’ blended and online contexts.

At the same time, deep inequalities in social relationship networks between students were highlighted. Study 2, in particular, outlined that low-performing students were more likely to perceive sociocultural tensions when working with peers from different countries. Low-performing students also tended to emphasise that they needed opportunities to build social relationships with their group members in order to be successful. These findings are a substantial contribution to knowledge that has considerable consequences for students, especially as previous work has outlined that social support systems are essential factors for student transitions to university life (Maunder et al., 2013). Previous research has indicated that low-performing students often enter university with fewer interpersonal competencies (Parker et al., 2006) or withdraw from their social networks after arrival (Wilcox et al., 2005). Low-performing students also tend to have smaller established social networks compared to high-performing students (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015). In intercultural contexts, this research demonstrated that low-performing students often feel marginalised within the social space of the module. Therefore, it is evident that low-performing students, in particular, require additional support systems for building social relationships with peers in their modules.

In terms of cultural differences, previous work outlined that students perceived peers from other countries had different learning behaviours and expectations (Section 2.3.2). However, there have been few evaluations of whether there are indeed broad differences in measurable behaviours in online intercultural group work based on cultural traits. This thesis, therefore, has contributed to current knowledge an empirical verification of student perceptions. Indeed, the findings indicated that the amount of contributions students made could be predicted by the broader cultural traits from their country of origin. These cultural variations in measurable student behaviours during group work may in part explain the frustrations that students experience when working with peers from different backgrounds (Capdeferro & Romero, 2012; Kimmel & Volet, 2012; P. Moore & Hampton, 2015; Popov et al., 2012; Strauss et al., 2011). For instance, Popov et al. (2012) noted that participation variations were a top complaint of students in intercultural group work. Building off of this work, these findings make clear that students need support in building explicit soft skills such in addition to academic knowledge, including intercultural competencies and multifaceted perceptions of ‘good’ group work behaviours across different cultural contexts.

These sociocultural influences on group work participation provide a more nuanced understanding of the ‘free-riders’ phenomenon (i.e. those who contribute very little to group work activities) (Davies, 2009; D. Hall & Buzwell, 2013; Singaram et al., 2011; Strijbos & de Laat, 2010). Previous
work in online learning contexts has outlined strong variations in how much students participate during online group work (Section 2.3.3). However, research has mostly ignored how sociocultural factors, such as cultural background and social relationships, influence those measurable differences. This research has filled that gap by demonstrating the predictive power of students’ cultural traits and social networks on participation quantity. At the same time, the qualitative element developed a deeper understanding of why participation waivers for some students and what support systems are needed to encourage equal participation.

These differences in student behaviours and experiences are a challenge to the perceived benefits of international education and intergroup contact (outlined in Section 2.2). For instance, Allport (1954) argued that successful intergroup contact occurs under four conditions:

1. Participants must have the perception of equal status and engage equally in communication.
2. Participants must be working towards a common goal.
3. Participants must be in cooperation with one another.
4. Participants must be supported by authority figures.

The picture of online intercultural group work unveiled by this research indicated that all four of these conditions are not being met simply by ‘forcing’ students to work with one another. Indeed, in line with previous work (summarised in Table 2.1), these findings have demonstrated that students encounter challenges and tensions when working with peers from different countries. The root causes unveiled in this work provide a stepping stone for understanding what is needed to support positive group work experiences. In the second half of this thesis, one evidence-based consideration was analysed: the internationalisation of academic content, which will be discussed next.

8.2.2 Internationalised Academic Content

RQ4: What role do students feel internationalised academic content can play in supporting intercultural group work experiences?

- Students value the opportunity to learn from the diverse viewpoints of peers from different countries.
- Students perceive that assignments with locally-based content favour the background knowledge and experiences of domestic students.
• Mid- to low-performing students, in particular, seek opportunities to share their personal experiences and engage with culturally-relevant assignments.

**RQ5: How does local versus internationalised academic content impact upon measurable participation in intercultural group work?**

• Internationalisation of academic content can lead to small increases in measurable participation on an individual level.
• Internationalisation of academic content can predict more equal contributions between group members.
• Overall, the effect sizes of measurable changes to behaviours were small to medium, which indicated that internationalisation alone is not enough to overcome group work challenges.

**RQ6: How does personally relevant versus randomly assigned internationalised academic content impact upon measurable participation in intercultural group work?**

• Measurable differences in participation rely upon internationalised academic content that is personally relevant and meaningful to students.
• Internationalised academic content that is randomly assigned (i.e. not personally relevant) can lead to decreases in overall participation and larger gaps in contributions between group members.

**RQ7: How do students’ reflections of their intercultural group work experiences differ when assigned local versus internationalised academic content?**

• Students on average rate their group members’ contributions higher when working with personally relevant internationalised academic content.
• Students encounter sociocultural tensions when working with content with their own backgrounds, including fear of offending peers or discomfort with hearing ‘negative’ things about their own countries.
• Many low-performing students downplay their own diversity and do not view the personal life experiences and perspectives they can share with their peers as valuable.
• Students face uncertainties and discomforts when working with randomly assigned internationalised academic content that is not personally relevant.
Previous work has suggested that incorporating internationalised academic content can support students’ engagement and participation in collaborative activities (see Section 2.4.2). Yet, there is currently a scarcity of empirical studies that have examined measurable differences in student behaviours, especially in blended and online learning environments. Nonetheless, there is a rising trend of universities incorporating international elements into their formal and informal curricula (Leask, 2009). In light of recent criticism of internationalisation agendas (Andreotti & de Souza, 2012; Andreotti et al., 2009; T. Kim, 2010), it is important for these decisions to be evidence-based. This thesis has contributed to this gap by providing an empirical analysis and critical evaluation of student experiences with assignments using internationalised academic content.

