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Navigating Intercultural Virtual Collaboration for Global Citizenship Education: Synchronous and Asynchronous Modalities

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Abstract

This paper investigates the advantages and challenges associated with synchronous and asynchronous activities in intercultural virtual collaboration (IVC) projects, particularly in relation to student satisfaction and learning outcomes. This study draws parallels between two distinct IVC projects. The first facilitated real-time interaction among students, lecturers, and peers from partner universities in the Netherlands and Japan. In contrast, the second project involved separate live classes led by local instructors in the Netherlands and Spain and featured asynchronous interactions among peers. This latter arrangement required students to exercise a greater degree of autonomy in their collaborative efforts. In both IVC projects, students developed a business case study that explored the influence of cultural factors on international marketing strategies. They participated in discussions and reflective exercises concerning the issue of greenwashing within the selected company. Our research employs data derived from students' final business case reports and satisfaction surveys. The surveys include both closed and open-ended questions to assess the effectiveness of the distinct IVC formats. Our research provides insights into the impact of the IVC formats on the student experience and learning. Findings indicate no substantial differences in the quality of work produced between the two formats; however, student satisfaction was notably higher in the synchronous model, highlighting that the way interactions are structured impacts the collaborative experience, even when final outputs are similar. This study offers important insights for educators navigating the challenges of virtual teaching and for policymakers looking to use digital technologies to foster a globally aware and responsible generation in an increasingly digital world.

Keywords: internationalization at home; global citizenship education; higher education; intercultural virtual collaboration; collaborative skills; intercultural competence; asynchronous and synchronous modalities; virtual exchanges

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1. Introduction

Internationalization in higher education has played an important role in preparing business students to succeed in an increasingly interconnected world. Global Citizenship Education (GCED) intersects with internationalization in higher education [1]. Internationalization provides a platform for students to learn how to understand and work with

people from different cultural backgrounds [2–4], while GCED emphasizes taking responsibility for action on global issues with shared common goals [5]. Internationalization can be achieved through student mobility or by creating an international environment at home [6], such as through virtual exchanges on online platforms. Virtual exchanges (VEs) have practical, environmental, and inclusivity advantages over physical student mobility and are gaining increasing attention [7]. Intercultural virtual collaboration (IVC) courses, as a form of VE, provide students from different institutions, usually two institutions located in different countries, with the opportunity to work together on a shared project in a structured learning experience mentored by instructors [8]. However, there are various ways in which IVC courses can be organized and structured, and both classes and group work between the students of the participating institutions may be conducted via synchronous or asynchronous modalities [9].

The published evidence to date on the effect of the choice between synchronous and asynchronous group work in virtual collaborations on student satisfaction and behavior is mixed [10,11]. For example, on the one hand, synchronous communication can often be hindered by cultural conflicts within diverse teams, negatively impacting group satisfaction. On the other hand, asynchronous modalities offer flexibility, but they may ultimately prove less effective in terms of learning and satisfaction than their synchronous counterparts.

This article aims to shed light on the question of whether synchronous or asynchronous group work modalities produce superior outcomes in terms of engagement, student satisfaction, and time spent working with the group. We provide evidence from two IVCs conducted between a business school in the Netherlands and business programs at partner universities in Spain and Japan. The collaboration between the Netherlands' and Spain's universities featured separate synchronous classes, and the students completed their cross-institution group work autonomously outside class time. This contrasts with the collaboration between the Netherlands' and Japan's universities, which had a weekly combined synchronous class attended by students of both institutions, and included class time for synchronous group work.

We find no meaningful difference in the quality of student work produced between synchronous and asynchronous modalities. However, student satisfaction was notably higher in the synchronous IVC modality employed in the Netherlands–Japan course, indicating that the structure of interactions can enhance the collaborative experience despite equivalent student outputs. This study provides valuable insights for educators and policymakers aiming to leverage digital technologies to foster a globally conscious and responsible generation in a digitally driven society.

We proceed as follows: Section 2 examines the literature connecting VEs, IVC, and GCED and develops the motivation for our research questions. Section 3 details the materials and methods utilized in this study of both IVC modalities. Section 4 analyzes the learning outcomes, based on students' outputs, and satisfaction with the courses, based on survey data, for both IVCs. Section 5 discusses the results derived from both IVCs, and Section 6 concludes with a summary of findings, limitations, and suggestions for future research.

2. Intercultural Virtual Collaboration and Global Citizenship Education

Digital transformation and the global coronavirus (SARS-CoV-2) pandemic have had a profound effect on how businesspeople organize their work at both domestic and international levels, highlighting a considerable increase in virtual work [12]. A comprehensive review of the extant literature on the subject by Froese et al. [13] identified several advantages of virtual work. These include greater flexibility, cost savings, access to a diverse

talent pool, and a reduced need for international travel. Nevertheless, this large study also pointed out certain challenges, particularly in instances where virtual work necessitates the management of cultural differences and the assurance of effective communication. Keeping pace with these trends, higher education has an important role to play in preparing students to meet the challenges of increased virtual interaction in the workplace.

2.1. Global Citizenship Education and Intercultural Competence

GCED plays a vital role in equipping students with the collaborative and critical intercultural competence essential for navigating the complexities of the 21st century [2–4]. Despite the absence of a universally accepted definition of GCED, UNESCO [5] (p. 2) asserts that "it refers more to a sense of belonging to the global community and a common sense of humanity, with its presumed members experiencing solidarity and collective identity among themselves and collective responsibility at the global level." Several higher education institutions have adopted GCED as a pedagogic approach, e.g., [14,15], to equip their students with the necessary competences and mindset to navigate the interconnected and complex human, environmental [16], and digital challenges that transcend geopolitical boundaries [17]. This approach underscores the importance of intercultural competence, which Deardorff and Jones [1] identify as critical for effective engagement in diverse cultural contexts. Intercultural competence encompasses cultural knowledge and attributes such as respect, openness, curiosity, and discovery, alongside essential skills including listening, observing, evaluating, and relating [18]. Nevertheless, studies in the domain of intercultural education have indicated the necessity of adequate preparation and support for students when participating in international experiences to facilitate comprehension of such experiences and avoid deleterious learning outcomes, including unproductive work, intercultural conflict, frustration, and further stereotyping [19].

