

**ONLINE LEARNING FOR SUSTAINABILITY: A COMPARISON OF
ROLE-PLAY AND CASED-BASED LEARNING APPROACHES**

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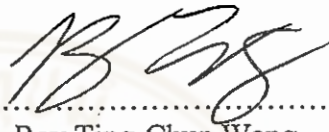
RAY TING-CHUN WANG

**A THESIS SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
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(SUSTAINABLE LEADERSHIP)
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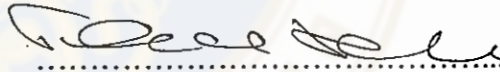
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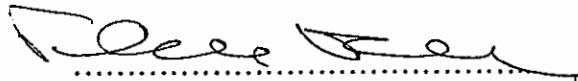
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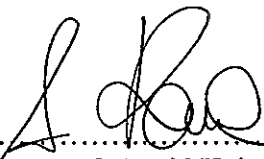
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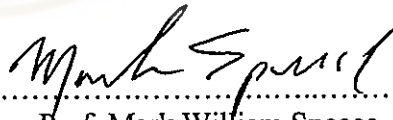
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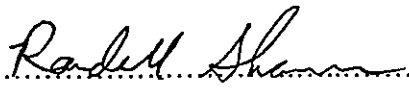
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Ray Ting-Chun Wang

ONLINE LEARNING FOR SUSTAINABILITY: A COMPARISON OF ROLE-PLAY AND CASE-BASED LEARNING APPROACHES

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ABSTRACT

Higher education faces multiple challenges of change in the 21st century. Constraints imposed by the COVID-19 pandemic highlighted the urgent need for universities to enhance their technological capabilities. Generation Z students come to school with different attitudes and expectations; they expect to be involved and engaged in their learning. Moreover, employers are expecting students to graduate with attitudes and skills suited to the needs of working in the fourth industrial revolution. This dissertation consists of three essays that focus on the use of role-plays as a pedagogical method, and their application to learning communication strategies for corporate social responsibility.

The first essay used a bibliometric review method to document and analyze the full Scopus-indexed literature on the use of simulations and games in school settings. The intellectual structure, or key theoretical streams of research, was comprised of four schools of thought: management education, medical education, technology-enhanced simulations and games, and learning theories in simulations and games. The study found that researchers focusing on simulations and games in medical and management education have progressed on parallel tracks, with relatively little cross fertilization of findings, methods and theories. The analysis of the literature's intellectual structure further highlighted the important role that cognitive and social learning theories have played in the development of these particular forms of active learning.

The second essay presents an experimental study that sought to assess and compare the learning process and outcomes of a unit on CSR communication taught to undergraduate students through a role-play or case-based learning approach. The role-play and case-based learning groups were challenged to solve the same CSR problem faced by a company but engaged in different learning activities in their respective five class sessions conducted over Microsoft Teams. The study found that although there was a marginal improvement in sustainability attitudes for the role-play students, neither group improved significantly in terms of their knowledge of CSR communication. The results highlighted the complexities and constraints of using both active learning approaches in an online learning environment. The qualitative study for the third essay revealed several challenges with the organization of team-based learning activities online. Although activities could still be engaging, there were various communication challenges and passive students who did not actively participate. However, they did mention that presenting a CSR communication plan to experienced work professionals was a key part of their learning and helped them better understand how to do effective CSR communication.

In summary, the results of these three essays confirm that role-plays can be highly engaging, even online. However, when these activities are done on complex topics such as sustainability, multiple levels of evaluation are necessary to accurately determine if SSGs activities can really deliver more effective learning outcomes compared to other learning activities such as case-based learning, field visits, or game-based learning. The three essays not only add on to the previous literature on simulation-based learning, but also provide guidance to educators on the necessary conditions for simulation-based learning activities like role plays to be truly effective. The study also provides recommendations for educators on other activities that may be more effective if team-based learning is not optimal for their learners.

KEY WORDS: SIMULATION-BASED LEARNING / ROLE-PLAY / CASE-BASED LEARNING / SUSTAINABILITY / CSR COMMUNICATION

192 pages

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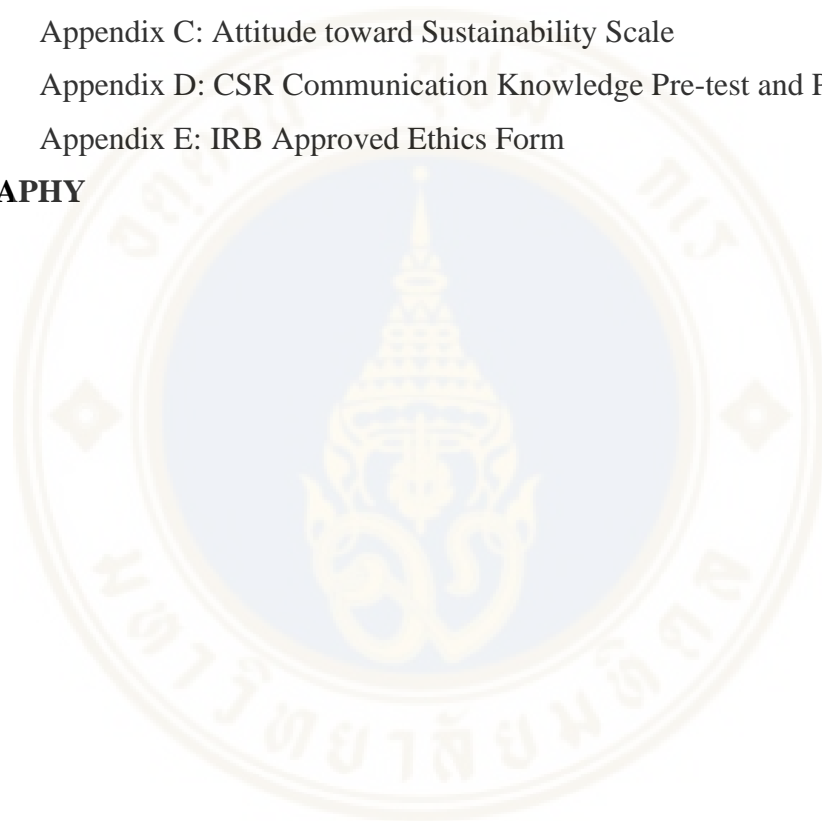
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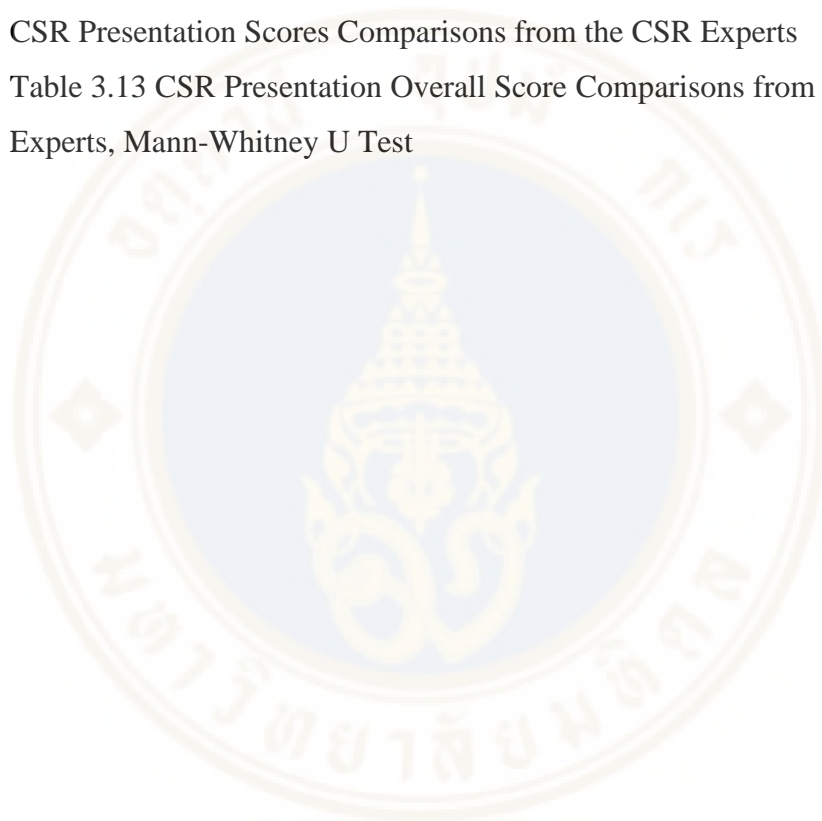


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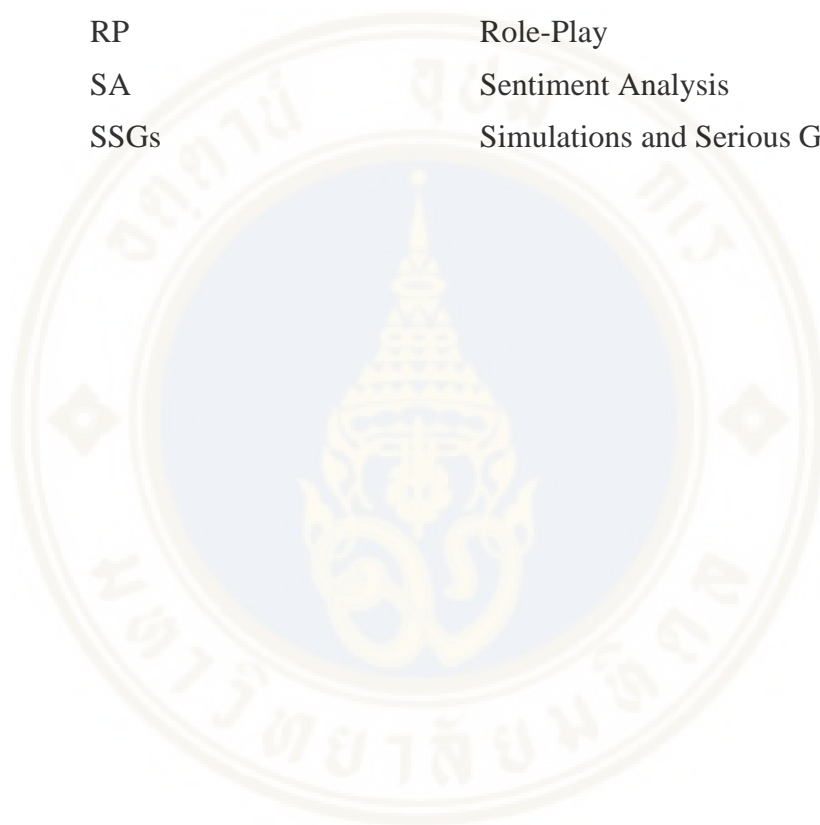
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LIST OF ABBREVIATIONS

CBL	Case-Based Learning
CSR	Corporate Social Responsibility
RP	Role-Play
SA	Sentiment Analysis
SSGs	Simulations and Serious Games



CHAPTER I

INTRODUCTION

1.1 Introduction

This Ph.D. thesis consists of three essays focusing on the study of simulation-based learning, role-play, and case-based learning for teaching concepts and practices designed to enhance corporate social responsibility (CSR) communication. The three essays are as follows.

- Essay I: The Evolution of Simulation- Based Learning Across the Disciplines, 1965–2018: A Science Map of the Literature (published)
- Essay II: Assessing the Effects of Role-Play vs. Case-Based Learning Activities on Corporate Social Responsibility Communication Concepts and Skills
- Essay III: Investigating the Use of Role-Play and Case-Based Learning Activities in an Online Learning Environment.

The search for more effective methods of active learning has led educators to use a wide variety of pedagogies including problem-based learning, role-play games, simulations, project-based learning, and flipped classrooms (Carr et al., 2015; Moratis et al., 2006; Tharayil et al., 2018). The literature on educating for sustainability has highlighted the potential of simulations and serious games for teaching sustainability concepts and developing more positive attitudes (Chen & Martin, 2015; Hallinger et al., 2020; Lourdel et al., 2006; Meya & Eisenack, 2018; Rooney-Varga et al., 2018). Role-play games represent a subset of the broader field of simulations and serious games. Thus, the first Essay in this dissertation takes a comprehensive view when examining the literature on simulations and serious games as active forms of pedagogy.

Essay I provides an review of research on simulation-based learning across the disciplines from 1965-2018. This bibliometric review analyzed the full Scopus-indexed literature on simulations and serious games. The review identified 2,812 relevant Scopus-indexed documents published between 1965-2018 on simulation-based learning. Bibliometric analyses were used to gain insights into the scope, evolution, and theoretical underpinnings of the knowledge base on simulations and serious games used in education settings.

A slightly different form of the review presented in Essay I was published in *Simulation & Gaming* (Hallinger & Wang, 2020b). It should also be noted that the researcher also published a separate version of this bibliometric review that focused more specifically on the use of simulations and serious games in management education. This review was published in the *International Journal of Management Education* (Hallinger & Wang, 2020a). Finally, the author also contributed to a review of research on the use of simulations and serious games designed explicitly for learning about sustainability issues (Hallinger et al., 2020). Results from this study were also used in Essay I to inform about the research designs utilized in past research on the impact of simulations and serious games for sustainability (SSGs).