In line with previous suggestions (Andreotti & de Souza, 2012; Andreotti et al., 2009; T. Kim, 2010), the research found that there were indeed improvements in measurable participation and engagement when group work activities incorporated internationalised academic content. Perhaps most profound was that students demonstrated they valued peer contributions more when discussing international topics. This links with previous suggestions that international students should act as ‘ready-made resources’ (Brookes & Becket, 2010) for intercultural learning. Similarly, it suggested that internationalisation can support intergroup contact by providing a platform for Allport (1954)’s four conditions, such as allowing students to contribute equally, work towards common goals and be in cooperation with one another.

The randomised control trial research design also allowed for a comparison of student behaviours against a baseline of ‘local’ content. These findings outlined that the effect sizes of improvements in group work behaviours and reflections were small to medium. This suggested that internationalisation alone is not enough to overcome the sociocultural challenges experienced by students in online intercultural group work. Therefore, it is important not to overstate the added value of internationalisation, at least on an individual assignment level.

The second gap in research on this topic was a conceptualisation of what ‘internationalised’ content means and how the different ‘spaces and places’ of assigned content impacted student experiences. In this regard, the findings made clear that the benefits of internationalisation are not ascertained simply by assigning students content from outside the local context. Rather, the content must be personally relevant and contextualised to students’ own backgrounds and experiences. In the absence of this contextualisation, students in this research failed to engage with the materials and deemed intercultural learning as ‘unnecessary’ to complete the assignment. This compromises Leask and Carroll (2011, p. 655)’s suggestion that internationalised assignments ‘must be designed in a way that, because of their very nature, they cannot be completed satisfactorily without a meaningful intercultural interaction.’ One caution, then, is that internationalised content
can actually decrease student interaction and engagement with intercultural ideas when assignments fail to be relevant to students’ own lives and experiences.

At the same time, incorporating content from students’ own backgrounds brought up new complexities and challenges. In line with other work (Dunne, 2009; N. Harrison & Peacock, 2010; Stephan & Stephan, 2000; Strauss et al., 2011), the qualitative findings in Study 4 demonstrated that students encountered uncertainties and anxieties about offending their peers with insensitive statements or questions. Some students also outlined fears that their own country would be portrayed negatively, while others felt pressured to paint their country in the best light. Therefore, it is apparent that students require resources to build the skills and confidence to discuss intercultural topics with sensitivity and respect. Previous research described that intercultural competencies are an outcome of internationalisation (Brooks et al., 2012; L. Brown, 2009; Caffrey et al., 2005; Jones, 2010; Leask, 2013; Tran & Pham, 2016). This research alternatively argued that intercultural competencies must be explicitly taught from the outset of educational programmes in order to encourage positive interactions and experiences.

One prominent group requiring additional resources are low-performing students. In Study 2, low-performing students demonstrated challenges building social networks with their peers. Low-performing students further suggested that internationalised academic content might provide them with a pathway to share personal experiences and overcome feels of marginalisation. However, this was not the lived reality for many low-performing students when it came to actual group work experiences in Study 3 and 4. In the qualitative analysis of Study 4, students in Intervention 1 often downplayed the value of their own diversity, despite the fact that they were assigned to discuss content from their own countries as representatives to their peers. Indeed, low-performing students often commented that the assignment did not require personal information or inferences beyond the data. This was in stark contrast to mid- to high-performing students, who more recognised their role in acting as ‘transcultural wisdom banks’ (Chang, 2006). Therefore, this research has contributed that there are variations in students’ willingness and ability to act as resources for their peers and that more attention is needed on how to encourage low-performing students to reflect their diverse experiences.

Altogether, these findings indicated that internationalisation is not a ‘magic wand,’ and that intercultural learning does not occur automatically with increased access to peers and materials from other countries. The design of internationalised group work assignments needs to be purposeful with consideration for the sociocultural environments that underpin and influence collaboration.
8.2.3 Summary of Contributions to Knowledge

In the introductory chapter, Figure 1.1 outlined a proposed model for assumed factors in this research that would influence online intercultural group work experiences. In light of the findings described in the preceding chapters of this thesis, the model has been revised in Figure 8.3.

Figure 8.3 Revised key variables impacting intercultural group work experiences

Many of the key variables from the original model were supported by evidence in this research. These include: academic performance (Studies 1, 2 and 4), cultural traits (Studies 1 and 3), social relationships (Studies 1, 2 and 4), cultural differences in behaviours (Studies 1 and 3) and participation (Studies 1 and 3). One new emergent factor was that of language, as participants in both Studies 2 and 4 highlighted that communication relied upon the group having a common lingua franca (in this case, English). This is in line with recent research, which has outlined language preferences and challenges in intercultural group work (Colvin et al., 2015; Liu et al., 2010; Montgomery & McDowell, 2009; Popov et al., 2012; Strauss et al., 2014; Volet & Jones, 2012).

Several important changes are reflected in this revised model. The most substantial is that internationalised academic content has been separated into two categories: personally relevant and randomly assigned. A key finding in this research was that the ‘space and place’ of academic content impacts participation and experiences. It was also outlined that internationalisation is not
‘one size fits all’; the degree of relevance to participants’ own backgrounds and experiences has strong implications for behaviours and experiences.

Next, although gender had been highlighted in previous work as an influence on group work behaviours and experiences (Al-Harthi, 2005; Muilenburg & Berge, 2005; C. T. Williams & Johnson, 2011), it was not significant in this research. Participation in the group work activities and reflections of group work experiences were similar between men and women across all four studies. For this reason, gender has been removed from the model.

Additional added elements are the interconnected links between several of the key variables. For instance, one important finding was the connection between academic performance and social network building (Studies 1, 2 and 4). The research undertaken has also evaluated the relationships between underlying influences impacting group work challenges, as visualised in Figures 2.1 and 8.1. Therefore, these links have been depicted in the model in light of these conclusions. Altogether, the findings throughout this thesis, as evidenced in Figure 8.3, depicted the complex, multifaceted and interweaving factors that influence student experiences when working in online intercultural group work settings.