Offering well-structured international and intercultural experiences plays a critical role in equipping students for such encounters [20–22]. Accordingly, many higher education institutions have adopted a form of internationalization in their curricula [1,23]. Internationalization is defined as "the *intentional* process of integrating an international, intercultural, or global dimension into the purpose, functions, and delivery of post-secondary education, *in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society*" [24] (p. 3), authors' emphasis in italics. Knight [6] categorizes internationalization into two primary streams: internationalization abroad and internationalization at home (IaH). IaH refers to internationalization activities conducted within the campus context. Several higher education institutions emphasize the development of intercultural competence and GCED by promoting student mobility opportunities, for example, through studying abroad [3,14,16]. Nevertheless, different studies have revealed that merely a small percentage of students have access to study-abroad opportunities [2,25]. Factors that constrain students from experiencing international mobility include, but are not limited to, personal circumstances, financial constraints, separation from social circles, language barriers, a lack of information, and a lack of motivation [3,26]. Recently, governments in some countries have enacted policies restricting or pausing their intake of international students, including exchange students, for example, Australia, Canada, and the United States. Consequently, the concept of IaH has been proposed as a practical and inclusive response, in line with GCED, to prepare students for the dynamic global environment and digital transformation through mechanisms such as virtual exchanges [27]. Simultaneously, this approach is consistent with current business developments in virtual work [12,13] and underscores the importance of equipping students with related essential competences [22].

2.2. Intercultural Virtual Collaboration as a Form of Virtual Exchange

VE and its various forms—such as IVC, Telecollaboration, Global Virtual Teams (GVTs), and Collaborative Online International Learning (COIL)—are increasingly recognized for their contribution to international and intercultural education [7]. Additionally, virtual exchange can support inclusive and sustainable education initiatives [28–30], which align with GCED [4,25]. Different studies observe that higher education institutions in both the Global North and South are progressively adopting IVC and its alternative modalities in VE, reflecting a shared commitment in their IaH efforts to foster intercultural competence and the understanding of Sustainable Development Goals (SDGs) [31].

In business education, IVC is defined as "connecting students from different locations through technology, allowing them to collaborate in tasks or projects without the need to move physically" [8]. IVC is based on collaborative learning through virtual group work [9,32]. It enables students to develop collaborative, communicative, and reflective skills within a socio-cultural context and build up intercultural understanding [7] through joint assignments, such as SDG-related business cases, with their peers at partner universities.

Ferreira-Lopes [33] explains that IVC, as a term, intends to "be specific enough to define the (intercultural development), the medium (virtual) and the pedagogical strategy (collaboration)" (p. 12). Accordingly, one of the pillars of IVC is collaborative learning. Having its roots in socio-constructivist pedagogy, collaborative learning is based on the idea that knowledge is built through the interaction of the individual with peers and the surrounding world [34].

Compared to traditional individual learning approaches, collaborative learning offers multiple advantages, often leading to higher academic performance, stronger and more supportive interpersonal relationships, as well as enhanced psychological well-being, social skills, and self-esteem [35]. The literature also provides evidence of "collaborative facilitation", a phenomenon in which group members surpass their predicted individual potential. Such outcomes are more likely when participants establish common ground, engage in tasks that benefit from multiple perspectives, and openly share task-relevant information [36]. When it comes to cross-cultural relationships, the literature has shown that collaborative learning promotes students' openness to diversity [37] and cross-cultural relations [38]. In addition, an abundance of research on IVC/virtual exchange evidences the positive impact of (virtual) collaboration on the development of students' intercultural communication skills [39,40]. In fact, a recent literature review analyzing trends in the field of intercultural competencies in HE showed that collaborative learning was among the five main trends and topics analyzed in each study [41].

Nevertheless, research also highlights that collaborative learning has its challenges and that certain pedagogical decisions might lead to groups where individuals contribute less effectively or fail to perform appropriately, even in situations in which the group succeeds as a whole [36].

In the specific context of IVC, these insights are particularly relevant. IVC requires participants to navigate cultural differences, time zones, and digital environments while working toward shared goals. Furthermore, IVC can be conducted through synchronous (real-time) and asynchronous (non-real-time) modalities [10,42], which educators can employ to foster a collaborative learning environment [9]. Synchronous modalities facilitate real-time interaction, promoting immediate engagement and collaboration through computer-mediated communication [42,43]. However, synchronous modalities necessitate careful scheduling and active facilitation by educators [9]. In contrast, asynchronous modalities allow learners to work independently of class time, and engage with peers and materials at their own pace through computer-mediated communication [42,43]. They do, however,

require closely coupled work tasks and positive interdependence [11,44] in the collaboration, instructions, and structured guidance to foster meaningful collaboration [9,32]. Not only that, as Kopp, Matteucci, and Tomasetto [45] argue, the lecturers' experience in supporting virtual collaboration is a key precondition for successfully intervening to stimulate necessary learning experiences while avoiding detrimental ones.

2.3. Synchronous and Asynchronous Modalities in IVC: Implications for Collaborative Learning

Tightly coupled work in the IVC framework has produced inconsistent outcomes regarding effectiveness and satisfaction [46]. The effectiveness of these closely coupled work tasks may be hindered by the increased likelihood of conflict among culturally diverse teams [47], leading to diminished satisfaction and cohesion during virtual collaboration [48]. Moreover, given that the majority of IVCs are conducted in English, a common issue arises due to the variability in language proficiency and preferences among native and non-native participants [46]. This discrepancy has the potential to engender misinterpretations and complications; this observation has been recorded in a range of settings, as pointed out in the literature review by Morrison-Smith and Ruiz [46]. Furthermore, Van Rompay-Bartels and Watkins [49] have identified that silence can result in misinterpretations and, on occasion, diminished student satisfaction within culturally diverse teams composed of students from Western and Eastern cultures when students are working synchronously.

Empirical studies in business settings have also shown that individual perceptions and attributes can have a negative impact on the satisfaction of culturally diverse teams, as noted by Taras et al. [50], and can hinder the successful completion of even basic tasks, as emphasised by Wang et al. [51]. Other studies have shown that effective collaboration in business [52] and educational environments [10] requires frequent synchronous and asynchronous interactions. As posited by Bjørn, Esbensen, Jensen, and Matthiesen [52], these interactions can foster stronger interpersonal connections among team members, thereby enhancing the effectiveness of virtual group work, even when participants are geographically dispersed.

In their 2007 empirical study, Pan and Zhao [53] investigated group efficacy within asynchronous and synchronous virtual teams, exploring how time affects group efficacy, team satisfaction, and overall performance. They discovered that group efficacy develops over time, with notably positive relationships particularly present in asynchronous groups. A comprehensive analysis of key performance indicators—such as efficacy, tool evaluation, and team satisfaction—highlights the crucial role that technological implementation plays in shaping collaborative experiences. Another study conducted by Kizzier [54] delved into the effects of collaborative meeting systems using the support of technology on business productivity. The findings revealed that all meetings with an Electronic Meeting System (EMS) or webcam were considered effective in a global context. However, there were notable differences in perception among observers: meetings using audio with EMS were considered effective, whereas those using audio and video with EMS were rated as the most effective across different time zones regarding both the quality of outcomes and participant satisfaction. These results illustrate the considerable influence of meeting format on productivity and engagement.