These reviews of the literature verified the increasing popularity of simulations and serious games in higher education over the past two decades. These active learning pedagogies have found particular appeal among educators in the field of sustainability due to their ability to engage learners in addressing complex problems that call for the application of inter-disciplinary knowledge and holistic, systemic solutions (Hallinger & Wang, 2020b). Moreover, sustainability has proven to be a challenging subject to teach, since it requires a variety of different competencies for individuals to solve sustainability problems (Lotz-Sisitka et al., 2015; Mogensen & Schnack, 2010; Wiek et al., 2015). These reviews also found that, to date, sustainability-oriented simulations and games have tended to focus on the environmental dimension of sustainability challenges and solutions (Hallinger et al., 2020). Fewer simulations and games have engaged social responsibility and sustainability issues.

These research reviews also highlighted a range of methodological weaknesses across both the literature on simulations and serious games (Hallinger & Wang, 2020a, 2020b), and sustainability (Chen & Liu, 2020; Hallinger et al., 2020; Liarakou et al., 2012; Nguyen & Hallinger, 2021). For example, empirical studies of the effects of sustainability simulations and games have relied largely on student perceptions of the learning experience (Hallinger et al., 2020; Liarakou et al., 2012). Fewer studies have examined impact on knowledge, attitudes, skills, and behaviors (Foucrier & Wiek, 2019; Lotz-Sisitka et al., 2015; Mogensen & Schnack, 2010; Wiek et al., 2015). These limitations of the existing literature are also reflected in the predominant use of non-experimental research designs whose findings are limited to perceptual associations in the field of education for sustainability (Barth & Rieckmann, 2015; Hallinger & Nguyen, 2020).

These gaps in the literature framed the goals of the empirical studies incorporated into this dissertation. Essay II presents an experimental study that compared the learning process and outcomes of a course unit on CSR (corporate social responsibility) communication taught to undergraduate students through either a role-play or a case-based learning approach. Although the original conceptualization of the study had envisioned that the experimental interventions (i.e., role-play and case study CSR modules) would be conducted face-to-face in a physical classroom, constraints imposed by the COVID-19 pandemic meant that both educational interventions had to be implemented in a fully online teaching and learning environment.

Students in an undergraduate media communications class were randomly assigned to either a role-play (n=56) or case-based learning (n=53) group. Although the role-play and case-based learning groups were challenged to solve essentially the same CSR problem, they engaged in different learning activities in their respective class sessions. All class sessions in both intervention were conducted entirely online over Microsoft Teams.

All students completed pre/post-tests that sought to gain insights into their CSR communication knowledge and sustainability attitudes prior to and following the respective interventions. In the final week of the modules, student teams in each class presented their CSR communication plans to a panel of experienced media professionals. Panelists assessed the presentations using a standard rubric, and provided feedback to the students.

Analyses of these quantitative assessments (i.e., tests, performance assessments) were used to assess the effects of the respective active learning methods on student knowledge, attitudes, and skills.

Essay III focuses on the use of these active learning methods when employed in a fully-online learning environment. As suggested above, this was an opportunistic adaptation of the original study proposal which sought to leverage the constraints imposed by the COVID-19 pandemic. The researcher used a variety of qualitative research methods to inquire how the online learning environment may have influenced the process of role-play and case-based learning. For this essay, student responses to weekly reflection activities were completed in the online Moodle platform. Students also completed teamwork evaluations and a ‘Talk Back Reflection’ at the conclusion of the learning modules. These qualitative data were analyzed using a variety of narrative and software tools. The aim of these analyses was to gain a better understanding of how the delivery of these active learning pedagogies may have been shaped by the online learning environment. This is an issue of broad relevance as more and more higher education programs are employing fully online and hybrid modes of teaching and learning (de Novais et al., 2017; Hapizah et al., 2022; Kurniawan & Candra, 2021; Saputra et al., 2023).

CHAPTER II

ESSAY I: THE EVOLUTION OF SIMULATIONS AND SERIOUS GAMES ACROSS THE DISCIPLINES, 1965–2018: A SCIENCE MAP OF THE LITERATURE

2.1 Introduction

Educators have researched different active learning methods designed to improve learning in various disciplines and subjects. Scholars have argued that active learning methods not only produce higher levels of learner engagement, but also have the potential to foster greater retention and transfer of concepts (Carr et al., 2015; Tharayil et al., 2018). Widely researched forms of active learning include the flipped classroom, problem-based learning, case-based learning, cooperative learning, simulations, and serious games.

The modern history of published research on simulations, and serious games (SSGs) reaches back over a period of at least six decades (Faria, 2001; Gosen & Washbush, 2004; Vogel et al., 2006). Proponents have asserted that simulations and serious games are a more effective and engaging way of teaching students how to apply theoretical concepts to real-world situations than traditional teaching methods such as lecture and discussion (Duchatelet et al., 2019; Faria, 2001; Steadman et al., 2006). Faria (2001) noted, for example, that seven out of nine studies on SSGs reported that students who participated in SSGs activities scored higher on common exams. Students also felt they learned more than students in traditional lecture settings. Steadman and colleagues (2006) also reported better learning outcomes from a simulation than for a comparison group of students who learned through problem-based learning.

Reviews of research further support the conclusion that SSGs produce positive results on a range of cognitive learning outcomes, as well as offering more engaging and relevant preparation for the workplace (Anderson & Lawton, 2009; Asiri et al., 2017;

Issenberg et al., 2005; McGaghie et al., 2011; Salas, Rosen, et al., 2009; Sitzmann, 2011). Moreover, as conceptual and empirical research on SSGs has accumulated over time, numerous scholars have undertaken systematic reviews of research focusing on the use of simulation-based learning in a range of different subject domains. For example, reviews of research have been conducted on the use of SSGs in K–12 education (D’Angelo et al., 2014; Hew & Cheung, 2010; Merchant et al., 2014), business and management education (Anderson & Lawton, 2009; Faria, 2001; Gosen & Washbush, 2004; Keys, 1976; Keys & Wolfe, 1990; Salas, Wildman, et al., 2009; Vogel et al., 2006; Zantow et al., 2005), engineering education (Deshpande & Huang, 2011; Koh et al., 2010), healthcare education (Cant & Cooper, 2010; Issenberg et al., 1999; McGaghie et al., 2010; Ziv et al., 2003), and general higher education (Lean et al., 2006; Weller, 2004).

Research reviews have also been conducted on particular lines of inquiry within the literature on SSGs. These include reviews on the role of goal-setting (Seijts et al., 2004), debriefing of simulation activities (Cheng et al., 2014; Crookall, 2010; Fanning & Gaba, 2007), use of multimedia applications (Cheng et al., 2014; Hew & Cheung, 2010; Merchant et al., 2014; Sitzmann, 2011; Vogel et al., 2006), and the impact of SSGs on various learning outcomes (Anderson & Lawton, 2009; Boyle et al., 2016; De Jong & Van Joolingen, 1998; Gosen & Washbush, 2004; Issenberg et al., 2005; McGaghie et al., 2011; Sitzmann, 2011).

Yet, despite the wide range of reviews of research on SBL, to date, no scholars have sought to gain a broad perspective on the use of simulations and serious games across all school levels and disciplines. Moreover, in the course of conducting the bibliometric review, the researcher also discovered an emerging corpus of documents that focused on the use of SSGs in teaching and learning for sustainability. Yet, no scholars had examined this subset of the literature on SSGs either from the perspective of research methods or topics. These represent the gaps in this literature that were addressed in this review.

The review was guided by the following research questions:

1. What are the size, growth trajectory, and geographic distribution of the literature on simulation-based learning?
2. What authors and documents have had the greatest impact in shaping scholarly discourse on simulations and serious games?

3. What is the intellectual structure of the knowledge base on simulations and serious games?
4. What have been the most frequently studied topics related to simulations and serious games?
5. What have been the key topics, subject areas, modes of delivery, and educational settings for research on SSGS in the education for sustainability?
6. What research designs and methods have been used in research on the use of SSGs in educating for sustainability?

This review analyzed the knowledge base on SSGs from the perspective of ‘science mapping’ (Zupic & Čater, 2015). ‘Science mapping’ uses bibliometric analysis to document and analyze features of the literature that shape knowledge production (Hallinger & Kovačević, 2019). In this review, the researcher conducted bibliometric analyses of 2,812 Scopus indexed documents published between 1965 and 2018. Descriptive statistics, citation analysis, co-citation analysis, visualization of similarities, and keyword co-occurrence analysis were used to document trends in knowledge production as well as to reveal the intellectual structure of the literature on simulations and serious games. The review, which spans all disciplines in which SSGs have been used, aims to provide a comprehensive analysis of how simulations and serious games has evolved as a field of study.

2.2 Conceptual Background on Simulation and Serious Games (SSGs)

Teachers have used ‘simulations’ in one form or another for centuries (Faria, 1987; Wolfe, 1994). However, formal research on simulations and games emerged during the 1960s out of an older descriptive literature on ‘business games’ (McKenney & Dill, 1966; Philippatos & Moscato, 1969; Raia, 1966; Schild, 1966). Over time, educators began to transform these games into ‘simulations’ that incorporated more and more lifelike features mirroring the ‘work context’ in which learners apply their knowledge (Faria, 2001; Keys & Wolfe, 1990). The instructional design and application of interactive games and

simulations are predicated on the value of 'learning from experience' (Feinstein et al., 2002; Gosen & Washbush, 2004; Wolfe & Crookall, 1998).

Simulations and games offer learners an opportunity for learners to make decisions aimed at solving highly contextualized, work-related challenges in a safe environment (Faria, 2001; Garris et al., 2002; Salas, Rosen, et al., 2009; Wolfe, 1994). Learners receive feedback on simulated decisions made in response to a challenging situation. This enables students to 'experience' and 'see' results of their decisions, and to reflect on the pros and cons of their choices (Kiili, 2007; Lovelace et al., 2016; Penfold, 2009; Wolfe, 1994). Instructor debriefing, a critical dimension of simulation- and game-based learning, fosters further reflection on choices and consequences, thereby enhancing understanding as well as the transfer of learning to other settings (Cheng et al., 2014; Crookall, 2010; Fanning & Gaba, 2007; Neill & Wotton, 2011; Salas, Rosen, et al., 2009). This experiential learning process (Kolb, 1984) increases learner motivation and retention by providing a challenging, life-like, and meaningful context for learning (Garris et al., 2002; Lainema, 2009; Lu et al., 2014; Wolfe, 1994).

Beginning during the 1980s and continuing to the present, the evolution of simulations and serious games has been facilitated by the emergence of new learning technologies (Faria, 2001; Faria et al., 2009; Issenberg et al., 1999; Mayer, 2010). Computer-based simulations and games have enabled educators to exploit the interactive and computational capabilities offered by desktop computers (De Jong & Van Joolingen, 1998; Faria et al., 2009; Hallinger & McCary, 1991; Issenberg et al., 1999; Leutner, 1993). These capabilities have enhanced the power of simulations and games by offering learners opportunities to model different decision sequences and 'see' patterns in varying decision contexts (Lu et al., 2014; Mayer, 2010; Vogel et al., 2006).

As the world-wide web developed greater bandwidth during the 2000s, desktop computer simulations evolved into 'online web-based simulations' (Showanasai, Lu, & Hallinger, 2013). Web-based simulations offer wider, 'anytime' access for learners, the ability to link simulations to external content on the worldwide web, and enhanced data collection capabilities for researchers (Kiili, 2005; Lovelace et al., 2016; Penfold, 2009; Showanasai et al., 2013; Squire & Klopfer, 2007). The continued evolution of learning

technologies over the past decade has resulted in the design of simulations that leverage virtual reality and immersive learning environments (Dalgarno & Lee, 2010; Hew & Cheung, 2010; Koh et al., 2010; Merchant et al., 2014). These technologies offer enhanced capabilities for modeling the 'real world' in which learners confront and solve simulated problems (Dede, 2009; Dunleavy et al., 2009).

Findings from empirical research suggest that SSGs create an engaging and stimulating learning environment that challenges learners to consider how knowledge can be applied in different domains (e.g., Cant & Cooper, 2010; Dede, 2009; Faria, 2001; Keys & Wolfe, 1990; Lu et al., 2014; Salas et al., 2009). However, several areas of concern have also emerged from critical reviews of the use of simulations in educational settings (Faria et al., 2009; Gosen & Washbush, 2004; McGaghie et al., 2010). For instance, Feinstein and colleagues (2002) noted a frustrating ambiguity with the terminology used in this literature. Specifically, terms such as simulations, games, and role-play are often used inconsistently, interchangeably, and without clear conceptual definitions. According to Crookall and Saunders (1989), simulations provide real-world contexts in which learners develop strategies and make decisions aimed at solving a problem. In contrast, games do not necessarily represent real world situations, though they may also involve some form of strategy. Role-play is a broader category of learning activity that, again, may not always incorporate a complex representation of a real situation. These distinctions were used to inform the definition of terms for the current review (Crookall & Saunders, 1989).