8.3 Methodological Contributions

In addition to contributing to current knowledge about online intercultural group work and internationalised academic content, this research has also made several methodological contributions worth noting. First, the findings demonstrated the value of incorporating quantitative tools, such as learning analytics and social network analysis, to examine complex social phenomena. Previous work on intercultural group work experiences relied primarily on anecdotal evidence through the perspective of student reflections of their experiences (Kimmel & Volet, 2012). Although these findings are valuable, there is potential for self-report biases due to incomplete or inaccurate recollection of actual experiences. By including data related to measurable student behaviours, as done in previous learning analytics research (see, for example: Buckingham Shum & Deakin Crick, 2012; Kizilcec et al., 2017; Mittelmeier, Tempelaar, et al., 2016; Rienties & Toetenel, 2016; Tempelaar et al., 2017b), and comparing it with student reflections, this research has provided novel, multifaceted insights into an established problem (as summarised in Figure 8.3). Therefore, it is worth considering in future education research how such quantitative tools can triangulate and corroborate research findings by analysing measurable differences in student behaviours alongside their reflections.
Conversely, a second methodological contribution is the evidence that learning analytics, a highly quantitative field, should also incorporate sociocultural elements when modelling student learning behaviours. After all, findings from this research indicated that factors such as social relationships and cultural backgrounds impacted the learning analytics data retrieved from the virtual learning environments. This is in line with previous work (Kizilcec et al., 2017; Mittelmeier, Tempelaar, et al., 2016; Tempelaar & Verhoeven, 2016), which has indicated that the inclusion of Hofstede’s cultural dimensions can improve learning analytics models. Yet, learning analytics research at present has a tendency to homogenise students’ backgrounds by not including variables related to cultural diversity in the analysis. When such variables are included in models, they are often oversimplified, for instance by designating cultural background through a simple ‘yes/no’ dichotomy of international student status (Colthorpe et al., 2015; de Freitas et al., 2015; Gašević et al., 2016). This present research demonstrated that, beyond these measures, there are indeed sociocultural factors which influence the data that is being collected through online learning environments. These notions have important implications for learning analytics research and the assumptions embedded within findings in the field.

In summary, this research has provided a dynamic bridge between learning analytics and sociocultural elements, as depicted in Figure 8.4. In doing so, it has further highlighted that an analysis of both student behaviours and the sociocultural elements that impact these behaviours or experiences are needed to provide a nuanced and well-rounded understanding of complex subjects.

**Figure 8.4 Visualisation of methodological contributions**

![Diagram showing the relationship between Learning Analytics and Sociocultural Elements]

### 8.4 Research Limitations

This research used a rigorous mixed methods approach to unpack student behaviours and experiences during online intercultural group work activities and to evaluate the role of
internationalised academic content in supporting students while collaborating with peers from different countries. In doing so, there are several recognised limitations to the research methods and choices adopted. The first is the decision to ‘quantify’ cultural traits using Hofstede’s cultural dimensions scores. As noted in previous work (G. L. Harrison & McKinnon, 1999; Jacob, 2005; McSweeney, 2002), there are concerns that Hofstede’s theory generalises or essentialises individual identities by ignoring intra-national diversity and individual variations from macro-level trends of national membership. Therefore, it is important to keep in mind that the quantitative elements have provided only a macro-level review of general trends related to cultural differences in behaviours and experiences and that these trends cannot necessarily be prescribed upon individual students. For this reason, qualitative elements, including interviews and open-ended questionnaires, have been incorporated into the research design to triangulate and confirm quantitative findings. Nonetheless, the addition of Hofstede’s cultural dimension scores significantly improved the fit of the models and is an easy way for researchers and teachers to move beyond the simple yes/no dichotomy of international students.

Second, this research has primarily focused on issues related to the group work process and experience, and it has not attempted to review issues of contribution quality. This was primarily because recent research has highlighted that contribution quantity can serve as a proxy for quality (H.-T. Hou & Wu, 2011; S. Knight, 2016; Rienties et al., 2009; Schellens & Valcke, 2005), and Allport (1954) outlined equal contributions as one of four key requirements for successful intergroup contact. However, it is recognised that quality of group work contributions is an invaluable element of learning outcomes in collaborative learning activities. As suggested in related theoretical work (Hrastinski, 2008, 2009), participation is complicated and at times goes beyond the sheer number of contributions. Therefore, it is important for future work to build on these findings by considering whether there are also measurable differences in quality within students’ contributions in intercultural group work. The findings from this research form a strong foundation for related work on this topic.

Third, this research has included in-depth analyses of single activities within wider internationalised curriculums. This has provided an understanding of the complex effects that curriculum choices have on students’ module experiences. However, one suggestion for future research is an analysis of how internationalisation impacts students’ behaviours and reflections longitudinally. After all, Leask (2009) has outlined that the ideal form of internationalisation includes a holistic encompassing of international elements in the formal, informal and hidden curricula. Therefore, it is worth considering whether the differences outlined are more or less profound after prolonged experience with diverse academic content and peers from different countries. However, this was beyond the scope of this PhD.
Fourth, it is important to recognise that two of the studies (Studies 1 and 3) were completed in a laboratory environment. As these computer laboratory sessions were a regular part of the modules in which these studies operated, the research analysed an authentic blended learning task for the participants. However, students working in face-to-face or in online environments in their own contexts (i.e. outside of a laboratory – in their home, for instance) may demonstrate different behaviours. This is an important consideration for future research.