Mabrito [10] analyzed transcripts from business writing classes to compare real-time chat (synchronous) with non-real-time interactions (asynchronous). The study findings indicate that synchronous discussions foster greater social–emotional engagement, while asynchronous interactions are more concentrated on learning tasks. In Strang's study [55], he compares synchronous and asynchronous collaboration with business graduate student teams using cooperative learning. The study indicates that synchronous collabora-

tion tends to enhance project quality and team satisfaction, while asynchronous methods offer greater flexibility. While both approaches support effective learning, real-time interaction may enhance engagement and group work. In the same vein, a study conducted by Peterson, Beymer, and Putnam [11] highlights that synchronous online communication fosters a greater sense of belonging and positive emotions among learners when compared with asynchronous methods. Further, the research suggests that asynchronous collaborative learning might not operate as effectively as intended, as the existence of collaborative goals does not necessarily lead to collaborative learning outcomes. Morrison-Smith and Ruiz [46] and Herrera-Pavo [9] emphasize the importance of synchronous and asynchronous interaction types in achieving team goals. They advocate for improved groupware design to better support collaborative tasks.

A comprehensive understanding of the benefits and challenges related to synchronous and asynchronous modalities is essential for improving students' achievements and satisfaction in IVC; however, the literature to date yields mixed results and interpretations. More empirical research is needed to understand how synchronous and asynchronous modalities impact business students' virtual collaboration, motivation, learning performance, and satisfaction with GCED [11,56]. Furthermore, new challenges are emerging in higher education, particularly related to technological advances such as access to AI, which give rise to new questions about the quality of collaborative work, student performance, and the evaluation of students' output.

2.4. Research Questions

Given the mixed results in the literature, our study seeks to explore the differences in deliverable quality between synchronous and asynchronous modalities. We achieve this by analyzing and comparing assigned student outputs and the perceptions of students participating in two IVC collaborations. One collaboration connected students from the Netherlands and Japan primarily synchronously during class, while the other connected students from the Netherlands and Spain primarily asynchronously outside of class. Students in both collaborations were tasked with the same assignment in which they were required to develop a business case study analyzing the extent to which culture plays a role in the way international companies plan their marketing strategies. By examining the collected (a) business case-study report data and (b) satisfaction surveys for each collaborative course, this research aims to assess how synchronous and asynchronous modalities influence student satisfaction with the IVC experience and whether these modalities affect the quality of their deliverables and learning outcomes. Our research questions are as follows:

RQ1: To what extent do synchronous and asynchronous learning modalities affect the quality of deliverables produced by students?
RQ2: How do synchronous and asynchronous learning modalities influence business students' perceptions of their IVC experience?

3. Materials and Methods

3.1. Institutional and Curricular Context

GCED is a fundamental component of the strategic framework of the Netherlands' partner institution, incorporating the GCED concept alongside essential competencies and mindsets through diverse curricular practices, such as virtual exchanges, as exemplified by IVC. The Japanese university pursues an international liberal arts educational philosophy, with all classes taught in English, mandatory international experience, and a multicultural campus. Internationalization at home was adopted by the Spanish institution's business faculty as the primary means with which to provide students with international

experience. The Spain Business School adopts a holistic approach to internationalization, integrating intercultural and global dimensions into curricula through initiatives such as IVC, multilingualism, and faculty internationalization. This model seeks to democratise internationalization for all students [57].

3.2. Characteristics of the Two IVC Courses

We examine two IVC courses conducted in 2024 that covered identical topics and required cross-institutional student teams to produce the same individual and collaborative outputs; however, the modalities of course delivery and connection of students to their teams at the counterpart university differed.

The collaboration between the Netherlands' and Japan's universities connected students synchronously during class time, both for common instruction and for group work on their assigned deliverables, most importantly, a business case report. Students from both institutions participated in lessons and group work during scheduled class periods while completing asynchronous tasks outside of the classes, as explained in Van Rompay-Bartels, Watkins, and Geessink [25]. Group communication was encouraged through an icebreaking session and joint tasks during class. The course content, including the syllabus, activities, and assessments, was identical across the institutions.

The collaboration between the Netherlands' university and Spain's university connected students across the institutions asynchronously. Each university conducted its own separate class sessions at different times. Students did not work together with their counterparts from the other university during class. In this format, the instructors created the groups and granted students autonomy to organize the required coursework through both synchronous and asynchronous communication outside of class time. Group communication was supported by structured collective tasks and guidelines to facilitate students' efforts. The instructors initiated intra-team communication by sending the participants separate emails containing information about their teams. Instructors encouraged the participants to share their contact information via email and to contribute to an icebreaker activity on a class Padlet. The instructors in the Netherlands and Spain dedicated class time to monitor students' progress on the business case-study and other team deliverables with their own students locally.

We refer to the Netherlands–Japan collaborative course as synchronous and the Netherlands–Spain collaboration as asynchronous in the sense that the students participating in the former worked together across the institutions during their class sessions, while those of the latter worked together only outside their class times. The students in both collaborations were encouraged to work together outside of class by meeting online (synchronously) and communicating on their joint tasks via message and collaboration platforms (asynchronously). In the Netherlands–Japan collaboration, we utilized Microsoft Teams to conduct the class session and facilitate student interactions, enabling document sharing, meetings, and relationship-building. We also encouraged students to connect through social media platforms of their own choice. The student groups primarily selected WhatsApp and Line. In the Netherlands–Spain collaboration, we utilized Microsoft Teams for course materials sharing, while the Spanish institution also utilized Moodle. In the Netherlands–Spain collaboration, we observed that students engaged more actively on WhatsApp and Instagram for team-building and discussions and shared their material in Google Docs. Despite the differences in instruction modalities of the two IVCs, the students in both IVCs were required to complete the same business case-study assignment as a joint team output, and other identical tasks, including a reflection assignment and a satisfaction survey. We include Supplementary Document S1: Business Case Assignment and Supplementary Document S2: Satisfaction Survey in the online Supplementary Materials.

3.3. Challenges in Organising IVCs

One may wonder why one IVC was delivered with synchronous interaction between the partner university students, and the other was delivered with asynchronous interaction. There are several challenges to conducting fully integrated IVCs. Time zone differences are often mentioned as an impediment, but perhaps a more important issue is institutional course and scheduling policies, including long-established course timetables, immovable mandatory classes, and credit and class-hour policies. Such policies can make designing a fully integrated cross-institution course difficult and, accordingly, not all IVCs can employ a completely synchronous instruction and group work modality.

Asynchronous student interaction requires different approaches to fostering effective group work and providing feedback. For instance, in the Netherlands–Japan IVC, the instructors participated jointly and synchronously in the cross-institution classes, offering weekly feedback to each student team on their collaborative learning processes and outputs. In contrast, the Netherlands–Spain IVC instructors worked together asynchronously. They provided weekly feedback to their local classes about students' collaboration and outputs when they were in the classroom with their local students.