2.3 Method

Zupic and Čater (2015) noted that the consolidation of past research models, methods, and findings represents an important function for reviews of research. The 'science mapping' method used in this review analyzes 'bibliographic meta-data' associated with a large corpus of documents. This approach to research review offers an empirical means of documenting trends in knowledge production (e.g., size, growth, geographic distribution), analyzing the scholarly impact of authors, documents, and

journals, and illuminating the intellectual structure of a knowledge base (Van Eck & Waltman, 2010; White & McCain, 1998). As the name implies, science mapping has been applied across numerous fields of study including natural sciences, social science, engineering, management, and education (Hallinger & Kovačević, 2019; Zupic & Čater, 2015).

2.3.1 Identification of Sources

Science mapping reviews typically generate the review database from document repositories such as Scopus or the Web of Science (WOS). In this review, the researcher selected Scopus rather than the Web of Science as the document source due to its superior coverage of social science, management, and education-related publications (Hallinger & Kovačević, 2019; Mongeon & Paul-Hus, 2016). The search criteria sought to gain a broad, deep, long-term perspective on the use of ‘simulations and serious games’ in education and training programs. The researcher conducted an ‘open-ended search’ with respect to the date of publication. Similarly, in order to gain access to as many relevant Scopus-indexed documents as possible, this research included conference papers, book chapters, books, and journal articles. In terms of topical criteria, the researcher neither limited research on SSGs to a particular discipline (e.g., medicine, management, engineering), nor did the researcher employ a narrow definition.

In this review, a ‘simulation’ could consist of a ‘serious game’ managed by an instructor (e.g., an extended role-play or board game), or a computer simulation. Simulations designed to be used as modeling tools were, however, excluded. The researcher employed the PRISMA framework (Figure 2.1) to organize our search (Moher et al., 2009). The initial Scopus search used the terms ‘experiential learning’ OR ‘problem-based learning’ OR ‘work-based learning’ AND “simulation” in order to capture approaches to learning that have been closely associated with simulations. In the end, however, documents associated with these related approaches were only included if they also focused on simulations (e.g., Steadman et al., 2006). The initial database search yielded 2,746 records (see Figure 2.1).

Past experience had shown that the Scopus search engine often excludes potentially relevant documents. Therefore, the researchers conducted supplementary searches in Google Scholar. Documents identified in the Google Scholar search were then checked for inclusion in Scopus. These supplementary searches yielded an additional 1,138 Scopus-indexed documents. When added to the existing list, it brought the total to 3,884 documents.

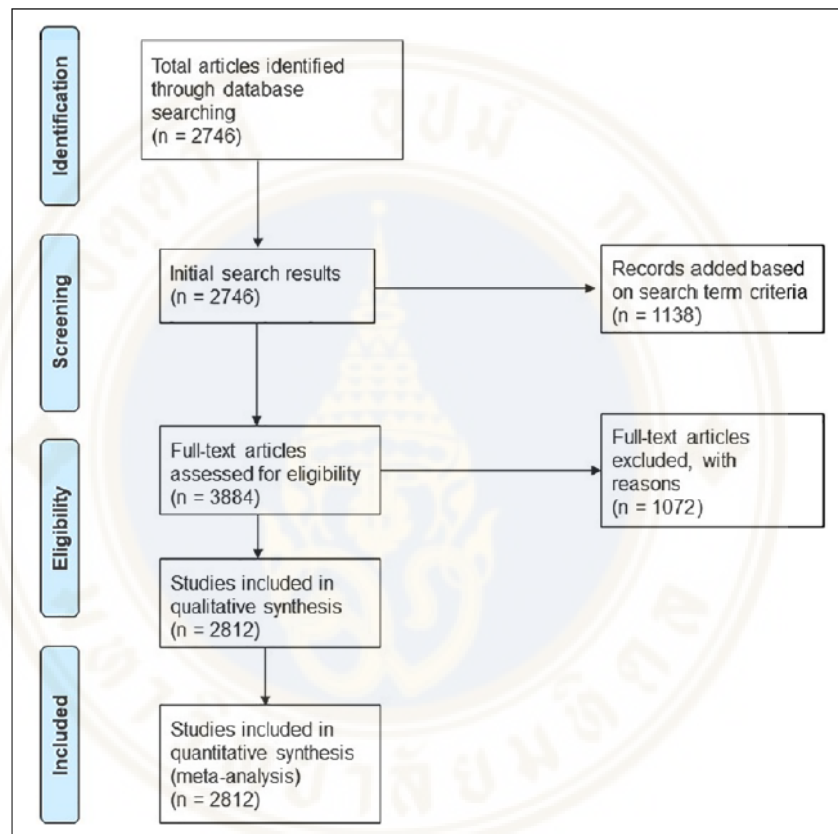


Figure 2.1 PRISMA diagram of source identification procedures used in this review of simulations and serious games (Moher et al., 2009).

In the next step, the researcher reviewed all 3,884 document titles and abstracts for ‘topical relevance’. Three criteria were used to assess eligibility at this stage. The simulation or game described in a document had to: 1) incorporate a reasonably high level of complexity, 2) incorporate important features of a real-life context, and 3) offer participants an experience that demanded significant decision-making. Application of these

criteria and the deletion of duplicate documents led to the exclusion of 1,072 records (see Figure 2.1). This left a total of 2,812 documents for bibliometric analysis.

2.3.2 Data Extraction and Analysis

Bibliographic data associated with these Scopus documents were exported as a MS Excel file. These meta-data included author affiliation, article title, keywords, abstracts, and citation data. In order to analyze the composition, growth, and geographical distribution of the SSGs knowledge base (Research Question 1), the author used Scopus analytical tools, MS Excel, and Tableau (Tableau, 2003-2019) software. Citation, co-citation, co-word, and network visualization analyses were conducted with VOSviewer (2009–2018) software (Van Eck & Waltman, 2010).

For the second research question, the review employed citation analysis to identify influential authors and documents in the SSGs literature (Zupic & Čater, 2015). When conducting citation analysis, VOSviewer identifies the number of times that documents (or authors) in the review database (e.g., 2,812 documents) had been cited by other Scopus documents.

In order to answer the third research question, the study conducted ‘co-citation analysis’ of key documents and authors. Two publications are co-cited if there is a third publication that cites both publications in its reference list (Small, 1973). Van Eck and Waltman (2014) stated that, “The larger the number of publications by which two publications are co-cited, the stronger the co-citation relation between the two publications” (p. 286).

Co-citation complements citation analysis due, in part, to its examination of author and document citations in the reference lists of the review documents. Thus co-citation analysis is able to access a much broader literature than citation analysis. In essence, co-citation analyses reveal the literature on the topic or field under review is based ((Hallinger & Kovačević, 2019).

Co-citation analysis has been used as the basis for social network analysis that visualizes similarities among authors in a field of study (Small, 1973; White & McCain, 1998). In this review, VOSviewer software was used to create visual representations or

'network maps' based on author co-citation analysis. Author co-citation maps have been used to uncover the intellectual structure or research traditions that comprise a knowledge base (Hallinger & Kovačević, 2019; White & McCain, 1998; Zupic & Čater, 2015).

For the fourth research question, the author employed keyword co-occurrence analysis or 'co-word analysis' to analyze the topical composition of the SSGs knowledge base. Co-word analysis "calculates the number of publications in which two keywords occur together (i.e., co-occur) in the titles, abstracts, and author keyword lists of documents included in the review database" (van Eck & Waltman, 2014, p. 287). Temporal co-word analysis extended the basic co-word analysis by identifying the topics of most recent interest in the SSGs literature (Van Eck & Waltman, 2014; Zupic & Čater, 2015).

As noted, the fifth and sixth research questions were addressed by analyzing a subset of the literature on SSGs which focused more specifically on their use to teach sustainability concepts, issues, and practices (Hallinger et al., 2020). A total of 376 documents were found to be related to SSGs and sustainability. These documents were coded according to key topics, subject areas, modes of delivery, and education settings. Additionally, to better understand what research designs have been used, the distribution of research designs and methods used in the research articles were coded to offer insight into the nature of the research questions that were addressed and the potential to provide evidence on the effectiveness of the educational interventions (Hallinger et al., 2020).

A coding scheme was designed to facilitate the content analysis. For example, documents were coded as 1 = book chapter, 2 = journal article, 3 = conference paper, 4 = other. Codes were also developed to identify modes of delivery (computer, online, board game, role play, multiple, other), educational settings (K-12, higher education, professional development, multiple, other). Additional codes were also used to categorize research designs (experimental, quasi-experimental, non-experimental), research methods (quantitative, qualitative, mixed), and statistical tests (descriptive, correlation, correlation with single control, multiple factor).

These codes were tested on a small sample of the actual documents for clarity and feasibility. There were some initial disagreements on the coding. For example, quite a few papers presented research findings without fully describing the methodology. These

papers were initially coded as ‘empirical papers,’ but were later re-coded as ‘commentary papers.’ Data analysis mainly used descriptive statistics to better understand the scope of SSG use of SSGs in educating for sustainability, the sustainability topics covered in this research, and how scholars studied the use of SSGS for sustainability in practice (Hallinger et al., 2020).

2.4 Results

The key findings are presented in the order of the research questions outlined at the beginning of the paper.

2.4.1 Size, Growth Trajectory and Geographic Distribution of the SSG

Literature

The 2,812 Scopus-indexed SSGs documents represent a considerably larger database than had been identified in prior reviews of SSGs research (Anderson & Lawton, 2009; Boyle et al., 2016; Connolly et al., 2012). The Scopus-indexed SSGs literature consisted of 1,652 journal articles, 1,010 conference papers, 134 book chapters, and 16 books. The journals publishing SSGs scholarship spanned education, management, engineering, medicine, nursing, social science, law, computer science, tourism, sciences, and geography (not tabled). The subject breakdown shown in Figure 2.2 affirms the multi-disciplinary nature of this knowledge base. The Scopus-indexed documents in our database included papers from both academic (e.g., chemistry, geography) and professional fields (e.g., nursing, management, medicine, engineering).

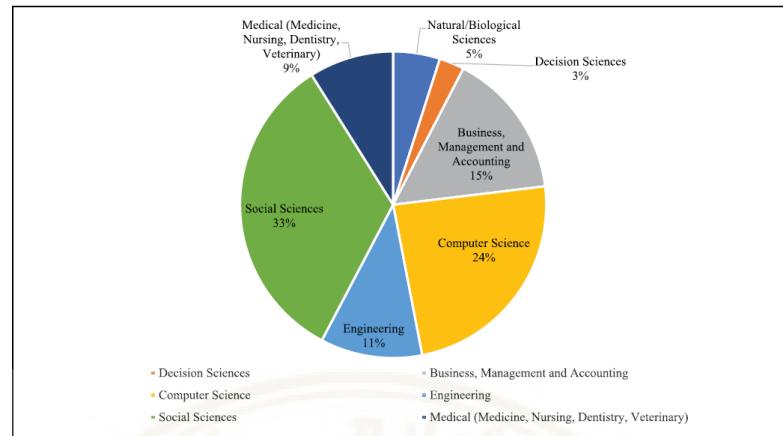


Figure 2.2 Subject area breakdown of the simulations and serious games literature, 1965–2018 (n = 2,812)

Figure 2.3 offers insight into the growth trajectory of the SSGs literature since 1965 when the first relevant, Scopus-indexed document was published. While the publication history of ‘educational games’ has been traced back over a full century (Faria, 1987; Faria et al., 2009), analysis of our database suggests that scholarly interest in SSGs grew slowly from the mid-1960s (McKenney & Dill, 1966; Philippatos & Moscato, 1969; Schild, 1966) until the 1990s when the annual rate of publication began to rise (Crookall & Saunders, 1989; De Jong & Van Joolingen, 1998; Faria, 1987; Keys, 1976; Keys & Wolfe, 1990; Wolfe, 1994). The publication of research papers on SSGs grew still more rapidly from 2000 to 2018, with 84.5% of the literature published since 2000 and 63.5% since 2010.

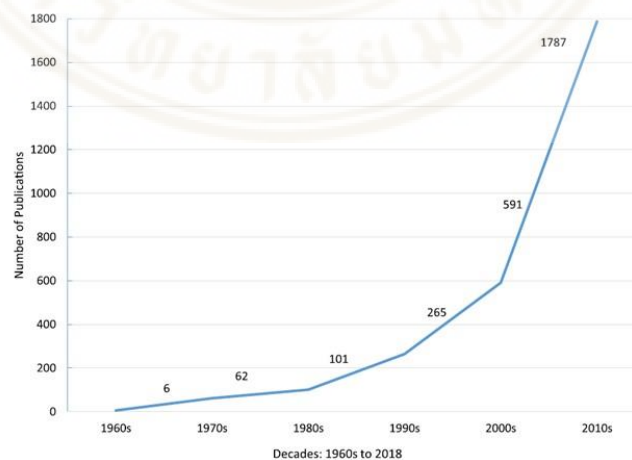


Figure 2.3 Growth trajectory of the literature in simulations and serious games, 1965–2018 (n = 2,812).