Finally, it is recognised that this research was conducted at two universities that already have strong focuses on internationalisation within their university agendas and curricula design. Therefore, it is recognised that there could be a sampling bias in regards to the types of students who choose to enrol in a programme with an international focus. One consideration, then, is whether students at these universities have more interest and experience in working with diverse content and peers. At the same time, students at universities without an internationalisation agenda may encounter increased differences in behaviours and experiences.

8.5 Practical Implications

The findings outlined in this thesis have practical implications both for university lecturers who teach within highly diverse environments and for higher education administrators who engage with internationalisation agendas. Although the work outlined in this thesis focussed specifically on blended and online contexts, it is recognised that many of these suggestions are applicable in face-to-face contexts as well.

For university lecturers of international students, there are important challenges surrounding sociocultural tensions that students experience when ‘forced’ to work in online intercultural group work activities. With these ideas in mind, this research has outlined a few practical suggestions for supporting students when working with peers from different countries:

1. **Allow students opportunities to form social connections with their assigned group work members and with the wider module participants before they must work together.** This research demonstrated that students with larger and more diverse social networks in the module contributed more to intercultural group work activities. This suggestion is also supported by previous research, which has indicated that the social environment is a powerful influence on collaborative learning behaviours (Davies, 2009; Kimmel & Volet, 2012; Kirschner et al., 2015; Kreijns et al., 2013; Remesal & Colomina, 2013; J. C. Richardson et al., 2017; Rienties & Héliot, 2016; Rienties et al.,
2015), and with calls for an increased support for network building (Crafter & Maunder, 2012; Davies, 2009; Decuyper et al., 2010; Van den Bossche et al., 2006). Therefore, it is important to build into the module schedule opportunities for students to get to know their peers as a foundation for working academically together. These opportunities are especially vital for low-achieving students, who in this research demonstrated more uncertainties and discomfort when working with unknown diverse peers.

2. Explicitly teach students how to work effectively with people from different backgrounds, in addition to the academic content. Findings outlined that cultural backgrounds impact the ways in which students contribute and approach group activities. Therefore, students need support and scaffolding for building soft skills necessary for intercultural collaboration, including intercultural competencies and tolerance.

3. Provide feedback on the group work process. It was evident across the studies conducted that students faced uncertainties about how to work considerately and effectively with peers from different countries. Therefore, it is necessary for students to receive feedback not just on the subject-related outputs of a group activity, but also on the process of working with one another (Decuyper et al., 2010; Jindal-Snape & Rienties, 2016; Rienties, Willis, Alcott, & Medland, 2013). This will provide students with resources for improving their interactions with peers in different countries in future group work assignments.

4. Provide increased opportunities for students to work in intercultural teams. Previous research has outlined that students prefer to work with peers from their own background (Fozdar & Volet, 2012; N. Harrison & Peacock, 2010; P. Moore & Hampton, 2015; Rienties, Héliot, et al., 2013; Singaram et al., 2011). At the same time, this research found that students recognised benefits of working with students from different countries. Relevant research has also addressed that students learn more when working with diverse groups (Bliss & Lawrence, 2009; Daly et al., 2015; Denson & Zhang, 2010; Lavy, 2017; Rienties et al., 2014; Rienties, Hernandez Nanclares, et al., 2013). Therefore, it is recommended that module activities encourage students to
interact with people from different backgrounds, despite their tendencies to select group members from their own culture, by assigning group work members and diversifying allocation to small groups or breakaway tutorials (Rienties et al., 2014).

5. Incorporate international elements into the curriculum that are relevant to students’ backgrounds. This research found measurable improvements in behaviours and experiences when working with internationalised academic content from their own countries. This is in line with prior work, which suggested students can act as resources for promoting intercultural learning (Bodycott et al., 2014; Brookes & Becket, 2010; Leask & Carroll, 2011). At the same time, participation and group work reflections were negatively affected by content from randomly assigned international contexts to which students had no personal connection (i.e. outside students’ own backgrounds). Therefore, lecturers should incorporate content that is meaningful to students’ own experiences and backgrounds. This links with suggestions for ‘the offering of pedagogically responsive and culturally appropriate curricula to a student population which is increasingly massified and diversified’ (Q. Gu & Schweisfurth, 2011, p. 614).

6. Incorporate local contexts and domestic student experiences within the process of internationalisation. In this research, domestic students highlighted that working with peers from different countries about locally relevant topics broadened their understanding and challenged assumptions about content from their own background. At the same time, some international students noted that local content put group members on an ‘even’ footing as they all had experience living in the country where the university is located. This is in line with arguments related to ‘glocalisation’ of the curriculum (boyd, 2006; Patel et al., 2011; Patel & Lynch, 2013; Roudometof, 2017). Therefore, it is important to keep in mind that ‘local’ and ‘international’ are not antonyms and that there is a vital place for local voices and experiences within an internationalised curriculum.

The findings also outlined that there are variations in the ways in which students interact with the different ‘spaces and places’ of assigned content. Therefore, lecturers should keep in mind that the location of the assigned content may lead to different types of engagements and interactions. One suggestion from this research, therefore, is for lecturers to mindfully consider the purposes of their
collaborative assignments, and choose academic content that is appropriate for the relevant assignment goals. These are summarised in Figure 8.5.

**Figure 8.5 Suggested purposes for different types of academic content**

1. **Do not assume that the presence of diversity will automatically benefit students’ university experiences.** The findings outlined that students experience strong sociocultural challenges when ‘forced’ to work with peers from different countries, a theme common in recent research (see Table 2.1). Therefore, it is important to keep in mind that ‘internationalisation’ encompasses more than the sheer presence of diversity. Without scaffolding and support to navigate the challenges outlined in this research, students are unlikely to gain tangible benefits from an increased number of international students in their modules.
2. **Provide students with opportunities to form social connections with peers from different countries.** This research found that social relationships between students were powerful influences on their participation and reflection of their educational experiences, which is in line with recent research behaviours (Davies, 2009; Kimmel & Volet, 2012; Kirschner et al., 2015; Kreijns et al., 2013; Remesal & Colomina, 2013; J. C. Richardson et al., 2017; Rienties & Héliot, 2016; Rienties et al., 2015). Therefore, universities should provide relevant social programming to support relationship building between students from different countries and cultures.