3.4. The IVC Classes and Participants

A class of twenty-seven students at the Netherlands' university and eight students from Japan's university participated in an independent undergraduate IVC course entitled "Crossing Borders without Crossing Borders/国境を越えずに国境を超える." The class commenced in early September 2024 and concluded in late October 2024, with a total of thirty-five students divided into four groups, each comprising members from both partner universities.

The collaboration between the Netherlands' and Spain's universities was incorporated in the Spanish university's curriculum differently, as a component of a larger course, but otherwise the structure of the course was consistent with the Netherlands–Japan course. Twenty-seven undergraduate students at the Netherlands' university participated alongside thirty-two undergraduate students from the partner university in Spain. There was a total enrolment of fifty-nine students, allocated to eight groups, which included members from both partner universities. The groups in both collaborations were formed with the aim of balance and diversity in nationality, gender, age, year of study, and cultural background.

3.5. Participatory Action Research (PAR)

Participatory Action Research (PAR) combines participation and action to understand and address societal issues that directly affect participants [58]. It emphasizes democratic processes and prioritizes engagement with others, rather than conducting research solely on people or communities [59]. The aim is to improve and empower individuals and organisations [60]. PAR may be used by educators to study and improve the impact of their practices on students' group work practices [58,59]. PAR places emphasis on actions and solutions to practical problems in an educational setting.

For the two IVCs we consider, the instructors adopt a Participatory Action Research (PAR) approach, becoming researchers of their own practices [58]. Our approach demonstrates the following features of PAR. We keep a diary of instructors' observations and students' comments on the challenges in the IVC process. We employ satisfaction surveys and reflection exercises to elucidate students' views. Our approach includes students identifying issues and proposing solutions.

The IVC framework provides students with an accessible international and intercultural experience that can contribute to the development of global citizenship competence

and mindset. As such, the PAR approach enables instructors to analyze the effectiveness of the IVC practices in achieving this purpose, as well as identify possible improvements for future course implementation. For the research on the IVCs examined in this study, the instructors obtained ethical approval from students after they were informed about the purpose, nature, potential benefits, risks, timeline, and origins of the research. This approach ensured that the students comprehended the nature of the research and were able to decide whether to participate. Participants' confidentiality, privacy, and anonymity were respected throughout.

During the PAR process, the instructors employed two methods to collect the data for this study:

1. Gathering evidence related to teaching materials, students' task experiences, and satisfaction with the two IVCs;
2. Collecting data on student learning through their final business case outputs and reflections on sustainability in a business case and the collaborative learning process.

3.6. The Group Business Case-Study Assignment

Each group was required to respond to a business case assignment as the primary activity of the collaboration, contributing to the students' final grade. The business case requires each group to select a multinational firm that provides consumer products in both partner university countries, that is, the Netherlands and Japan or the Netherlands and Spain. Students examined the similarities and differences in how a firm approaches and communicates about reducing the plastic waste associated with their products in each country. Critical analysis of greenwashing is an essential component of the project. The business case assignment integrates business, SDGs, and the impact of culture. The IVC classes cover cultural theories and models, for example, Hall's [61] HC-LC concept and Hofstede's [62,63] cultural dimension theory. These are employed as analytical frameworks for the business case analysis and as tools for students to gain intercultural competence and enhance their cross-cultural group work.

3.7. Analysis of the Business Case Reports

The analysis of the student reports is guided by a coding framework specifically aligned with the intended learning outcomes of the intercultural business case project. The learning outcomes include the following: (1) demonstrating understanding of CSR and sustainability practices in international organisations; (2) analyzing cultural differences using theoretical models; (3) identifying and critiquing greenwashing; and (4) collaborating effectively in an intercultural and virtual team.

We derive eleven analytical codes directly from the instructions provided to students for the business case project. The codes are designed to assess both content quality and process indicators, and correspond with critical components of the business case. They are grouped into three categories, as follows:

1. Depth of Analysis: Assesses the level of critical engagement with CSR policy, cultural analysis, and greenwashing.
2. Coherence and Organisation: Evaluates logical structure, clarity, and progression of the report.
3. Collaboration Indicators: Identify consistency in tone and integration of team contributions.

Each business case report was analyzed in full in the Atlas.ti software and scored based on the presence, partial presence, or absence of each code. "Presence" indicates that the report clearly and fully demonstrates the characteristic defined by the code—for example, a complete and supported critique of greenwashing or a well-integrated application of cultural theory. "Partial presence" is used when the report includes some aspects of the ele-

ment but lacks completeness, consistency, or depth—for instance, when theoretical models are mentioned but not fully applied or when critical reflection is initiated but remains superficial. "Absence" means that the report does not address or demonstrate the targeted element at all. This method allows for a structured, comparative analysis across multiple teams and collaboration formats, linking the quality of the final outputs with both the group dynamics and institutional frameworks in which they were developed. We present the results in Section 4.

3.8. Analysis of the Student Satisfaction Survey

An identical, voluntary, and anonymous satisfaction survey was conducted at the end of each IVC. The satisfaction survey was developed in collaboration with students, instructors, and researchers engaged in designing the IVC within the CBWCB course, adhering to PAR principles. The survey has two main objectives. The first is to evaluate students' satisfaction and learning experiences across the synchronous and asynchronous modalities: How do synchronous and asynchronous classes and modalities impact students' learning processes? What can be said about the overall quality of those experiences? The second objective is to collect feedback to improve the IVC experience, ensuring that it meets students' needs and expectations. We present visualizations of the survey data in the next section, including responses to five-level Likert-scaled questions and word-cloud representations of open-ended questions answered with text.

4. Results

In this section, we analyze the learning outcomes, based on students' outputs, and satisfaction with the courses, based on survey data, for both IVCs. Students' primary output for the IVCs was a business case report. Specifically, the business case addresses SDGs 12 and 13 relating to the use of plastic. In Section 4.1, we present the results of the qualitative analysis of student-produced business case studies evaluating the way in which companies approach communicating their corporate social responsibility (CSR) and sustainability practices through their marketing strategy. In Section 4.2, we report the results of the satisfaction survey completed by students, including questions to be answered with predefined options on a five-level Likert scale and those allowing open-ended textual responses.

4.1. Analyzing Learning Outcomes in Synchronous and Asynchronous Business Case Collaborations

Table 1 shows the results of the Atlas.ti analysis of students' business case reports following the methodology described in Section 3.7. In this analysis, we focus on the presence, partial presence, or absence of critical components of the business case as this research focuses on the modalities of IVC rather than a detailed evaluation of the content of the business cases. The business case instructions are provided in the Supplementary Materials.