(21), and Verbraek (20). As indicated in Table 2.1, the most active SSGs scholars are affiliated with medical and management education.

The most influential SSGs scholars come from a group of American medical education researchers who collaborated on a series of high impact reviews of research (e.g., Issenberg et al., 1999, 2005; McGaghie et al., 2010, 2011). Other key scholars conducting research in other domains of SSGs include van Joolingen, Wolfe, Faria, Salas, de Freitas, Crookall, Lainema, and Keys. It should be noted that due to differences in index size, Scopus tends to yield lower citation counts than Google Scholar, but larger than the Web of Science. Since the citations counted in Table 2.1 only refer to these authors' Scopus-indexed publications on SBL, the researcher concluded that the citation totals are extremely high for the education literature (see Hallinger & Kovačević, 2019).

Table 2.1 Most Highly-Cited Authors With at Least Five Scopus-Indexed Publications on Simulation-Based Learning, 1965–2018 ($n = 2,812$).

Rank	Author	SSG Focus	Documents	Scopus Citations	CPD
1	McGaghie, W.	Medical Education	38	5382	142
2	Issenberg, S.	Medical Education	51	5132	101
3	Petrusa, E.	Medical Education	12	3308	276
4	Scalese, R.	Medical Education	12	3004	250
5	Gordon, D.	Medical Education	10	2507	251
6	de Jong, T.	Medical Education	31	2112	68
7	Gaba, D.	Medical Education	13	2053	158
8	Wayne, D.	Medical Education	18	1880	104
9	Barsuk, J.	Medical Education	13	1468	113
10	van Joolingen, W.	Medical Education	16	1334	83
11	Wolfe, J.	Management Education	37	1013	27
12	Feinglass	Medical Education	7	882	126
13	Cohen, E.	Medical Education Management	11	794	72
14	Faria, A.	Education	19	714	38
15	Salas, E.	Multi-domain Simulations and	11	656	60
16	de Freitas, S.	Games	6	509	85

17	Crookall, D.	Management Education	29	489	17
18	Lainema, T.	Management Education	24	390	16
19	Dieckmann, P.	Medical Education Management	10	388	39
20	Keys, B.	Education	9	353	39

SSG= Simulations and Serious Games, CPD= Citations Per Document

Document citation analysis complemented these trends surfaced by author citation analysis. Again, the citation impact of these SSGs documents is very impressive for a niche field of educational research (see Table 2.2). Documents from medical education (Gaba, 2004; Issenberg et al., 1999; Issenberg et al., 2005; McGaghie et al., 2010) again accumulated the most Scopus citations. Technology-enhanced SSGs displaced management education for second place in this table (e.g., Dalgarno & Lee, 2010; de Jong & van Joolingen, 1998; Dunleavy et al., 2009; Sitzmann, 2011). The distribution of papers by type (i.e., 10 conceptual, seven reviews, three empirical papers) suggests that this is a reasonably mature field of inquiry. Theory-informed empirical studies have led to the accumulation of knowledge which has been consolidated in periodic reviews of research (Cant & Cooper, 2010; De Jong & Van Joolingen, 1998; Gaba et al., 2001; Issenberg et al., 1999; McGaghie et al., 2010; Sitzmann, 2011).

Table 2.2 Most Highly Cited Documents in the Literature on Simulation-Based Learning By Scopus Citations, 1965–2018 ($n = 2,812$).

Rank	Document	Type	Focus	Scopus Citations
1	Issenberg, S. et al. (2005). Features and uses of high-fidelity medical simulations that lead to effective learning	Rev	SSG-Med Ed	1653
2	Garris, R. et al. (2002). Games, motivation, and learning: A research and practice model de Jong, T., & Van Joolingen, W. R. (1998). Scientific discovery learning with computer simulations of conceptual domains.	Con	SSG Theory	1407
3		Rev	Tech SSG	751

4	Gaba (2004). The future vision of simulation in healthcare	Con	SSG-Med Ed	723
5	McGaghie et al. (2010). A critical review of simulation-based medical education research: 2003–2009.	Rev	SSG-Med Ed	695
6	Issenberg et al. (1999). Simulation technology for health care professional skills training and assessment.	Con	SSG-Med Ed	611
7	Fanning & Gaba (2007). The role of debriefing in simulation-based learning.	Con	SSG-Med Ed	611
8	McGaghie, et al. (2011). Does simulation-based medical education with deliberate practice yield better results than traditional clinical education?	Rev	SSG-Med Ed	573
9	Dalgarno, & Lee (2010). What are the learning affordances of 3-D virtual environments?	Con	Tech SSG	536
10	Ziv et al. (2003). Simulation-based medical education: an ethical imperative.	Con	SSG-Med Ed	526
11	Dede, C. (2009). Immersive interfaces for engagement and learning	Con	SSG Theory	413
12	Wayne et al. (2008). Simulation-based education improves quality of care during cardiac arrest team responses at an academic teaching hospital: a case-control study.	Emp	SSG-Med Ed	402
13	De Freitas & Oliver (2006). How can exploratory learning with games and simulations within the curriculum be most effectively evaluated?	Con	SSG Theory	397
14	Gaba et al. (2001). Simulation-based training in anesthesia crisis resource management (ACRM): A decade of experience.	Rev	SSG Theory	393
15	Cant & Cooper (2010). Simulation-based learning in nurse education: systematic review.	Rev	SSG-Med Ed	378
16	Dunleavy, Dede & Mitchell, (2009). Affordances and limitations of immersive participatory augmented reality simulations for teaching and learning	Con	Tech SSG	375
17	Kanawattanachai & Yoo (2007). The impact of knowledge coordination on virtual team performance over time.	Emp	Man Ed	333
18	Sitzmann, (2011). A meta-analytic examination of the instructional effectiveness of computer-based simulation games.	Rev	Tech SSG	290

19	Steadman et al. (2006). Simulation-based training is superior to problem-based learning for the acquisition of critical assessment and management skills.	Con	SSG-Med Ed	278
20	Kozlowski et al. (2001). Effects of training goals and goal orientation traits on multidimensional training outcomes and performance adaptability.	Emp	SSG Theory	271

Med Ed=Medical Education; Man Ed=Management Education; Tech SSg=Technology Enhanced SSGs

Issenberg and colleagues' (2005) review of research on how simulations contribute to student learning is the top-cited paper in the SSGs knowledge base (see Table 2.2). Garris et al.'s (2002) conceptual paper on student motivation and learning using games was the next most influential document in our SSGs database. More broadly, the substantive foci of these highly cited papers cover an interesting range of topics. Nine of the papers focused explicitly on assessing the 'effectiveness' of SSGs (Cant & Cooper, 2010; De Freitas & Oliver, 2006; Gaba et al., 2001; Issenberg et al., 2005; Kozlowski et al., 2001; McGaghie et al., 2011; Sitzmann, 2011; Steadman et al., 2006; Wayne et al., 2008). Several examined core elements of the simulations and serious games process such as goal-setting (Kozlowski et al., 2001), debriefing (Fanning & Gaba, 2007), motivational strategies (Garris et al., 2002), and context enhancements through technology (Dalgarno & Lee, 2010; Dunleavy et al., 2009).

2.4.3 Intellectual Structure of the Literature

The third research question centered on identifying the 'intellectual structure' or key research traditions underlying the SSGs knowledge base (White & McCain, 1998; Zupic & Čater, 2015). Author co-citation analysis conducted in VOSviewer identified 71,555 discrete authors in the reference lists of our review documents. Using a threshold of 60 author co-citations, VOSviewer yielded an author co-citation map that displays the 138 most highly 'co-cited authors' in the SSGs literature (Figure 2.5). On a co-citation map, the node size reflects the relative frequency of author co-citations. 'Links' identify 'co-cited scholars'. The proximity of authors on the map suggests their frequency of co-citation by

other scholars and, therefore, their degree of intellectual affinity. Colored clusters highlight ‘schools of thought’ comprised of scholars who share common theoretical perspectives or lines of inquiry. The author co-citation map derived from our SSGs database revealed four coherent, inter-connected clusters of scholars (see Figure 2.5).

The red cluster comprised of 69 scholars reflects a school of thought representing *Learning Theories in SSGs* (see Figure 2.5). Notably, this is the only school of thought that includes authors who have not published papers on simulations and serious games (e.g., Bandura, Bransford, Brown, Collins, Csikszentmihalyi, Lave, Senge, Simon, Vygotsky, Wenger). Their inclusion on the map is due to their frequent ‘co-citation with scholars writing on SBL’ in the reference lists of our review documents.

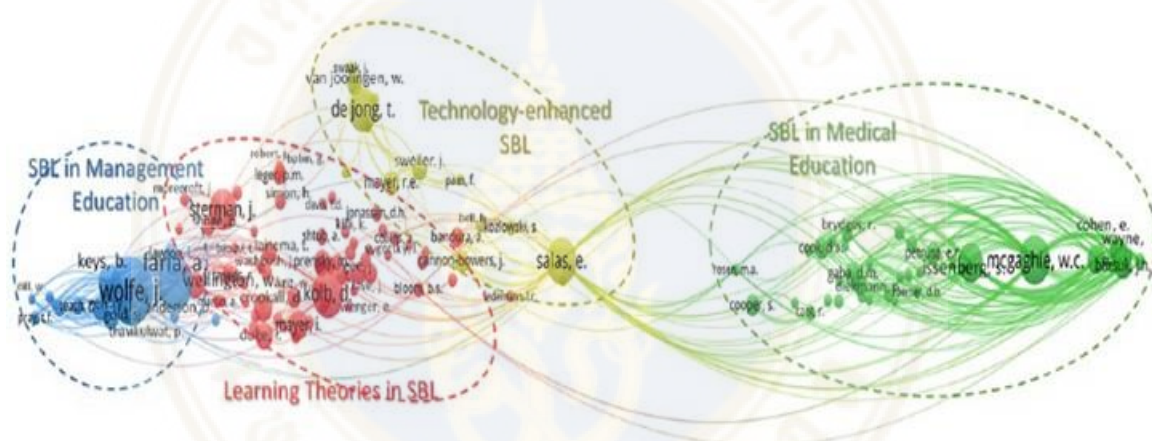


Figure 2.5 Author co-citation map of the SSGs knowledge base with 71,555 authors in the citation network, threshold 60 author co-citations, 131 authors (map generated in VOSviewer software with permission from van Eck & Waltman, 2009–2018).

These scholars, predominantly psychologists, are responsible for developing the theories of human and organizational learning and decision-making that have provided the conceptual underpinnings for simulations and serious games (Bandura, 1971; Brown et al., 1989; Lave & Wenger, 1991; Simon, 1983). Indeed, the most highly ‘co-cited scholar in the SSGs literature is David Kolb whose theory of experiential learning has influenced many of the scholars doing research on simulations and serious games. Also contained in this school are ‘co-cited scholars’ who have explicitly applied these learning theories to the

examination and evaluation of simulations and serious games (De Freitas & Oliver, 2006; Merchant et al., 2014; Prensky, 2001; Shin et al., 2003; Vogel et al., 2006).

This research classified the yellow cluster as the school of *Technology-Enhanced SBL*. The 15 authors in this cluster have published research on games and simulations that exploit the capabilities of learning technology (Cannon-Bowers & Bowers, 2009; De Jong & Van Joolingen, 1998; Mayer, 2002, 2010; Salas et al., 1998; Vogel et al., 2006). While scholars associated with the application of learning technologies to SSGs are not limited to this school, these authors are among the pioneers in this domain. Although this is the smallest of the four schools of thought, it includes several highly co-cited authors (Salas, 442 co-citations, de Jong, 389; Mayer, 174; van Joolingen, 171; Cannon-Bowers, 157; Sweller, 157; Kozlowski, 94) with numerous links to the other schools. This suggests its enduring influence on this field. This school also includes Eduardo Salas who features as the key 'boundary spanning author' in the SSGs literature. Boundary spanning authors connect and integrate ideas across different schools of thought (White & McCain, 1998). Salas' role is indicated by his central position on the map, high frequency of co-citation, and numerous links to scholars in all four schools of thought. Notably, Salas has authored key documents on the use of SSGs (including technology-enhanced simulations) in management (Salas, Wildman, et al., 2009), aviation (Salas et al., 1998), medical (Rosen et al., 2008; Salas & Burke, 2002) and general education (Wilson et al., 2009).

The blue cluster is comprised of 17 scholars noted for their research on *SSGs in Management Education*. This school encompasses management education and training in the business, education, and government sectors. Key scholars include Wolfe (715 co-citations), Faria (511), Keys (280), Anderson (185), Gold (173), Thavikulwat (171), Lawton (145), and Gentry (104). These scholars have examined the challenges of designing and evaluating SSGs (Feinstein et al., 2002; Gentry & McGinnis, 2007), paying particular attention to documenting the effects of SSGs on management learners (Adobor & Daneshfar, 2006; Gosen & Washbush, 2004; Lu et al., 2014; Wolfe, 2014). It should be noted that scholars in this school have also focused on technology enhanced SSGs (Anderson & Lawton, 2009; Gold, 2014; Keys et al., 1996; Lean et al., 2006; Showanasai

et al., 2013; Wolfe, 2014). Nonetheless, co-citation identified their scholarly ‘home’ in the management school.