3. **Keep in mind that international elements do not necessarily elicit the benefits of internationalisation.** This research highlighted that internationalisation is about more than simply incorporating case studies from different countries. Curricula and assignments must also be personally relevant to students’ own experiences and backgrounds research (Brookes & Becket, 2010; L. Brown, 2009; Chang, 2006; Cruickshank et al., 2012). Indeed, one prominent finding was that international content that is not connected to students own experiences can actually decrease participation and student reflections of their intercultural group work experiences.

4. **Embed intercultural competencies within the university agenda.** Research commonly refers to intercultural competencies as an outcome of internationalisation (Bodycott et al., 2014; L. Brown, 2009; Caffrey et al., 2005; Leask, 2009). This research, in contrast, argued that intercultural competencies are instead an essential foundational requirement for successful academic interactions between students from different countries. For internationalisation agendas to be successful, they must embed toolkits for interaction in diverse environments.

### 8.6 Future Research Directions

There are a number of directions that future research could extend the work outlined in this thesis. One contribution of this work was that student behaviours and experiences were improved through internationalisation only when the content was personally relevant. However, that is not to say that students cannot learn valuable information about cultures and contexts outside of their backgrounds. For example, a case study set in China has the potential to teach non-Chinese students about an unfamiliar culture and expand their understanding of the academic content (Guo
& Guo, 2017; J. Knight, 2004). The challenge, however, is how to make such content personally meaningful and relevant. Therefore, future research should consider tangible steps lecturers and universities can take to contextualise information from new backgrounds in ways that are consequential to students’ own lives.

Throughout the four empirical studies, low-performing students encountered increased challenges in developing social relationships with peers. They also felt unsure about how to contribute their own diverse experiences when working with internationalised academic content. This is in line with previous research (Gašević et al., 2013; Hommes et al., 2012; Rienties et al., 2015; Singaram et al., 2011). Therefore, one important gap moving forward is in how to best support low-performing students to transition and contribute within highly diverse modules. Future research should explore how to tailor resources and interventions that specifically target students at risk of low performance and unsuccessful completion of the module.

A final key issue left unexplored is the role of teacher experiences. The findings have outlined that students at times feel uncomfortable when working with content from their own and others’ backgrounds. Relevant challenges included fears of offending their peers with inconsiderate questions or comments, as well as feeling uncomfortable discussing ‘negative’ aspects of one another’s cultures. One suggestion moving forward with this research is whether teachers also experience discomforts in delivering internationalised and intercultural academic content. For example, Childress (2010) argued that teaching staff may not be prepared to engage with diverse students and topics. Q. Gu (2005) similarly highlighted that previous intercultural experiences impacted teacher awareness of culturally sensitive pedagogies. However, there are presently gaps in current research about whether teachers feel comfortable or prepared to engage students with content from outside of their own background. Therefore, more research is needed to understand the role of teachers in internationalisation agendas.

8.7 Concluding Remarks

The introduction to this thesis began with sentiments from J. William Fulbright about the value of international education and its potential to transform lives. These values have driven this work in a quest to unpack student experiences with challenges during online intercultural collaboration. Yet, with an eye towards realism, the research has provided evidence that without resources to support students as they navigate internationalised university environments these sentiments remain only that: a potential.
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Appendix 1: Study 1 Social Network Survey Consent Form

Participant Information Sheet

Study title: Encouraging interdisciplinary learning using a case study

What is the purpose of the study?
We are inviting you to take part in a study that explores how groups work together to complete a case study. This study will also look at whether different group compositions play a role in task behaviour and discourse, and how social relationships impact how groups work together.

Why have I been approached?
For the purposes of the study we need to recruit a number of groups of university students.

Do I have to take part?
No. Participation is entirely voluntary. If you change your mind about taking part in the study you can withdraw at any time in the two weeks following the completion of this survey. If you decide to withdraw, all your data will be destroyed and will not be used in the study. There are no consequences to deciding that you no longer wish to participate in the study.

What happens during the study?
You will be presented with a survey that will take approximately 10 minutes of your time. The survey will ask you to mark the classmates that you consider you have a social relationship with. Later in the term, you will be invited to participate in a laboratory-based small group activity. Should you wish to also participate in this activity, the information you provide today will be used during the data analysis of group behaviours.

In collaboration with Dr YingFei Héliot, we will collate demographic data for analysis about how students learn and work together including your student username, course of study, nationality, gender and your final examination grade.

What are the possible disadvantages and risks of taking part?
We do not anticipate any risks associated with participation in this study.

What are the possible benefits of taking part?
You will gain an insight into how a research project is conducted and what it is like to be a participant in such a study. You will also be provided with an anonymised summary of your module’s social relationship patterns.

Will my taking part in this study be kept confidential?
Yes, no personally identifying information will be shared. Your stated relationships will only be available to the research team and will never be shared with your classmates.

What will happen to the results of the research study?
This research forms part of Jenna Mittelmeier’s doctoral research at the Open University, supervised by Dr Bart Rienties and Professor Denise Whitelock. The research is being undertaken in collaboration Dr YingFei Héliot at the University of Surrey.

The data will be kept in full until January 2021 (whichever is later), after which it will be reviewed with a view to full anonymisation (i.e. we will delete any personal data we still hold on you, but keep the anonymised data). The data will be reviewed after that point with a view to full deletion when appropriate. Data stored will be kept in a password protected file in accordance with the data protection act.
Who is organising and funding the research?
The research is organised by Ms Jenna Mittelmeier, who is a research student at the Open University’s Institute of Educational Technology. It is not externally funded.