Under the depth of analysis category, there are six critical components: CSR Policy Analysis: Descriptive; CSR Policy Analysis: Critical; Cultural Comparison: Surface-Level; Cultural Comparison: In-Depth; Greenwashing: Critique Present; and Greenwashing: Lacks Critical Reflection. Across the dimension of depth of analysis, the business case studies from both collaborations show high engagement, though with nuanced differences in quality and criticality.

Regarding CSR Policy Analysis, all 12 reports, regardless of cultural background, included basic descriptions of the companies' CSR or sustainability policies. The same applied to displaying a critical perspective toward such policies. All groups—except for one group in the Netherlands–Japan collaboration—issued some level of evaluative critique. All Netherlands–Spain groups displayed this critical perspective.

Table 1. Presence of critical components of the business case.

Category	Critical Components of the Business Case	Netherlands–Japan Groups				Netherlands–Spain Groups							
		1	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Depth of Analysis	CSR Policy Analysis: Descriptive	P	P	P	P	P	P	P	P	P	P	P	P
	CSR Policy Analysis: Critical	A	P	P	P	P	P	P	P	P	P	P	P
	Cultural Comparison: Surface-Level	P	P	P	P	P	P	P	P	P	P	P	P
	Cultural Comparison: In-Depth	S	P	P	P	P	P	P	P	P	P	P	P
	Greenwashing: Critique Present	P	P	P	P	P	P	P	P	P	P	P	P
	Greenwashing: Lacks Critical Reflection	A	A	A	A	A	A	A	A	A	A	A	A
Coherence and Organization	Clear Structure	P	P	P	P	P	P	P	P	P	P	P	P
	Coherent Flow	P	P	P	P	P	P	P	P	P	P	P	P
	Poor Organisation	A	A	A	A	A	A	A	A	A	A	A	A
Collaboration Indicators	Inconsistent Writing Style	P	P	P	P	P	P	P	P	P	P	P	P
	Consistent Tone Across Sections	A	S	S	S	S	S	S	S	S	S	S	S

Note: P indicates presence of the analytical code in the students' report; S indicates partial presence, that is, some aspects of the analytical code are present, but the report lacks completeness, consistency, or depth; A indicates the absence of the analytical code. The table shows the presence, partial presence, or absence of the analytical codes for each of the four student groups in the Netherlands–Japan IVC and eight groups in the Netherlands–Spain course.

In relation to demonstrating awareness of how far culture plays an important role in how international companies operate their marketing and sustainability strategies, all groups demonstrated some awareness of cultural context, fulfilling a minimal requirement. However, in the same report of the Netherlands–Japan collaboration that showed only a surface-level analysis of CSR Policy Analysis, a more in-depth analysis of such a relationship was only partially present. This suggests that this group may have struggled with theoretical integration or depth in cultural analysis, whereas the rest achieved more nuanced interpretations. An example of this can be seen below:

> "The company operates in different countries and must think about culture. In Japan, people care about group harmony, so the company shows teamwork in advertisements. In the Netherlands, people are more direct, so the marketing is more honest. This shows culture is important. But we didn't study more examples." Netherlands–Japan Collaboration (Group 1).

A critique toward greenwashing was clearly present in all reports. Reflections indicated a widespread understanding among students of the concept of greenwashing and the ability to identify and critique examples.

Under the Coherence and Organization category, the analysis explored the structural quality of the business case studies in regards to the structure, coherent flow, and organization. The results of the Atlas.ti analysis reveal that all reports, across both collaborations, had a clear structure and coherent flow as well as good organisation. This suggests that despite intercultural and linguistic differences, all groups succeeded in producing well-organised and logically flowing reports. The consistency in structure across the twelve reports may indicate strong scaffolding or guidance provided by instructors. It could also reflect a shared set of expectations around report writing in international business education. While this uniformity is positive, it also limits differentiation. It is difficult to draw strong conclusions about group differences based on this category, as all met the expected standards.

For the Collaboration Indicators category, all reports showed some degree of inconsistent writing style. This suggests that writing style inconsistency was common to both collaborations, likely due to the challenges of integrating contributions from multiple students across cultural and linguistic backgrounds.

In regard to adopting a consistent tone across sections, most groups partially met the criteria for consistent tone, which indicates attempts to harmonize writing, even if full cohesion was not achieved. The same Netherlands–Japan group that failed in previous categories and presented again stands out as weaker in this regard, with its tone consistency marked as absent. This aligns with earlier observations about the group's relatively lower critical depth and theoretical integration. It is worth noting that despite higher group numbers, none of the Netherlands–Spain reports achieved full stylistic consistency, pointing to a general challenge in IVCs where members contribute different parts of a report. Larger group sizes may exacerbate this challenge. For example,

> "The company's CSR strategy is based on several pillars, such as environmental sustainability, employee wellbeing, and ethical sourcing. It is clear that their policies are in line with international standards. Moreover, the firm demonstrates efforts to minimize waste and support community engagement."
>
> "Nevertheless, we believe that some of these policies may be considered greenwashing. For instance, they say they reduce emissions but do not present quantitative evidence. Additionally, while they mention fair wages, there is no transparency in their supply chain audits." Netherlands–Spain Collaboration (Group 3).

The extract above shows a shift in tone and vocabulary, with the first paragraph using formal, detached language and the second adopting a more direct, critical stance. The inconsistency in tone suggests fragmented authorship, despite the report meeting the partial tone consistency criterion. It supports the argument that stylistic cohesion was attempted but not fully achieved.

4.2. Exploring Students' Satisfaction Surveys in Synchronous and Asynchronous Collaborations

Almost all students completed the satisfaction survey. The Netherlands–Japan collaboration received responses from all 35 students, while the Netherlands–Spain collaboration received 57 responses from 59 enrolled students. The survey included questions about students' perceptions of their own motivation, learning outcomes, collaboration, preferred course and non-course aspects, and cultural understanding. Exploring and integrating students' voices through satisfaction with the course via the survey represents one element of PAR approach taken in this study.

Figure 1 provides students' satisfaction with their own motivation and participation in the IVC from the satisfaction survey. The figure shows the percentage of responses for each of five levels on a Likert scale from very satisfied to very dissatisfied. Satisfaction results are provided for each institution in the collaborations, indicated on the left-hand axis, and grouped by collaboration as indicated on the right-hand axis. The top two bars represent the results from the Netherlands–Japan collaboration, while the bottom two bars show the results from the collaboration between the Netherlands and Spain. The number of responses for each level is indicated in each segment of the horizontal bars, and the number of responses for each collaboration in total may be read as the sum of the number of responses for each of the institutions participating in the collaboration. Below we discuss the results from the perspective of each collaboration in total.