The green cluster, comprised of 37 scholars, is associated with *SSGs in Medical Education*. Here, the researcher used the term ‘medical education’ to include all domains of healthcare education. Key scholars in this school include McGaghie (472 co-citations), Issenberg (342), Gaba (264), Cooper (224), Wayne (233), Barsuk (214), Cohen (203), Cook (158), Petrusa (155), Diekmann (122), and Brydges (116). This school is highly empirical with more extensive use of experimental and quasi-experimental research designs than, for example, the management school (Cant & Cooper, 2010; Fanning & Gaba, 2007; Kneebone, 2005; Steadman et al., 2006; Ziv et al., 2003). Authors located in this school have also been responsible for highly cited meta-analytic reviews aimed at documenting the effects of SSGs on learners (Issenberg et al., 2005; McGaghie et al., 2011).

Examination of the author co-citation analysis map from a broader perspective reveals additional insights. The size and centrality of the Learning Theories in SSGs school, as well as its numerous ‘links’ to the other three schools identify it as the ‘conceptual anchor’ for the SSGs knowledge base. The location of the management (blue cluster) and medical (green cluster) education schools on opposite sides of map as well as the paucity of links between their respective scholars suggest a balkanization of knowledge accumulation in this literature.

2.4.4 Topical Foci in the Literature on SSGs

The fourth research question inquired into the topics that have attracted the interest of scholars studying SBL. The researcher began by analyzing the frequency of keywords appearing in the titles, abstracts and keywords of the 2,812 review documents. After discounting “simulations and serious games”, our main search term, the most frequently studied topics in the literature were teaching and learning (529), simulations and games (490), serious games (381), students (335), computer simulation (331), business simulations (199), decision-making (186), curricula (166), experiential learning (160), e-learning (154), software design (151), clinical competence (142), engineering education (141), learning systems (141), medical education (138), nursing education (126), and

computer-assisted instruction (123). The results of this co-word analysis reinforce foci identified in the author co-citation analysis, with the additional benefit of being grounded in actual ‘content’ of the papers.

Next, the researcher generated a ‘temporal co-word map’ (see Figure 2.6) which distinguishes keywords based on their time distribution of occurrence (Van Eck & Waltman, 2014; Zupic & Čater, 2015). The ‘hot topics’ in this literature (i.e., yellow and bright green nodes) are concentrated in the region of the map associated with medical education. Two emerging themes in the medical education literature are *SSGs skills training* (e.g., clinical competence, skills, surgical training, patient safety and care, standards, simulation training) and *SSGs research* (e.g., controlled study, experiment, questionnaire, procedures, clinical study, randomized controlled trial).

A second set of emerging topics are located on the left side of the map where the topics tend to be associated with management education. One theme highlights the use of *multi-media and game-based learning in SSGs* (e.g., game-based learning, computer games, educational computing). A second emerging theme centers on *SSGs and sustainability* (e.g., sustainability, water management, risk management, climate change). This suggests that educators view simulations and serious games as a high impact approach for learning how to approach the complex, systemic challenges associated with social and environmental sustainability (Martinez Casanovas et al., 2022; Rooney-Varga et al., 2018; Savage et al., 2015). With the emergence of this SSGS and sustainability theme from this initial analysis, further exploration was done on 376 documents focused on SSGs for sustainability discovered in the 2,812 documents and in subsequent searches on Scopus and Google Scholar.

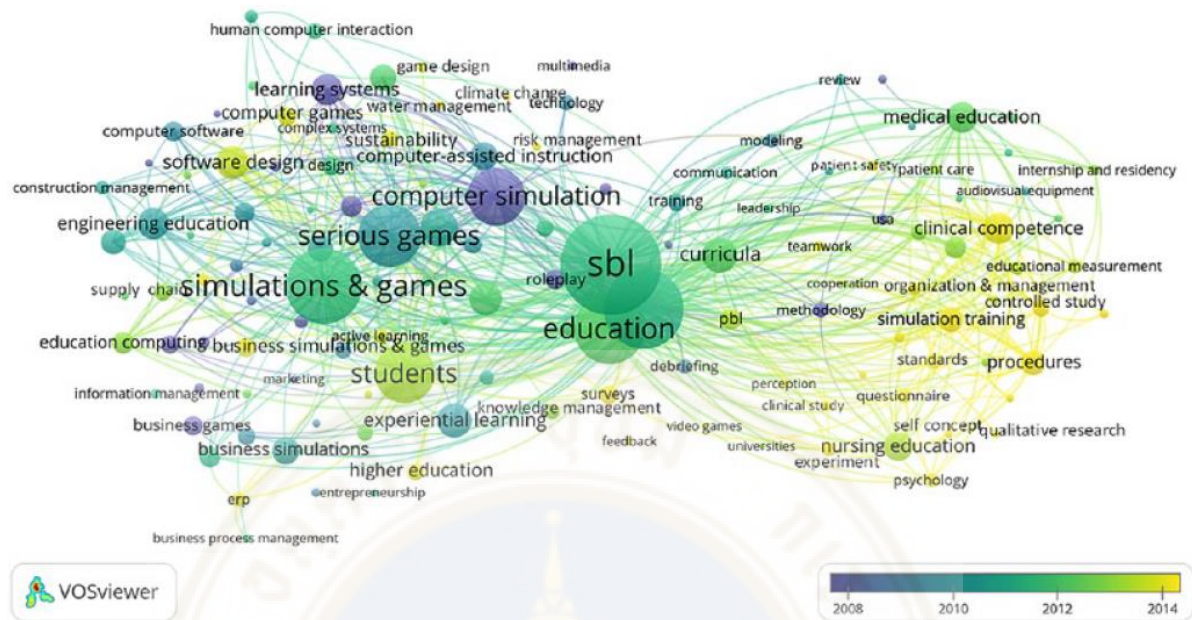


Figure 2.6 Temporal keyword co-occurrence map of the simulations and serious games literature, 1965–2018 (map generated in VOSviewer software, van Eck & Waltman, 2009–2018).

2.4.5 Key Topics, Subject Areas, Modes of Delivery, and Educational Settings for SSGs Used in Educating for Sustainability

In a separate, but related systematic review of research, the author participated as a team member in a review of simulations and serious games used in educating for sustainability (Hallinger et al. 2020). In this review, the research team discovered that many of the documents were commentaries (55%). In these commentaries, the authors typically shared their experience of using a particular sustainability in teaching a sustainability topic (Hallinger et al., 2020). However, the authors seldom included any formal data collection or analysis.

The prevalence of the commentary documents contrasted with documents that reported findings from empirical studies (33%). There was also a small number of research reviews (6%), but these were generally focused on surveying the use of simulations in particular domains of sustainability (Albertarelli et al., 2018; Baalsrud Hauge et al., 2014; Barreteau et al., 2007; Ulrich, 1997; Wu & Lee, 2015), rather than reviewing the research

findings of previous research (Hallinger et al., 2020). These trends identified in this literature on the use of SSGs in educating for sustainability highlighted a need for more empirical research capable of offering insights into efficacious methods of teaching and learning for sustainability.

In terms of key topics and subject areas, the review confirmed that SSGs were used in the three conceptual domains of sustainability (environmental, social, and economic). There was a diversity of academic fields represented in the literature such as social sciences, computer science, engineering, management, urban studies, and agriculture (Hallinger et al., 2020). However, further analysis revealed that SSGs used in educating for sustainability tended to focus on ‘environmental issue’ (Ducrot et al., 2015; Madani et al., 2017; Ulrich, 1997). Environmental SSGs encompassed a broad range of foci related to resource use, conservation, green construction, land management, and sustainable product design and production.

Social sustainability was represented in a much smaller set of SSG papers. These covered areas such as corporate social responsibility (Maltseva et al., 2018; Moratis et al., 2006; Źmuda et al., 2015), and sustainable consumption. Social sustainability issues related to stakeholder engagement were also addressed in the context of SSGs, such as negotiations between stakeholder groups over access to natural resources (Ahamer, 2006; Ducrot et al., 2015; Dumrongrojwathana et al., 2015; Jean et al., 2018). Thus, the review identified a need for more SSGs that focused on social sustainability issues.

In terms of ‘mode of delivery,’ we found that SSGs used for teaching sustainability used diverse approaches (Figure 2.7). Technology-enhanced SSGs were by far the most popular approach, accounting for 68% of the database. However, papers describing the use of board games and role-plays still represented 25% of the 376 documents, indicating their continued popularity (Hallinger et al., 2020). There were also cases in which SSGs employed multiple modes of delivery. For example, there were role-plays combined with technology or a board game, and a variant of traditional role-plays had also evolved in the area of lean production where 17 different articles focused on the use of ‘learning factories.’ These ‘learning factories’ provided learners with a simulated ‘hands

on' experience working with products in a physical rather than a virtual environment (Abele et al., 2015; Nitu & Gavriluta, 2019).

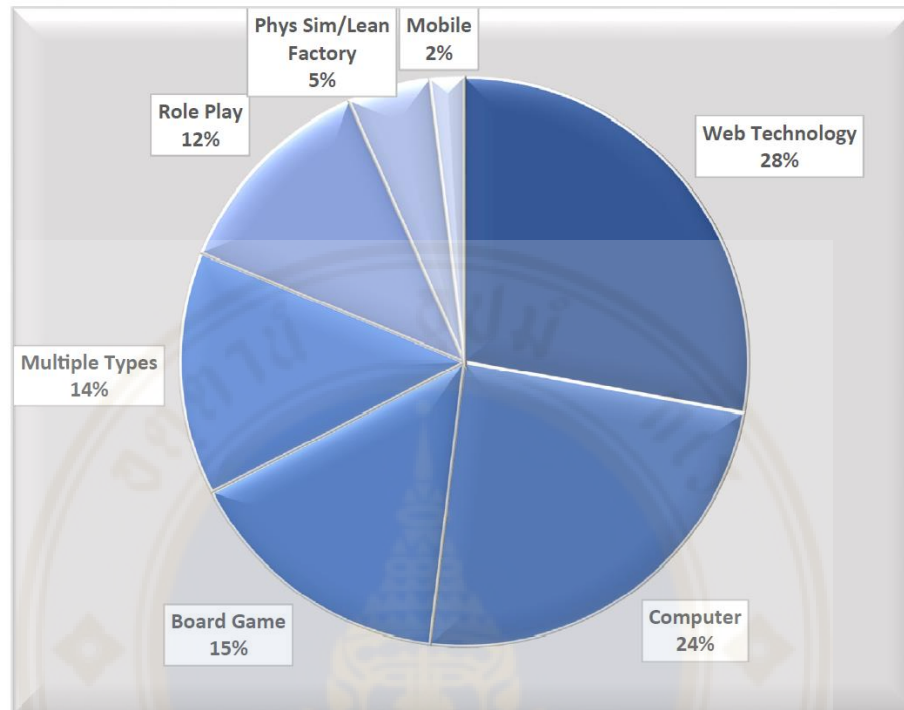


Figure 2.7 Distribution of research documents on the use of sustainability simulations and serious games by mode of delivery, 1997-2019 (n = 376).

2.4.6 Research Designs and Methods on the Use of SSGs in Educating for Sustainability

A second dimension of the analysis of this subset of SSGs used for teaching sustainability was the identification of research designs and methods (Hallinger et al., 2020). Experimental research designs involve the measurement of a pre/post status of relevant variables using treatment and control groups whose participants have been randomly selected and assigned (Campbell & Stanley, 2015). These types of studies are the 'gold standard' for determining causal effects of interventions.

Based on the definitions provided by Campbell and Stanley (2015), our review found that few studies met the standard of being an 'experiment'. Although many authors

claimed to report the results of an experiment, further examination found they did not actually conduct an experiment. Of the 125 empirical studies identified in the subset of sustainability-oriented SSGs, there were only 13 experimental and 22 quasi-experimental studies. In contrast, there were 90 non-experimental studies (cross-sectional surveys, case studies, qualitative studies). Thus, from the perspective of research designs, the current knowledge base on the use of SSGs for teaching sustainability topics remains dominated by non-experimental research that is incapable of determining the causal effects of educational interventions.

Table 2.3 provided further insights into the research methods used within each kind of research design. Our review reported that there were a large number of quantitative studies. There were also a moderate number of mixed method studies that frequently using quantitative methods to supplement the results with formative assessment questions analyzed through qualitative methods (Chappin et al., 2017; Meya & Eisenack, 2018; Mulcahy et al., 2020). However, there was still an insufficient number of studies to identify if and how SSGs for sustainability have achieved their learning goals (Hallinger et al., 2020).

Our review further analyzed the subset of 105 quantitative and mixed method studies using a four-level rubric that distinguished the level of statistical analysis employed in the research. Level one was for studies that featured descriptive statistics. Level two featured studies that had tests of correlation and difference without control variables (e.g. t-test, Spearman, or Pearson tests). Level three refers to tests of correlation and differences with inclusion of a single control variable (e.g., ANOVA). Level four statistical tests offered the capability to test for relationships with a multi-factor structure (e.g., multiple regression or factor analysis).