Who has reviewed the study?
The Open University Ethics Committees has reviewed and approved this study.

Contact for Further Information
Ms Jenna Mittelmeier
Institute of Educational Technology
Walton Hall, Milton Keynes MK7 6AA
Email: jenna.mittelmeier@open.ac.uk

Consent
This study and these materials have been designed in accordance with the British Psychological Society code of ethics (2010), and (subordinate to that code) the guidelines for internet mediated research (2013) in addition to the University of Surrey and The Open University’s ethics and data protection guidance and procedures and the associated regulatory frameworks.

Agreement to participate

I ______________________________________________________________________ (print name)
agree to take part in this research project
  • I have had the purposes and process of the research project explained to me
  • I have been informed that I may withdraw my participation, and data at any point by simply saying so
  • I have been assured that my confidentiality will be protected as specified in the information sheet
  • I understand that some personal data about me as detailed above may be shared within the research team, and consent to The University of Surrey sharing such details for research purposes
  • I agree that the information that I provide can be used for educational or research purposes, including publication and wider dissemination of the research.
  • I understand that if I have any questions or difficulties I can contact: Jenna Mittelmeier, at the Institute of Educational Technology, Open University, jenna.mittelmeier@open.ac.uk
  If I want to talk to someone else about this project, I can contact: Dr Bart Rienties, at the Institute of Educational Technology, Open University, bart.rienties@open.ac.uk

___________________________________________________________________________ (Signature)  ________________ (Date)
____________________________________ (Assigned Group Number)
Appendix 2: Study 1 Computer Laboratory Consent Form

Participant Information Sheet

**Study title:** Encouraging interdisciplinary learning using a case study

**What is the purpose of the study?**
We are inviting you to take part in a study that explores how groups work together to complete a case study. This study will also look at whether different group compositions play a role in task behaviour and discourse. This study will also look at whether different group compositions play a role in task behaviour and discourse, and how social relationships impact how groups work together.

**Why have I been approached?**
For the purposes of the study we need to recruit a number of groups of university students.

**Do I have to take part?**
No. Participation is entirely voluntary. If you change your mind about taking part in the study you can withdraw at any point during the session and at any time in the two weeks following the session. If you decide to withdraw, all your data will be destroyed and will not be used in the study. There are no consequences to deciding that you no longer wish to participate in the study.

**What happens during the study?**
You will be presented with a case study that explores a topic recently covered by your coursework. Each of your group members will be given information and data about the problem you are presented. Your group will work together using an online chat to come to a consensus about a solution to the problem. You will be assigned to work in a location which is not adjacent to your group members.

In collaboration with Dr YingFei Héliot, we will collate demographic data for analysis about how students learn and work together including your student username, course of study, nationality, gender and your final examination grade. If you filled out the social network survey about your social relationships in class, this data will also be compared with data from this study.

**What are the possible disadvantages and risks of taking part?**
We do not anticipate any risks associated with participation in this study.

**What are the possible benefits of taking part?**
You will gain an insight into how a research project is conducted and what it is like to be a participant in such a study. The task is relevant to all students as it incorporates transferable skills around collaboration and finding information. This activity will also give you practice with a real-world task associated with topics discussed in your course.

**Will my taking part in this study be kept confidential?**
Yes, no personally identifying information will be shared.

**What will happen to the results of the research study?**
You will log in using your university ID to the University of Surrey Virtual Learning Environment. A log of your chat will be saved and analysed, however all identifying information will be kept passworded, and will not be associated with the anonymous data collected.
This research forms part of Jenna Mittelmeier’s doctoral research at the Open University, supervised by Dr Bart Rienties and Professor Denise Whitelock. The research is being undertaken in collaboration Dr YingFei Héliot at the University of Surrey.

The data will be kept in full until January 2021 (whichever is later), after which it will be reviewed with a view to full anonymisation (i.e. we will delete any personal data we still hold on you, but keep the anonymised data). The data will be reviewed after that point with a view to full deletion when appropriate. Data stored will be kept in a password protected file in accordance with the data protection act.

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Contact for Further Information
Ms Jenna Mittelmeier
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Email: jenna.mittelmeier@open.ac.uk

Consent
This study and these materials have been designed in accordance with the British Psychological Society code of ethics (2010), and (subordinate to that code) the guidelines for internet mediated research (2013) in addition to the University of Surrey and The Open University’s ethics and data protection guidance and procedures and the associated regulatory frameworks.

Agreement to participate

I ____________________________ (print name) agree to take part in this research project

• I have had the purposes and process of the research project explained to me
• I have been informed that I may withdraw my participation, and data at any point by simply saying so
• I have been assured that my confidentiality will be protected as specified in the information sheet
• I understand that some personal data about me as detailed above may be shared within the research team, and consent to The University of Surrey sharing such details for research purposes
• I agree that the information that I provide can be used for educational or research purposes, including publication and wider dissemination of the research.
• I understand that if I have any questions or difficulties I can contact: Jenna Mittelmeier, at the Institute of Educational Technology, Open University, jenna.mittelmeier@open.ac.uk

If I want to talk to someone else about this project, I can contact: Dr Bart Rienties, at the Institute of Educational Technology, Open University, bart.rienties@open.ac.uk

__________________________ (Signature)  ________________(Date)
__________________________ (Assigned Group Number)
Appendix 3: Study 2 Email Invitation

Hello [Student Name],

At Maastricht University, you are continuously working in group and problem-based assignments with a diverse group of classmates. Therefore, your experiences and perceptions can give valuable insights into steps educators can take to make group work activities more successful, particularly when they involve cross-cultural communication. Dr Tempelaar and I invite you to be part of a research study to increase our understanding of student perceptions of cross-cultural group work. We would be keen to hear about your experiences of group work and, therefore, ask if you would be willing to be interviewed.