Figure 1 reveals that, despite the different instruction modalities employed in each IVC, most students were satisfied with their motivation, participation, and overall learning experience in both IVCs. Of the students in the Netherlands–Japan IVC, 97% reported being very or somewhat satisfied. Similarly, 87% of the students in the Netherlands–Spain course expressed satisfaction. The striking difference in satisfaction between the courses is evident in the proportion of very satisfied versus somewhat satisfied students. While 71% of the Netherlands–Japan students were very satisfied with their motivation and participation in the course, only 30% of the Netherlands–Spain students were very

satisfied. A substantially smaller percentage of the Netherlands–Japan IVC students reported being somewhat satisfied, while 58% of the Netherlands–Spain students were somewhat satisfied.

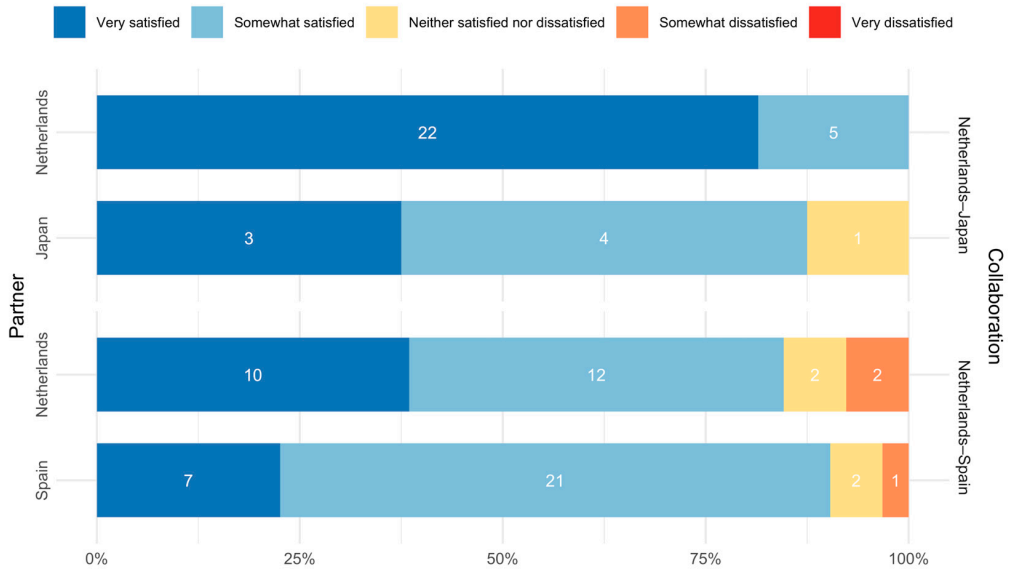


Figure 1. Students' satisfaction with their own motivation and participation in the IVC from the satisfaction survey. The figure shows the percentage of responses for each of five levels on a Likert scale, for each partner (indicated on the LHS) and collaboration (indicated on the RHS). The number of responses for each level is indicated in each segment of the horizontal bars.

In the Netherlands–Japan collaboration, only one student reported being neither satisfied nor dissatisfied with their motivation and participation, while four students in the Netherlands–Spain IVC were neutral and three were somewhat dissatisfied. During the Netherlands–Spain IVC, lecturers delegated the responsibility of scheduling synchronous meetings to the students, as formal synchronous classes were not scheduled. Although the lecturers established the groups and facilitated initial communication via email, students were responsible for independently organizing and planning their meetings.

Although there is some variation between the partners within each collaboration, it is evident that satisfaction was higher for the synchronous than the asynchronous collaboration. Students at the Netherlands institution experienced higher satisfaction than those at the counterpart university.

Figure 2 provides students' responses regarding the extent of their agreement with the statement "I found value in what I learnt about sustainability during CBWCB." This represents how students perceived the value of their learning and understanding of sustainability through their business case project group work, in which they compared and analyzed the marketing practices of their target firm across the two respective countries. Like the responses to the question on motivation and participation, most students agreed or strongly agreed that they found value in what they learned about sustainability. For the Netherlands–Japan collaboration, 89% of students agreed or strongly agreed, while 82% of Netherlands–Spain students answered likewise. The distinction between the two IVCs is again in the relative proportions of the affirmative answers, with 46% of Japanese students strongly agreeing with the statement, while only 32% of the Netherlands–Spain students strongly agreed. Less than 10% of the Japanese students answered that they neither agreed nor disagreed, and one student did not answer the question. About 12% of the Netherlands–Spain students answered that they neither agreed nor disagreed, or they disagreed with the statement.

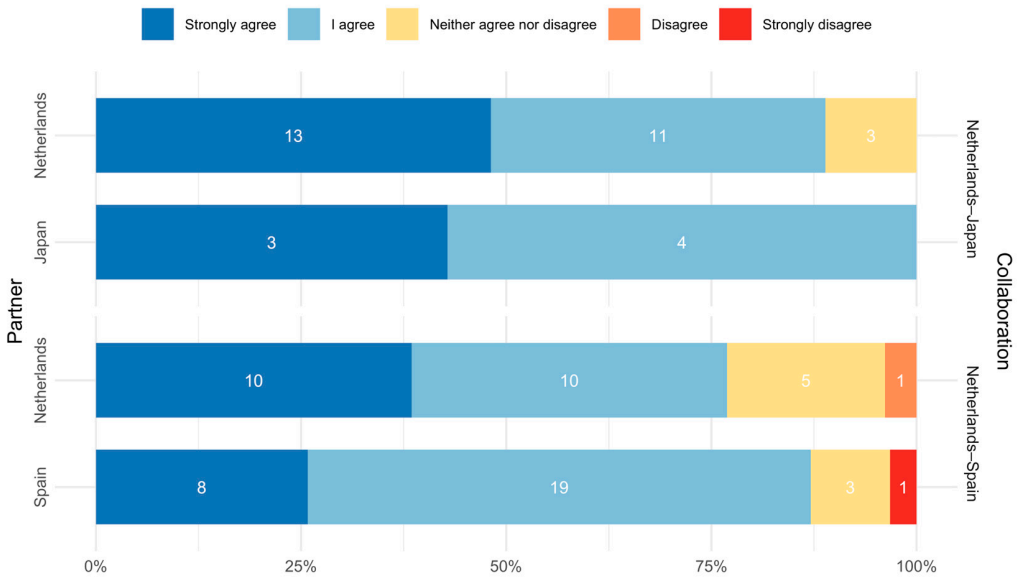


Figure 2. Students' satisfaction with value of learning about sustainability in the IVC from the satisfaction survey. The figure shows the percentage of responses for each of five levels on a Likert scale, for each partner (indicated on the LHS) and collaboration (indicated on the RHS). The number of responses for each level is indicated in each segment of the horizontal bars. One student in the Netherlands–Japan collaboration did not answer the question.

As previously stated, satisfaction levels in the Netherlands–Japan IVC are higher than in the Netherlands–Spain IVC. Furthermore, the Netherlands–Japan IVC, which was synchronous, facilitated more synchronous communication and feedback within the groups. This was not the case with the Netherlands–Spain IVC, where feedback was sometimes provided asynchronously and sometimes separately in the respective countries' classrooms. In the Netherlands–Spain IVC, students were required to take initiative and organize themselves to achieve their goals.