Table 2.3. Research Designs and Methods Used in Empirical Studies of Simulations and Serious Games Used in Educating for Sustainability, 1997-2019

Design	Method				Descriptive	Statistics (quant + mixed)			Total
	Quant	Mix	Qual	Total		Single Correlation	Correlation w/Control	Multi-Factor	
Experimental	6	7	0	13	1	8	1	3	13
Quasi-experimental	15	7	0	22	5	7	6	4	22
Non-experimental	47	24	19	90	48	16	1	5	70
Total	68	38	19	125	54	31	8	12	105

Table 2.3 revealed that more than 50% of the quantitative and mixed method studies relied primarily on descriptive statistics, and 81% relied on level one or level two statistical tests. Furthermore, there were numerous studies presented as ‘experiments’ that relied on simple descriptive statistics to compare the results of the pre-test and post-test. Taken along with the results on research designs, this indicates that the current knowledge base is still lacking in studies capable of addressing research questions related to not only to the effects of SSGS on sustainability, but also to different design elements (Hallinger et al., 2020).

Our review further reported that there were a few studies that featured very robust research designs (Hallinger et al., 2020). For example, Meya and Eisenack (2018) used a pre/post-test design to analyze the effects of a climate change simulation on the knowledge and beliefs of German high school students. The authors’ use of regression analysis enabled the authors to analyze how ‘in-game’ decision making influenced the beliefs of the participants. The study was also able to explore how learner characteristics impacted decision making (Meya & Eisenack, 2018).

It should be noted that qualitative studies also made useful contributions to the literature. For example, Dare and Barreteau (2003) conducted qualitative interviews with framers in a role-play game focused on management of irrigated water systems in Senegal. The study demonstrated how qualitative methods can be usefully employed to gain insights

into how students view role-play as a form of learning, and how social relations can shape the learning process (Daré & Barreteau, 2003).

2.5 Discussion

This review of research documented and synthesized patterns of knowledge production in the multi-disciplinary literature on simulations and serious games from 1965 to 2018. The review leveraged the capacity of science mapping to highlight trends through quantitative synthesis of a large database of studies. The review was also able to dive deeper into how SSGs have contributed to sustainability with a further content analysis. In this section, the researcher highlights limitations of the review methodology, and discusses the interpretation and implications of key findings.

2.5.1 Limitations

The main limitation of this review arises from the use of Scopus as the index from which to extract documents. While Scopus offers comprehensive coverage of peer reviewed literature in education (Mongeon & Paul-Hus, 2016), it does not include every potentially relevant document in this literature. Fortunately, the use of co-citation analysis mitigated this limitation by capturing relevant research from the literature beyond Scopus. A second limitation follows from the inconsistent use of terminology associated with simulations and games by scholars (Crookall, 2010; Faria, 2001; Gosen & Washbush, 2004; Keys & Wolfe, 1990). The practical impact of this issue on the current review lies in the potential omission of relevant papers that may have used terms other than simulation and game-based learning. Thus, despite the comprehensive coverage of this review, the researcher does not claim to have reviewed the entire field.

Regarding the analysis of the content of the SSGs for sustainability, the method was limited to describing and analyzing the literature from the perspective of the evolution and development. It could not address questions such as whether the SSGs for sustainability have met the goals of educating for sustainability. However, the analysis of research designs

and methods by Hallinger et al. (2020) has provided some evidence of the current capacity of the knowledge base to produce actionable findings. It can also serve as a guide for educators and researchers in this domain of educational research and practice (Hallinger et al., 2020).

2.5.2 Interpretation of the Findings

The 2,812 documents identified in this review represent a very substantial literature for a ‘niche subject’ in educational research (see Hallinger & Kovačević, 2019). Indeed, the substantial size of this database offers empirical evidence that research on SSGs has attracted a critical mass of educators. This conclusion is further reinforced by the high author and document citation impact and global audience of multidisciplinary scholars and educators documented in this review. Moreover, the growth trajectory of SSGs publications suggests that this literature will continue to accumulate rapidly and could double in size between 2018 and 2030.

Nonetheless, analysis of the geographical distribution of this SSGs literature found that publications are concentrated in a relatively small number of Anglo-American-European societies (see Figure 4). The researcher could not determine if this trend results from less frequent use of SSGs or simply less frequent publication of research outside of economically developed, ‘Western’ societies. In either case, this finding suggests a significant gap in this literature since educational research has found that the ‘context of learning’ shapes both teacher and learner responses to different teaching and learning methods (Brown et al., 1989; Hu, 2002; Lu et al., 2014).

While there is cause for optimism concerning the generalizability of ‘Western’ findings on SSGs beyond Anglo-American-European societies (Auyeung, 2004; Koh et al., 2010; Lu et al., 2014; Tao et al., 2009), this review raises three challenges for strengthening the global knowledge base in simulations and serious games. First, additional cross-cultural validation of findings on SSGs processes and outcomes are required (Salas, Wildman, et al., 2009). Second, research is needed that explores the design considerations which guide the adaptation of simulations crafted in one ‘context’ for use in other ‘contexts’ (Hallinger et al., 2017; Lu et al., 2014). Finally, the field needs research that identifies the range of

instructional adaptations (e.g., goal-setting, debriefing, structuring) that are most effective with students in different contexts. Here, ‘contexts’ refers not only to cultural contexts but also to different institutional contexts for learning (e.g., K–12, undergraduate, graduate, corporate training).

A series of citation analyses highlighted authors and documents that have shaped the evolution of simulations and serious games research and practice over the past six decades. The most influential scholars identified through Scopus citation analysis came from medical education (e.g., Barsuk, Cant, Cooper, Duke, Gaba, Gordon, Issenberg, McGaghie, Petrusa, Scalese, Wayne). This was not surprising since the field of medicine tends to generate higher rates of citation than other fields covered in this review (Harzing, 2010). Co-citation analysis revealed additional influential scholars associated with other fields that have adopted SSGs (e.g., Anderson, Crookall, de Jong, Faria, Keys, Salas, Serman, Wellington, Wolfe).

Author co-citation analysis singled out Salas as the key ‘boundary-spanning’ scholar in the literature on simulation-based learning. Another group of noteworthy scholars identified through co-citation analysis consists of psychologists whose theories of social, cognitive, experiential, and constructivist learning have provided the conceptual underpinnings for simulations and serious games. These include Bandura, Brown, Dewey, Jonassen, Kolb, Lave, Simon, Senge, Vygotsky, and Wenger. Their inclusion on the co-citation map in Figure 2.5 reveals the ‘connective tissue’ that links SSGs to the broader literature on human learning. For example, Kolb’s (1984) conceptualization of experiential learning has had an enduring impact on scholars who have designed simulations as well as the instructional processes used with them (Kolb, 1984).

Both author co-citation and keyword analyses highlighted the extent to which research and practice in SSGs has become intertwined with the evolution of learning technologies. Early research in this domain focused on the use of simulations that leveraged the basic computational capabilities of computers (De Jong & Van Joolingen, 1998; Gee, 2003; Kiili, 2005; Mayer, 2002, 2010; Prensky, 2001; Sitzmann, 2011; Vogel et al., 2006). More recently, experimentation with simulations that incorporate virtual reality and ‘immersive learning interfaces’ has led to an exciting new line of research and practice in

SSGs (e.g., Dalgarno & Lee, 2010; Dede, 2009; Hew & Cheung, 2010; Klopfer & Squire, 2008; Koh et al., 2010; Merchant et al., 2014). Given the importance of embedding human decision-making into ‘real contexts’ in SBL, the use of emerging technologies will certainly continue to attract the attention of SSGs designers, practitioners, and scholars. Notably, this trend also opens the door to the use of a much broader range of research methods since the technologies that underlie these simulations also have the capability to collect rich data on learning processes and outcomes (Mayer, 2010; Showanasai et al., 2013; Stasser, 1988).

Author co-citation and keyword analyses (see Figures 2.5 and 2.6) revealed a significant degree of ‘balkanization of knowledge’ in this literature. More specifically, SSGs researchers from medical and management education seem to be progressing on parallel tracks, failing to learn from each other and leverage their respective strengths. Increased cross-fertilization could, for example, strengthen the theoretical orientation of research on SSGs in medical education and diversify the research designs and methods used in research on SSGs in management education.

Findings from this review also hold relevance for discourse on the scope and nature of the ‘knowledge base’ on simulations and serious games (Crookall, 2010; Faria, 2001; Ruben, 1999). The large size, high citation impact, and accelerating growth trajectory of peer-reviewed publications leave no doubt that SSGs have evolved into a significant corpus of knowledge. At the same time, author co-citation analysis revealed Learning Theories in SSGs as the conceptual core of the knowledge base. This represents a significant conclusion, given the ongoing debate among scholars on this issue.

Further investigation into the use of SSGs in educating for sustainability suggests that multidisciplinary research on SSGs for sustainability is rapidly accelerating. SSGs are uniquely suited to address the systemic nature of sustainability challenges (Barreteau et al., 2007; Speelman et al., 2014; Sterman, 2014). However, the attraction towards SSGs for sustainability has been mainly based on “perceived potential” for bridging the gap between the classroom and the living/working world. Therefore, Hallinger et al. (2020) argued that empirical research is essential not only to assess the impact of SSGs on learners but also to understand under what conditions these effects can be achieved. The complexity of sustainability challenges requires that SSGs help foster behavioral change to

further validate their use in education for sustainability (Liarakou et al., 2012; Stanitsas et al., 2019). At this point, there is an imbalance between commentaries (55%) and empirical studies (33%) than is suitable for the long-term viability of SSGs in educating for sustainability (Hallinger et al., 2020).

These findings were further examined by analysis of the research designs and methods (Hallinger et al., 2020). Hallinger et al. (2020) reported that empirical studies were heavily weighted toward descriptive, non-experimental research designs and methods. Descriptive studies were still quite pervasive in the empirical literature, with relatively few cases where experiments were conducted. Even in the cases where experiments were conducted, the designs often fell below common standards. Therefore, there is still a lack of a critical mass of robust empirical studies that can provide insight into the design, instructional use, and effects of SSGs for sustainability education. It is evident that there is still a need for empirical studies to shed light on how learner characteristics (e.g. age, motivation, prior motivation), conditions (time, culture, group size, background knowledge), and instructional processes (goal-setting, type of debriefing) influence the effectiveness of SSGs for sustainability (Hallinger et al. 2020).

In conclusion, this effort to map the knowledge base on simulations and serious games led the researcher to conclude that the future for simulations and serious games is bright. Among available active learning approaches (e.g., problem-based learning, project-based learning, case-based learning), SSGs are uniquely suited to employ continuing technological innovations towards the development of more effective learning tools that not only engage students but also enable them to go beyond surface understanding of disciplinary content. This places SSGs at the forefront of education, which aims to develop the capacity of students to apply knowledge and skills to the solution of complex social and organizational challenges. Most notably, the research highlighted a growing interest among SSGs practitioners in its application sustainability. This represents an area to further explore in terms of how simulations and serious games can contribute to an increasingly important area for various businesses and organizations.

On one final note, the study of SSGs for sustainability noted the continuing relevance of board games and role-plays despite trends favoring technology-enhanced

SSGs. For example, role-plays were used to engage learners in active negotiations in the context of water resource management, land management, and climate change (Rooney-Varga et al., 2018; Sterman, 2014). This suggested that alternative modes of delivery could still adequately address different sustainability problems. However, this was further scrutinized in the subsequent essays with a critical examination of a role-play created for teaching corporate social responsibility (CSR).