I will be visiting Maastricht University on December 2 and 3 from the Open University in the UK. On December 2, I will be conducting one-on-one interviews, which will last approximately one hour minute. The interviews will be very informal and will focus on your thoughts and experiences of group work. We will also discuss a fictional case study.

If you are interested in meeting briefly with me for an interview or focus group, please sign up for a time slot online at: [link to website for sign ups]

To thank you for your time, you will be provided with a €15 gift voucher.

If you would like more details about the study before making a decision, please feel welcome to email me at jenna.mittelmeier@open.ac.uk. Thank you for considering this invitation and I look forward to hopefully meeting with you soon.

Yours sincerely,

Jenna Mittelmeier
The Open University, UK
Appendix 4: Study 2 Consent Form

Interview Participant Information Sheet

Study Title
Understanding student reflections of cross-cultural group work

Introduction
Thank you considering participation in an interview about your experiences in group work. This study seeks to gain a better understanding of student experiences and preferences in group work, as well as potential interventions that could help make group work more successful.

How will this interview be conducted?
A member of our research team from the Open University will meet you at the location and time you have specified online. The interview will last approximately one hour, and will take place in a private room. You can expect to be asked questions about your previous experiences with group work, as well as your opinions about how to make group work more successful. You will also be given a fictional case study to consider and discuss. The interview will be held in English and will be recorded for analysis.

What other data about me will you receive?
By agreeing to participate, you also agree to the university sharing demographic information about you with the research team, such as your nation of origin, gender and information about your module grades. All data will be shared anonymously and will be stored on a password-protected flash drive in a locked drawer.

Are my answers confidential?
Yes. The primary researcher will be interviewing you, and she is not affiliated with your university or department. The interview recordings will be transcribed following the interview, and your name and any identifying information will be removed from all data. While your teachers may see excerpts of your interviews, they will not know your identity or that you participated in an interview.

Who has access to my interview answers?
The research team from the Open University will have access to the transcript of your interview. The full transcript will not be shared with any members of the modules we discuss, or any other past, present or future module lecturers at Maastricht University. We may use excerpts from your interview in the presentation of our findings, both internally at the Open University or Maastricht University, and externally, such as in a research journal article. However, you will never be referred to by name and all identifying information will be removed.

Am I required to participate?
No. Participating in an interview is entirely optional and you retain the right to withdraw from the study at any time. You may also request to have all or part of your responses removed from the record at any point after the interview.

Can I change my mind about participating?
Yes. You may cancel your appointment at any time with no consequences. You may also choose to recant part or all of your interview up to 30 days afterwards. To do so, you can contact Jenna Mittelmeier at the contact information listed below.
Are there benefits to participating?
You will receive a small gift voucher as a thanks for your time and inconvenience. You will also be given a copy of the report of the findings from the study, which may serve as a tool for reflection on your participation in group work.

Who can I contact with questions?
You can contact the following members of our research team with questions:
Jenna Mittelmeier  
jenna.mittelmeier@open.ac.uk  
Bart Rienties  
bart.rienties@open.ac.uk

Consent
This study and these materials have been designed in accordance with the British Psychological Society code of ethics (2010), and (subordinate to that code) the guidelines for internet mediated research (2013) in addition to the Maastricht University and The Open University’s ethics and data protection guidance and procedures and the associated regulatory frameworks.

Agreement to participate

I ___________________________________________________________ (print name)
agree to take part in this research project

_______________________________________ (Signature)     _________________(Date)
Appendix 5: Study 3 Email Invitation

Hello [Student Name],

As mentioned by your lecturer, next week’s computer laboratory will involve an opportunity to participate in a research study. An information sheet is attached to this email to provide you with more information about the research.

Should you wish to participate, you will be asked to work collaboratively in a small group on an exciting problem-based learning activity using an online messaging service to communicate. This activity has been designed to complement your learning by allowing you to practice working with genuine statistical data in a real world scenario. During the laboratory, you will also be asked to make inferences beyond the data to understand factors that may impact collected data, as well the data’s implications for practice in society. As this is a collaborative activity, you will be given the opportunity to practice essential soft skills for the business world, such as cross-cultural competencies, communication and leadership.

After the laboratory session, you will be asked to complete a post-activity. During this activity, you will be able to reflect on what you have learned and how you have contributed to the group process and outcomes. You will be emailed a link to this activity at the end of the day on your scheduled laboratory day, and it will be due 48 hours later. After completing it, you will be sent individualised feedback from your group members that will be valuable as you progress in your academic programme and career.

During the laboratory time, anonymous data about your activity online will be recorded for research purposes. The purpose of our research is to better understand student behaviours and emotions in internationally diverse groups. If you have any questions whatsoever, please feel free to contact Jenna at jenna.mittelmeier@open.ac.uk.

Given that we have assigned specific groups for these laboratory activities, it is important that you stick to your assigned time slot and arrive in time before the start of the laboratory session. If you do not wish to participate in this laboratory activity, the alternative assignment of equal length available in your Blackboard folder for Week 6.

Thank you again for your participation, and we look forward to working with you next week!
Appendix 6: Study 3 and 4 Consent Form

Thank you for participating in this laboratory assignment. Activity data for this assignment will be collected for research purposes. Below is information about this joint study.

**Study title:** Investigating tools to support cross-cultural collaborative group work

**What is the purpose of the study?**
We are inviting you to take part in a study evaluating how diverse groups work together and if different types of academic content play a role in task behaviour and discourse.

**Why have I been approached?**
For the purposes of the study we need to recruit a number of groups of students studying in a higher education institution.