It is important to mention that the communication among students in the Netherlands–Spain IVC was primarily asynchronous, utilizing platforms such as WhatsApp and Google Docs. Previous studies indicate that asynchronous collaboration is prevalent due to its flexibility, allowing participants to engage at their convenience [32,55]. This trend was evident as students shared updates on their progress during classes.

Figure 3 shows students' answers to the question "How often did you actively collaborate with your peers?" Despite the challenges of finding time to meet or work together, all students in each IVC managed to collaborate with their group members at least once per week, whether synchronously or asynchronously, on their assignments.

However, again we observe a difference between the IVCs, 80% of students participating in the Netherlands–Japan course collaborated more than once per week, while this occurred for only about 40% of the Netherlands–Spain students. An important aspect to consider is that students were tasked with joint and interdependent tasks [32], requiring them to demonstrate weekly progress for effective feedback on their deliverables in both IVCs [9,45]. Clearly, the students in the Netherlands–Japan IVC collaborated with their group members more frequently in general than those participating in the Netherlands–Spain course.

The synchronous and asynchronous learning modalities appear to affect business students' perceptions of their IVC experiences. The word clouds provided in Figures 4–6 represent students' reflections on the IVC, emphasizing their satisfaction with various tasks and their group interactions. The word clouds are constructed for three satisfaction survey questions that elicited open-ended textual reflections from the students.

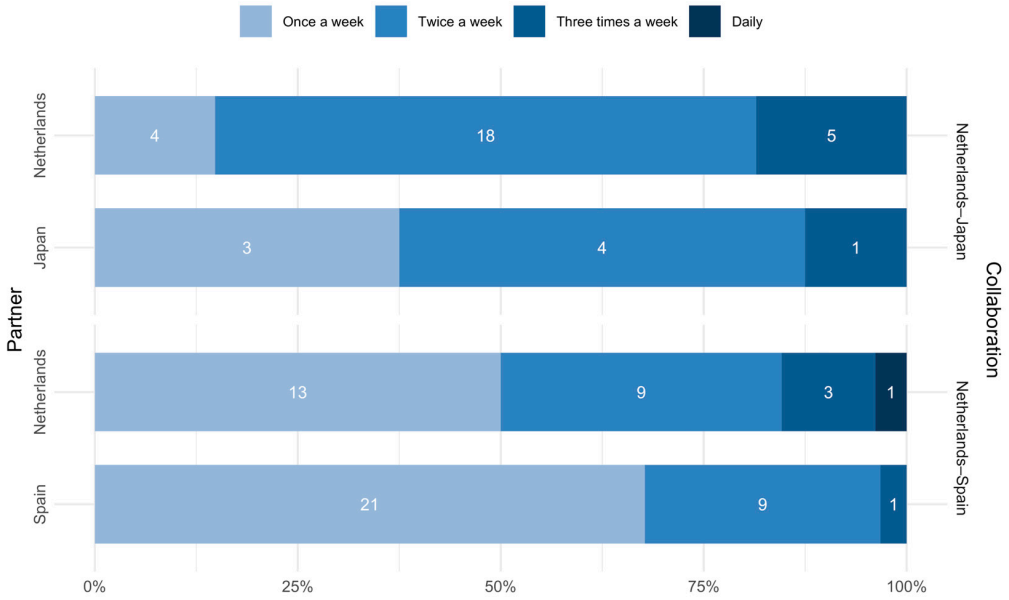


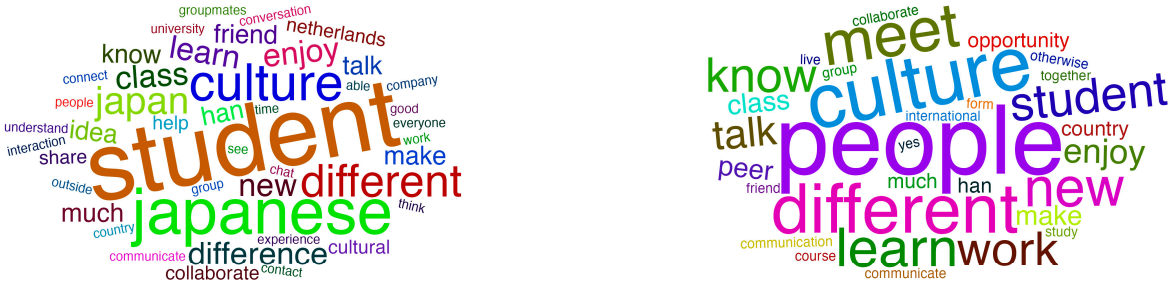
Figure 3. Students' group work collaboration frequency. The figure shows the percentage of responses for each of five levels on a Likert scale, for each partner (indicated on the LHS) and collaboration (indicated on the RHS). The number of responses for each level is indicated in each segment of the horizontal bars.

(**a**) (**b**)

Figure 4. Satisfaction survey question 5. Which activity did you really like? (**a**) Netherlands–Japan; (**b**) Netherlands–Spain.

The textual analysis of the open-ended reflections for the two IVCs reveals distinct preferences in each course's students' engagement with activities. The synchronous Netherlands–Japan students demonstrated a more extensive range of interests, with a particular emphasis on group discussions and classmate engagement with cultural comparisons and analyses of various business case tasks. Similar responses were observed in a previous IVC collaboration in 2022 [25]. These preferences are suggested by the word cloud, in which the terms "group " and "discuss" indicate the prominence of collaborative learning in their educational experience. In contrast, the asynchronous Netherlands–Spain collaboration students expressed more enjoyment in analyzing greenwashing within the company they covered for their business case. This suggests students preferred exploring corporate social responsibility over the broader range of collaborative activities. In summary, students in the Netherlands–Japan course most enjoyed the intercultural and collaborative aspects, while those in the Netherlands–Spain course enjoyed the business case aspects,

primarily greenwashing. This suggests that students' orientation may differ between synchronous and asynchronous collaborations. The synchronous Netherlands–Japan IVC was more group work-oriented and the Netherlands–Spain IVC was more task-oriented. This result is consistent with the findings of the study conducted by Mabrito [10].



(**a**) (**b**)

Figure 5. Satisfaction survey question 6. Is there something outside the tasks that you enjoyed about this elective? (**a**) Netherlands–Japan; (**b**) Netherlands–Spain.

(**a**) (**b**)

Figure 6. Satisfaction survey question 7. Do you think you learned something from other culture(s) you were working with? Explain. (**a**) Netherlands–Japan; (**b**) Netherlands–Spain.