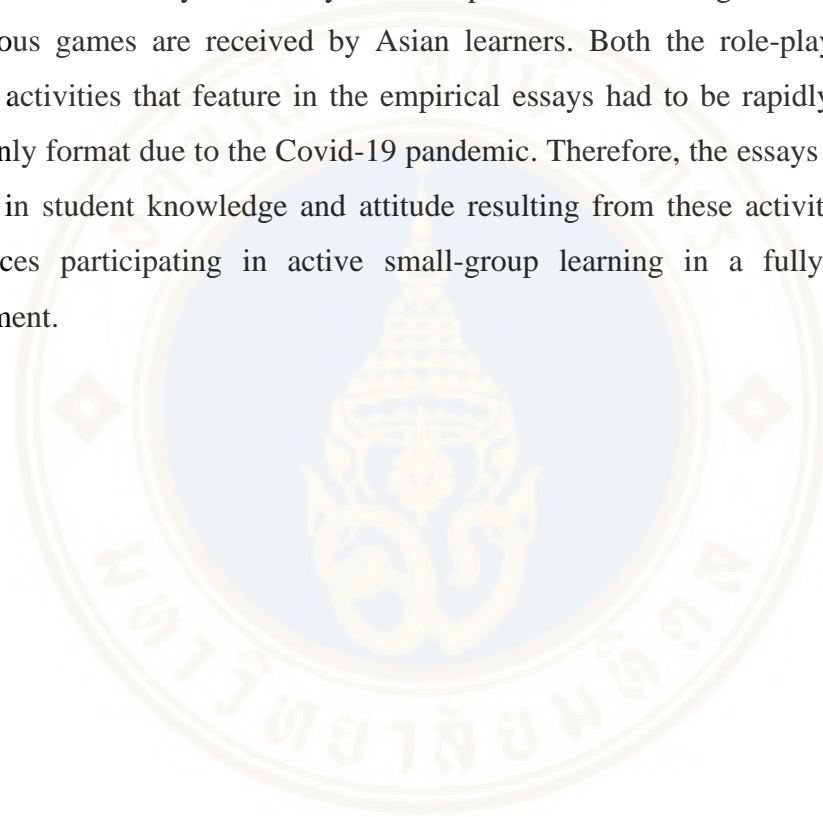
2.5.3 Implications of the Findings

The research review had several implications that informed the conceptualization of the next two essays. First, the bibliometric review that the literature remains dominated by scholarship conducted in Western societies. With previous studies indicating that cultural differences can have a substantial impact on learners (Salas, Wildman, et al., 2009), more research is needed on SSGs outside of Anglo-European-American contexts. Although the research review also noted the prevalence of technology-enhanced simulations, there can still be more clarity on how technological developments can influence the perception of learners and the overall efficacy of SSGs. The recent Covid-19 pandemic ignited interest in how technology could connect learners when they are unable to meet face-to-face and how active learning can be conducted online (Meulenbroeks, 2020; Popa et al., 2020).

Furthermore, the emergence of sustainability and the number of studies on SSGs for sustainability indicate that SSGs are well suited to teaching the complexities of many different sustainability topics (Hallinger et al., 2020). However, Hallinger et al. (2020) reported that there is still too much emphasis on the ‘perceived potential’ of SSGs for more effective education for sustainability without adequate strong evidence. Our findings also highlighted the value of experimental research. Experimental research is best able to offer useful findings on the effects of games on learners and offer indications of how different game elements can contribute to their effectiveness. Considering these key implications, Essay II and Essay III sought to not only investigate the use of a role-play for a relevant sustainability topic (CSR) in an Asian context through an experimental research design, but

also how technological developments could potentially enable traditional face-to-face activities to be converted to a full online mode.

To build on the findings from this research review, the next essays focus on assessing the impacts of an original role-play compared to case-based learning activities with a group of undergraduate students studying media communication at a Thai university. These essays will depict some of the challenges for implementing simulations and serious games for sustainability. The study will also provide further insights into how simulations and serious games are received by Asian learners. Both the role-play and case-based learning activities that feature in the empirical essays had to be rapidly converted to an online-only format due to the Covid-19 pandemic. Therefore, the essays not only describe changes in student knowledge and attitude resulting from these activities but also their experiences participating in active small-group learning in a fully online learning environment.



CHAPTER III

ESSAY II: A COMPARATIVE STUDY OF THE EFFECTS OF ROLE-PLAY AND CASE-BASED LEARNING ON CORPORATE SOCIAL RESPONSIBILITY (CSR) COMMUNICATION KNOWLEDGE, SKILLS, AND ATTITUDES

3.1 Introduction

This Essay was designed to investigate the effects of an original role-play for teaching corporate social responsibility (CSR) on student, knowledge, skills, and attitudes. More specifically, the researcher took note of perceived weaknesses in research designs and methods used to investigate the effects of simulations and serious games used in educating for sustainability (Hallinger et al., 2020). Thus, the study employed an experimental research design to compare the effects of a CSR role-play module with those obtained from a case-based learning module organized around the same CSR problem. Both modules were delivered in a fully online learning mode.

The researcher originally planned to conduct both interventions in a face-to-face mode. However, the onset of the Covid-19 pandemic meant that all instruction in the university where data would be collected had changed abruptly to a fully online mode. Thus, it was necessary to change the proposed research plan.

As a result, the research plan was adjusted and both interventions (i.e., role-play and case-based learning modules) were conducted completely online. While this introduced multiple challenges for the research, it mirrored the practical challenge faced by schools and universities throughout the world (Garbe et al., 2020; Kamal et al., 2020; Meulenbroeks, 2020). Therefore, the need to deliver the interventions online was reconceptualized as an opportunity to explore the use of active these learning methods in a fully online environment (Bouaoud & Saintigny, 2021; Jain et al., 2022; Nicklen et al., 2016).

The objectives of this study were to compare the effects of role-play and case methods on student knowledge, attitudes, and skills in the domain of CSR communication. The research also sought to develop a framework for assessing learning outcomes at multiple levels (antecedents, attitudes, and knowledge) that can be utilized in future research. The research questions were as follows:

1. Does learning CSR communication through online role-play learning significantly affect student attitudes towards sustainability and knowledge of CSR communication concepts?
2. Does learning CSR communication through online case-based learning significantly affect student attitudes towards sustainability and knowledge of CSR communication concepts?
3. Are there significant differences in the effects of role-play and case-based learning on student attitudes towards sustainability and knowledge of CSR communication concepts?
4. Does online role-play learning develop stronger skills in CSR communication than case-based learning?

3.2 Literature Review

In recent years, scholars have begun to argue for more active-based learning approaches to be used in the teaching of sustainability subjects (Mogensen & Schnack, 2010; Paschall & Wüstenhagen, 2012; Rooney-Varga et al., 2018). Martinez Casanovas et al. (2022) argued that traditional study methods must be adapted so that students can acquire skills that will allow them to create a more sustainable world. Savage et al. (2015) stated that sustainability education should provide not only knowledge, but also skills and personal/emotional dispositions capable of supporting more sustainable behavior. In essence, teaching must focus more on being transformative rather than transmissive (Savage et al., 2015).

Scholars have noted that the “wicked” nature and complexity of sustainability-related problems means that knowledge is not enough (Chen & Liu, 2020; Lotz-Sisitka et al., 2015). In fact, many scholars have argued that effective learning of sustainability must not only develop new knowledge, but also stimulate changes in attitudes and behaviors among different people (Mogensen & Schnack, 2010; Olsson et al., 2020; Sass et al., 2020; Savageau, 2013; Shephard, Harraway, Lovelock, et al., 2015). Scholars have also noted in particular that developing sustainability mindsets is just as important knowledge, and is antecedent to developing more sustainable behavior (Cripps & Smith, 2023; Sipos et al., 2008). Sipos, Battisti, and Grimm (2008) proposed a transformative sustainability learning (TSL) framework, and stated that sustainability learning must touch a student’s head, hands, and heart. The authors emphasized that “transformative” learning for sustainability results from a combination of different learning activities and should be studied from not only the cognitive aspect but also from behavioral and affective dimensions (Sipos et al., 2008). In consideration of previous research on action competence and education for sustainability, it is clear that sustainability learning is a non-linear process that should be further defined and explored on knowledge, attitude, and behavioral levels (Hallinger et al., 2020; Lotz-Sisitka et al., 2015; Mogensen & Schnack, 2010; Olsson et al., 2020; Sass et al., 2020; Sipos et al., 2008).

Mogenson and Schnack (2010) emphasized that effective learning for sustainability cannot simply be measured by reference to content knowledge. They emphasized that educating for sustainability needs to lead to capabilities that can be put into practice in real-world actions, as well as the ability to make sound judgments on appropriate actions to take in order to achieve sustainability. Empirical research has confirmed that knowledge alone is insufficient for achieving the required behavioral change among people. For example, Shephard et al. (2015a) found that people have reported pro-environmental attitudes while still exhibiting unsustainable behaviors (Shephard, Harraway, Jowett, et al., 2015).

Theories on behavioral change have also noted that changes in behavior do not just happen from obtaining new knowledge or even attitudes. Ajzen (1991) argued that the environment, as well as perceived control over their actions, can impact change in behavior.

Other research has also found that situational factors, perceived control, and personal responsibility of individuals can impact the adoption of new knowledge, attitudes, and skills by individuals (Duchatelet et al., 2020).

Calls for more sustainable living and business practices have led to numerous learning interventions designed to teach sustainability more intentionally and effectively (Chen & Martin, 2015; Rooney-Varga et al., 2018; Wals, 2014). Although the objectives of ESD are clear, how to achieve them has been the subject of much more discussion. Thus, despite these calls for sustainability-oriented education, there has yet to be a consensus on which methods of teaching/learning are most effective at attaining these diverse learning outcomes (i.e., knowledge, skills, attitudes).

Educators have increasingly argued for the use of active experiential approaches to teaching sustainability topics (Jean et al., 2014; Martinez Casanovas et al., 2020; Rooney-Varga et al., 2020; Sterman, 2014). For example, Savage et al. (2015) proposed that problem-based, inquiry-based, experiential, and collaborative learning contribute to the type of higher-order thinking required to address sustainability challenges. Similarly, Martinez Casanova et al. (2022) suggested that applying new knowledge to a real-life problem improves critical thinking, another type of competency needed in the domain of sustainability (Martinez Casanovas et al., 2022).

For the purposes of this study, role-play was selected as an active learning method that meets many of the requirements identified in education for sustainable development. Role plays cause the learners to take on the points of view of others, thereby prompting a rethinking of one's assumptions (Latif et al., 2018; Paschall & Wüstenhagen, 2012; Powell et al., 2020). As a method of comparison, the researcher selected case teaching due to its clearly defined learning process and wide use in management education programs (Lusoli, 2020; Mesny, 2013; Pilz & Zenner, 2018).

Despite proponents for both case-based learning and role-play learning, no studies have scrutinized how these activities are impacted when executed fully online. More specifically, the conditions required for effectively employing case-based or role-play learning in an online learning mode have yet to be fully scrutinized. Thus, educators will

benefit from a clearer understanding of the unique challenges and conditions that apply to the use of these active learning pedagogies in an online mode.

3.2.1 Defining Case and Role-Play Learning Methods

Role-play and case-based learning share similarities as well as some distinctive differences. Therefore, it is essential to identify the defining features of each approach and clarify how they differ (see Table 3.1). These conceptual definitions will set the stage for operationalizing each learning approach as an intervention in the study.

Role-play, as used in this study, refers to an active, team-based learning method in which students assume the roles of stakeholders who are identified in an explicit problem scenario (Druckman & Ebner, 2008; Feinstein et al., 2002; Hallinger et al., 2020). By assuming different stakeholder roles, learners are encouraged to “see” the problem through different lenses and from different value perspectives (Powell et al., 2020; Rao & Stupans, 2012). By working with team members who have adopted different roles, students also tend to enter problem-solving activities with a stronger level of emotional engagement (Chen & Martin, 2015; Powell et al., 2020).

Scholars assert that by playing different roles (e.g., customer, staff or manager), learners tend to see the problem differently, thereby surfacing different analyses of the problem (Kallestrup, 2018; Paschall & Wüstenhagen, 2012; Rao & Stupans, 2012). In addition, when students adopt different roles, they may become attuned to different patterns of interpersonal communication and conflict (Daré & Barreteau, 2003; Sutcliffe, 2002). As in a real-world setting, these emotionally related features of role plays also tend to yield a less scripted process that can go in unexpected directions. This allows students to learn how to deal with uncertain situations (Chen & Martin, 2015; Su et al., 2021).

For case-based learning, it should be acknowledged at the outset that there are numerous variants of the “case teaching method” (Barnes et al., 1994; Harling & Akridge, 1998; McLean, 2016; Zhao et al., 2020). The earliest approaches to case-based learning used in business education were overtly “teacher-centered” (Alvarez, 1990; Christensen, 1981, 1991; Christensen et al., 1978; Gragg, 1951; Wassermann, 1993). The teacher would share a problem with the class, allow them time to digest it, and then lead the full class in

its analysis. As explained by Chris Christensen, father of the case method at Harvard Business School, case-based teaching involves the teacher posing questions to the class, and then leading a multi-directional conversation about the nature of the problem and possible solutions (Christensen, 1981, 1991). This approach was reflected in the title of Christensen's (1991) highly cited text, *Education for judgment: The artistry of discussion leadership*.

In the 1980s, Christensen attributed the use of this approach at the Harvard Business School, at least in part, to the "economics of business education" (Hallinger, 2023, personal communication). By this, he meant that large-class teaching was more cost-effective for the university. Christensen contrasted this approach with that of problem-based learning, which was just beginning to be used at the Harvard Medical School.

Nonetheless, despite its roots in teacher-centered instruction, "case teaching" has evolved into other more student-centered variants (Anderson & Schiano, 2014; Brenner et al., 2020; Garvin, 2007; Golich, 2000). The diversity of approaches to teaching and learning with cases is reflected in Table 3.1 where several features are indicated as optional, depending upon the variant being used. Thus, the researcher will clearly define in the next section what is meant by "case-based learning" in the context of this dissertation study.

All versions of case-based learning used in business and management education center around the presentation of a problematic situation (Anderson & Schiano, 2014; Servant-Miklos, 2019). As suggested above, in "modern" variants of the case method, students are often organized into learning teams (Golich, 2000) Each team is responsible for analyzing the case and proposing a solution. Usually, the analysis and solution are written up in a case analysis and discussed in class.