**Do I have to take part?**
No. Participation is entirely voluntary. If you change your mind about taking part in the study you can withdraw at any point during this session and at any point up to 30 days after the session. If you decide to withdraw, all your data will be destroyed and will not be used in the study. There are no consequences to deciding that you no longer wish to participate in this laboratory activity. There is an alternative assignment from your teacher for those who do not wish to participate.

**What happens during the study?**
You will be able to complete this study from a quiet location in a computer laboratory where you won’t be disturbed. You will be working in small groups of five participants to complete a problem based learning task. You will be working in a different location to your group members. Altogether, this laboratory activity will take 70 minutes, and you will be asked to complete a post-activity at home which will take approximately two hours.

The study will involve collaboration via an online instant messaging system in your web browser with assigned group members. During this time, you will be asked to review and reflect on educational data available from web resources. To complete this task, you will be asked to log in a website called Udio. While you are logged in, the website will collect data of your instant messaging conversation. In collaboration with Dr Dirk Tempelaar we will collate anonymised demographic for analysis about how students learn together, including your gender, age, nation of origin and information about your final grades in this course.

There is also a post-activity that we will ask you to complete within 48 hours of the laboratory assignment. The post-activity will take you approximately one hour, and you will be asked to reflect on your group’s collaboration process and soft skills of working with diverse peers.

**What are the possible disadvantages and risks of taking part?**
We do not anticipate any risks associated with participation in this study.

**What are the possible benefits of taking part?**
You will gain an insight into how a research project is conducted and what it is like to be a participant in such a study. The tasks are relevant to all students as they are about the kind of transferable skills around collaboration, inferring about data and finding information, which all graduates should have. You will also receive individualised feedback about your contributions to your group, including relevant soft skills for collaboration.
Will my taking part in this study be kept confidential?
Yes, no personally identifying information will be shared.

What will happen to the results of the research study?
You will be given a personal login for the Udio system. Identifying information will be kept passworded, and will not be associated with the anonymous data collected.

This research forms part of Jenna Mittelmeier’s doctoral research at the Open University supervised by Dr Bart Rienties and Prof Denise Whitelock. All data will be available to Dr Dirk Tempelaar in his capacity as course leader.

Deanonymised data will not be shared other than within the OU supervisory and external examiner team, except where we are legally bound to do so. Pseudonyms will be used in reporting, and any identifying information mentioned in the instant messenger logs will be redacted.

The data will be kept in full until December 2021, at which time it will be evaluated for full anonymisation. Data stored will be kept in a password protected file in accordance with the Data Protection Act.

Who is organising and funding the research?
The research is organised by Jenna Mittelmeier, who is a research student at the Open University’s Institute of Educational Technology.

Who has reviewed the study?
The Open University Ethics Committee has reviewed and approved this study.

Contact for Further Information
Jenna Mittelmeier
Institute of Educational Technology, Walton Hall, Milton Keynes, MK7 6AA
Email: jenna.mittelmeier@open.ac.uk

Agreement to participate

[Tick box here]
I understand that checking this box constitutes a legal signature confirming that I acknowledge and agree to the above terms.

[Finish button]
Appendix 7: Study 3 Example Task Instructions (Intervention 1)

[Lines indicate page breaks in the online instructions]

Improving Higher Education Attendance in Your Countries: A Collaborative Case Study

Step 1: Getting started (5 minutes)

Today you will be working with a small group of your classmates. To talk to each other, you will use the messenger box in this window, which is located to the top right of these instructions. Click ‘write’ to type a message, then click ‘save’ to send it to your group members.

Your country of origin is an important part of this activity. Therefore, before you begin the assignment, please first start discussing with your group members by introducing yourself and where you are from. Tell a fun fact about yourself so that others will get to know you a bit better.

_______________________________________________________

Step 2: Read today’s case study (5 minutes)

In this fictional assignment, the World Bank has made a goal that every student in the world should attend a university by the year 2030. To achieve this, the World Bank will provide extra funding and support programs for education. However, they do not know which country should receive the extra support.

To better understand this problem, the World Bank has invited experts from different countries to take part in a collaborative project. You have been invited as an expert from _______ (your home country or the country where you completed the most high school).

Your group’s goal is to evaluate education statistics to decide in which country the World Bank should provide funding and support in order to encourage university attendance for all students.

The question your group must answer
Your group should collaborate to provide one joint answer to the questions below by the end of this laboratory session. To answer these questions, you will need to make inferences beyond the data.

Questions: In which country should the World Bank provide additional funding and support programs in order to encourage all students to attend university? Why have you chosen this country?

After you have read this section, move on to Step 3.

________________________________________________________

Step 3: Begin exploring the data and discussing the question (40 minutes)

The World Bank would like your group to evaluate education statistics that they provide for each country represented in your group. You should look at data from the most recent year provided.

The World Bank resources can be found here [HYPERLINK]. This will open in a new tab. You will need to select your country in each data category to receive country-specific information.

Your group should look at the following statistics to make your decision:

- Country overview: Key Indicators – Overview – Select your country (on the right)
- Comparing your country regionally and worldwide: Key Indicators – Comparisons – Select your country (at the top)
There is more information than can be analysed by one person in a short amount of time, so it is essential for your group first discuss how to divide and organize the task.

Step 4: Submit your answer (10 minutes)
Your group should submit one joint answer that all group members agree upon. To do so, you should choose one group member to submit the final answer the messenger on behalf of the group.

To submit your group’s answer, click ‘Sentence Starter’ and ‘Our answer is...’ from the dropdown menu. Your chosen group member should then type out your group’s final answer and click ‘save.’

Step 5: Final reminders
At the end of this laboratory, you will be emailed a link to a post-activity. This activity is the final requirement to complete your participation points, and it should be finished by midnight in two days’ time (for example, if your laboratory is on Monday, the post-activity is due by midnight on Wednesday).