The interactions between the Netherlands–Japan IVC students revealed a notable curiosity regarding Japanese culture. As indicated by the word cloud analysis in Figure 5, the emphasis on national culture interests manifested to a greater extent among the students in the Netherlands–Japan IVC. Surveying the individual responses, it is clear the interest in Japanese culture was driven by the students of the Netherlands' partner institution. Students generally enjoyed each other's group differences as an important learning environment, besides their tasks. In contrast, the Netherlands–Spain students expressed similar sentiments, saying that they have enjoyed engaging with new peers from different cultures with whom they would not easily be in contact and that fostering communication is an essential output of their IVC experience.

As indicated in Figure 6, the Netherlands–Japan students concentrated on elements of Japanese culture, including differences in attitudes in both cultures such as politeness, as well as student life and education in both nations. For example, a student from the Netherlands–Japan IVC mentioned the following:

> "Yes, a lot, what I thought interesting is students in Netherlands call professors only by their first names. In Japan, that is considered not so polite so I was just shocked. As for cultural perspectives about SDGs, it seems that Japanese people deal with it because it is said a global issue, on the other hand, environmental consciousness is very high among Dutch people. Thus, I learned that the difference in attitudes; passive or active is quite reflected each cultural value".

In contrast, the Netherlands–Spain students placed greater emphasis on work attitudes and styles related to collaboration and task division with peers from different cultural backgrounds.

5. Discussion

One might expect synchronous collaboration to lead to stronger integration and cohesion, given the benefits of immediate feedback, richer interpersonal connections, and enhanced mutual understanding, e.g., [10,11]. However, the findings from this analysis suggest a more complex reality.

Despite being largely asynchronous, the Netherlands–Spain business case reports display a very similar level of critical analysis, cultural theory integration, and structured argumentation to the reports produced by the student groups in the synchronous Netherlands–Japan IVC. Moreover, asynchronous communication did not result in disorganised work; all of the Netherlands–Spain groups achieved clear structure and logical flow. In addition, asynchronous collaboration does not appear to have had more impact on consistency in writing style and tone, as such aspects were partially met in nearly all reports across both collaborations.

Interestingly, the only group that seemed to underperform in different learning outcomes analyzed belonged to the Netherlands–Japan collaboration—despite having access to synchronous communication. This suggests that synchronous interaction alone does not guarantee higher performance. Factors such as group dynamics, academic expectations, familiarity with content, and institutional support likely play a larger role.

Our results are consistent with the proposition that asynchronous modalities, when structured well, can enable deep and reflective analysis. The Netherlands–Spain collaboration shows that asynchronous group work, when scaffolded and well-supported, can deliver high-quality, critically engaged academic work.

This comparison reveals several insights relevant for educators designing and implementing IVCs focused on sustainability [29,31] and CSR, e.g., [28,63], which are in line with GCED, e.g., [3,4,25]. First, clarity of expectations and guidance on report structure appear to be effective in both collaboration modalities (synchronous/asynchronous). All groups met standards for organization and coherence, despite cultural and linguistic diversity, and this might be since the instructions for the business case have been carefully improved by collaborating teachers over three years of previous similar IVC implementations based on students' feedback and teachers' observations. Secondly, writing style consistency remains a common challenge in virtual, intercultural group writing. Instructors might support this by including collaborative editing stages, style guides, or assigning peer editors. Finally, group dynamics seem to play a critical role. The outlier group in the Netherlands–Japan collaboration suggests that some groups may require additional facilitation, especially when early warning signs (e.g., lack of cohesion or critical depth) emerge.

Despite the distinctions between synchronous and asynchronous modalities, both types of IVCs have shown that students generally express satisfaction with their outcomes. Notably, students participating in synchronous modalities reported higher satisfaction regarding group work activities and cultural learning. In contrast, while participants in the Netherlands–Spain IVC also indicated satisfaction, it was evident that many focused pri-

marily on the task rather than the collaborative dynamics of the group. However, the satisfaction survey suggests that synchronous online interaction through common class instruction and group work may lead to a greater degree of student satisfaction, more people-orientation than task-orientation, and a relatively higher focus of students in the course on intercultural learning outcomes.

6. Conclusions

Based on PAR of the two IVC courses, this study contributes to the nascent empirical literature on how the effectiveness of synchronous versus asynchronous collaboration impacts the deliverables of students' performance and satisfaction [10,11,55,56] when implementing GCED in the curricula through IVC [27]. Surprisingly, in contrast with other studies, e.g., [11,55], both IVCs produced commendable reports demonstrating engagement with sustainability, CSR, and cultural analysis. No substantial differences in the quality of the work delivered by students from both collaborations were detected, leading to the conclusion that, at least in the context of this research, the collaboration modality (synchronous/asynchronous) did not have an impact on students' deliverables. The findings point to the importance of robust scaffolding and facilitation in maximizing the learning outcomes of intercultural virtual collaboration.

In both IVCs, more than 80% of participants reported satisfaction with their outcomes, engagement, and learning experiences. Although differences in the satisfaction levels exist between the two IVCs, it may be concluded that the asynchronous format of the classes did not adversely affect the quality of work or overall satisfaction experienced by most participants. We propose that our results support the importance of the role of instructor expertise and experience in the different partner institutions in facilitating and coaching students in the IVC process, as posited by scholars in the literature, e.g., Herrera-Pavo [9]; Kopp, Matteucci, and Tomasetto [45]. These insights can inform future iterations of similar projects, helping to refine both the instructional design and student support mechanisms necessary for high-quality, intercultural, sustainability-focused learning.

We identify two main limitations with our research. The first relates to the sample size and number of participant groups involved. A longitudinal analysis of similar groups over time—through comparable implementations in subsequent years—could provide further insights into whether the findings of this study are consistent across other collaborations. The second limitation concerns the influence of Artificial Intelligence (AI). At the time these collaborations took place, AI tools had recently emerged. Although the business case instructions were designed to require students to articulate their own ideas and connect theory with real-world contexts (for example, by taking pictures of actual shops or products and critically analyzing them), instructors acknowledge that some groups may have used AI in the production of their reports. This likely had an impact on the overall quality of the writing. Monitoring the process of virtual collaboration is important to guide learning in the IVC. As instructors, we advocate that focusing on the process of working together on the report, rather than the final output, and guiding that process to ensure that students learn from their intercultural experiences is essential to counter the challenges to learning posed by the emergence of student use of AI. Creation, discussion, and presentation on a weekly basis reinforce the positive interdependence between team members. In terms of future research, there is a need for more empirical evidence to evaluate the effectiveness in meeting learning objectives of, and students' satisfaction with, synchronous and asynchronous modalities in VE. A greater understanding of how different modalities of virtual collaboration can contribute to students' journey of experience to develop intercultural awareness and be better prepared as global citizens.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/higheredu4040066/s1, Document S1: Business Case Assignment; Document S2: Satisfaction Survey. References [64–69] are cited in the Supplementary Materials.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

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