Table 3.1 Defining Features Matrix: Role-Play vs. Case-Based Learning (Adapted from Bridges & Hallinger, 1995)

Features	Role-play Learning	Case-based Learning
Teacher-led discussion		(X)
Students assigned to different roles	X	
Student-led teams	X	(X)
Emphasis on analysis	X	X
Emphasis on problem-solving skills	X	X
Emotional Engagement	X	
Emphasis on enactment of the solution	X	
Interpersonal communication development	X	(X)
Activity flows in unscripted directions	X	

Note: Parentheses indicate that the criterion may or may not be a feature of case-based learning, depending upon the variant used

As suggested in Table 3.1, the emphasis in case-based learning tends to be on analysis. While learners can become emotionally engaged in the learning process (Anderson & Schiano, 2014; Golich, 2000), they do not assume the roles of stakeholders described in the case. Thus, the learners tend to be placed in the implicit position of analyzing the case problem from the outside in (Bridges & Hallinger, 1995; Hallinger & Bridges, 2007). Some scholars have argued that this is actually a more effective way of learning than being immersed in a case through a role-play (Druckman & Ebner, 2008).

Therefore, for the purposes of this study, the key feature distinguishing role-play and case-based learning is the assumption of stakeholder roles in role-plays and the “outsider viewing in” perspective adopted by learners in the case method. By taking on roles that represent different perspectives, it is theorized that students will become more emotionally engaged with the learning activities (Chen & Martin, 2015). This also prompts the role-play to flow in unscripted and unexpected directions and could be more engaging than students simply discussing the case from an outsider's perspective.

3.2.2 The Pros and Cons of Role-Plays

Role-plays have been proposed as a powerful and transformative learning activity capable of preparing students for dealing with the complexities they will encounter in professional work (Daniau, 2016; Ditlev-Simonsen, 2013; Howieson & Rogers, 2018). Chen and Martin (2015) argued that role-play games are uniquely suited for eliciting real emotions and dilemmas, which forces students to reconsider their assumptions and critically reflect on their experiences. Lyle (2002) noted that in her study of role-play with 9-11-year-old students, she found that even at a young age, students were so engaged by the role-play that they continued to actively debate as they left and went home. It has been argued that role-plays are highly engaging and allow students to view problems from the perspectives of those impacted by the issues (Lyle, 2002).

Role-plays require interpersonal interaction among participants in different roles while focusing on creating solutions to reality-based problems (Daniau, 2016; Sutcliffe, 2002). The key rationale for supporting role-play learning has been that emotional engagement enables students to apply the knowledge appropriately to a working context and to use this experience to deal with similar situations in the future (Heyward, 2010; Stevens, 2015; Poitras et al., 2013).

Su and colleagues (2020) found that a crisis-response simulation allowed students to experience the dynamic, unpredictable, and stressful nature of a crisis in a safe environment under the guidance of an instructor (Su et al., 2021). Pyle (2018) similarly proposed that participating in a simulated crisis enabled students to gain experience and reflect on their practical and emotional responses. This was perceived to prepare them for future work roles (Pyle, 2018). Other disciplines, such as law and negotiation studies, have also used role-plays extensively. Educators have advanced similar arguments that it engages students in learning actively and helps prepare them for working in real-life contexts (Howieson & Rogers, 2018; Schnurr et al., 2014; Waters, 2016).

Given these perceived capabilities, role-plays have become increasingly common in disciplines ranging from business management to medical education. Nonetheless, several challenges have been identified. Some have argued that role-plays and simulations can lead to adverse outcomes if used incorrectly (Druckman & Ebner, 2013;

Sogunro, 2004; Taylor, 2018). For example, it has been reported that students can experience performance anxiety with the stress of participating in the role-plays (Sogunro, 2004; Taylor, 2018). Others have indicated that participants who have a prior relationship with other participants may be unable to adopt the role they are assigned or take it seriously (Druckman & Ebner, 2013). The most serious critique of role-plays, however, is the fact that if some participants are not engaged or committed to the learning activity, they inevitably have a negative impact not just on their own learning, but also the learning of the other participants (Sogunro, 2004; Taylor, 2018).

Empirical evidence of the efficacy of role plays is inconsistent. Latif and colleagues (2018) compared the effectiveness of role-play learning and debate activities in medical education. Students were better able to apply their knowledge of medical sciences to clinical role plays than those who participated in the debate. Role-play students better understood the physician-patient relationship and responded better to a given situation. In contrast, the debate only introduced students to propositions and rebuttals about an argument (Latif et al., 2018).

More broadly, much of the reported evidence of the effects of role plays on student learning outcomes has been anecdotal (Baranowski, 2006; Hallinger et al., 2020; Levin-Banchik, 2018; Pettenger et al., 2014; Raymond & Usherwood, 2013). Research on role-play games for sustainability has focused primarily on developing positive attitudes and knowledge towards the subject (Chow et al., 2018a; Yeung et al., 2017). Because sustainability problems are very complex (Chen & Liu, 2020; Lotz-Sisitka et al., 2015), much remains to be learned about what teaching methods are most effective for developing holistic learning of sustainability principles and practices.

While scholars have contended that role-plays have the potential to create “transformative learning opportunities,” this assertion has not been rigorously tested (Chen & Martin, 2015; Rumore et al., 2016; Svoboda & Whalen, 2004). In fact, recent research has shown that role-plays may not always result in more effective learning than other approaches (Druckman & Ebner, 2008; Prado et al., 2020; Sogunro, 2004; Taylor, 2018). Research on CSR education has encountered a similar issue. Although many different learning approaches have been suggested for CSR education, it is not clear what learning

approaches are suitable, in what contexts, for what audiences, and under what conditions (García-Rosell, 2019; López-Pérez et al., 2017).

Another significant problem has been the use of weak research designs in many studies of role-play games. Few studies have featured rigorous analysis and testing (Baranowski & Weir, 2015; Levin-Banchik, 2018; Pettenger et al., 2014). Scholars have tended to use descriptive and cross-sectional-perceptual research designs that do not substantively monitor learning outcomes or compare to other learning methods (Hallinger et al., 2020). Furthermore, studies seldom go beyond attitude and knowledge to examine skill development that can occur from role-play activities (Lourdel et al., 2006; Rooney-Varga et al., 2018).

3.2.3 The Pros and Cons of Case-Based Learning

Pilz and Zenner (2018) stated that case-based learning is able to draw on real-life work contexts in which students are or will be working in the future (Christensen, 1981, 1991; Garvin, 2007; Golich, 2000; Gragg, 1951). This provides meaning and motivates participants to learn. Moreover, the use of questions and systematic diagnosis of the problem develops higher-order thinking skills among learners (Barnes et al., 1994; Emblen-Perry, 2022; Hoffer, 2020).

As noted above, in some variants of case-based learning, participants work in groups which enables the development of important work-related competencies such as teamwork, collaborative problem-solving, and critical thinking skills (Pilz & Zenner, 2018). Lusoli (2020) noted that the case-based learning method was derived from the belief that learning is more effective when conveyed through participation rather than passive listening and lecturing. Herreid (2011) found that students' retention of information was higher when students had opportunities to interact with each other rather than only with the instructor.

Researchers have also identified a number of weaknesses or limitations of case-based learning. Liang and Wang's (2004) study of 66 best-selling Harvard cases suggested that these MBA cases distorted reality and could have a negative effect on students' effectiveness as future managers. They also expressed concerns about the implicit messages cases could convey to students (Liang & Wang, 2004). Hallinger and Bridges (2007) noted

that the problem settings presented in cases often fail to engage learners meaningfully. They termed this the “Walmart syndrome.” This refers to situations in which learners are asked to solve a case problem in an organizational context that is unfamiliar to them. The lack of contextual familiarity makes the problem highly abstract, thereby reducing motivation, engagement, retention, and knowledge transfer.

Mesny (2013) suggested that, despite its premises and objectives, case-based learning often fails to promote active learning. Instructors sometimes exert more control over discussions than is optimal for effective learning. This can result in the case discussion resembling a traditional lecture (Mesny, 2013). Griffith (1999) mentioned the need for instructors to educate themselves on how to be “conversationalists” rather than directors or content experts.

Scholars have also asserted that case-based teaching is not actually an experiential learning pedagogy in the same order as problem-based learning, role plays, and simulations (Mesny, 2013). Indeed, Mintzberg (2004) argued that case-based learning should be avoided in classes with inexperienced students. Their lack of experience leads to an abstract, overly simplified, and artificial view of management practice (Mintzberg, 2004). He advocated instead for “live cases,” in which students recount situations they have experienced or were currently experiencing. This can enable learning to become more experiential (Mintzberg, 2004).

Given these limitations, Emblen-Perry (2022) advocated for redesigned case-based learning. For example, she proposed that students perform an audit of a company and then reflect on the results as a more active design for case-based learning. Emblen-Perry (2022) reported that this approach enhanced learner engagement and meaning.

Given how long case teaching has been in use, there have been surprisingly few empirical studies of its effects on learners (Herreid, 2011; Mesny, 2013; Pilz & Zenner, 2018). This contrasts starkly, for example, with other more recently developed active learning methods, including problem-based learning, service learning, flipped classrooms, and simulations and games (Freeman et al., 2014; Hallinger & Wang, 2020b; O’Flaherty & Phillips, 2015; Warren, 2012). Moreover, Mesny (2013) reported that empirical studies of

case-based learning are largely based on the perceptions of either instructors or students (Mesny, 2013).

In summary, although there is some evidence of the general value of role-plays and case-based learning, few studies have compared the learning outcomes of these two approaches in the domain of sustainability. In this essay, the researcher will test the assumption that eliciting an emotional engagement among participants through role-play can create a more transformative learning experience for these learners in CSR communication than case-based learning (Chen & Martin, 2015; Daniau, 2016; Svoboda & Whalen, 2004). The effects should be visible in knowledge, skill, and student attitudes toward the topic (Cripps & Smith, 2023; Sipos et al., 2008). It will also test the proposition that immersing students in a role-based scenario through role-play will enable students to better understand how to conduct CSR communication, compared to a more “traditional” case-based learning approach where they analyze a case of CSR communication from an outsider’s perspective.

3.2.4 Team-Based Learning

A frequently occurring feature in role-play and case-based learning is the use of teams. Team-based learning has been defined by scholars as the use of student groups, explicitly formed as collaborative teams, that undertake a common goal-oriented task (Michaelsen & Sweet, 2008). In management education, team-based learning draws on the rationale that teamwork and collaboration are common features in the workplace. Thus, team-based learning advocates aim for students to operate in self-directed, self-managing teams (Bridges & Hallinger, 2007); (Michaelsen & Sweet, 2008). By working in teams, students are able to practice skills in collaborative problem-solving and decision-making as they seek to apply course concepts to assigned case problems (Michaelsen & Sweet, 2008; Wyness & Dalton, 2018). Similar arguments have been made about role-playing in teams (Kiger, 2004; Lyle, 2002; Rao & Stupans, 2012).

Team-based learning has been applied in several ways to both role-plays and case-based learning activities. For example, some role-play exercises divide students into teams of stakeholders (Lyle, 2002; Rao & Stupans, 2012) to discuss alternate perspectives

on the business problem, and reflect on how different people can react to a given situation. In these “team” role-plays students are expected to immerse themselves in the given roles as they collaborate to solve the problem.

In case-based learning, the “team” aspect is often less well-defined. For example, in many instances where students work collaboratively on a case problem assigned by the instructor, they are organized as “discussion groups” rather than as “teams.” This distinction between operating as a group or a team revolves around several elements. For example, when operating as a “team”, the students usually have a common task product to develop and present. This requires a higher level of collaboration which may surface conflict as the group seeks to make and execute decisions. In contrast, when organized as a “group”, members typically share their ideas as a means of brainstorming and knowledge sharing, without the need to come to a consensus or develop a task product (Anderson & Schiano, 2014; Brenner et al., 2020; Golich, 2000).

Research has found that team-based learning allows students to make sense of conceptual knowledge with their peers (Burgess et al., 2019). The process of learning in teams enables students to socially construct their learning as opposed to processing the knowledge deductively from lectures (Burgess et al., 2019). This not only leads to higher levels of student engagement but also knowledge retention and transfer (Bridges & Hallinger, 2007; (Michaelsen & Sweet, 2008).

Huijbregts et al. (2022) used team-based activities in a unit on environmental sustainability. They found that collaborative problem-solving helped students understand the materials more effectively. More specifically, students were able to share knowledge and assist their peers in making sense of the materials. Students also reported that they learned a great deal from listening to their peers' differing perspectives and hearing arguments they had not previously considered (Huijbregts et al., 2022).

Despite these reported strengths of team-based learning, educators have also surfaced a number of concerns or limitations of team-based learning. Perhaps the most common limitation concerns the “free rider syndrome” in which team members who put in less effort still receive “good” grades in the subject (Huijbregts et al., 2022). Students have also mentioned that team-based discussions can become too long without adding new

insights. Or some team members complete the tasks faster but must wait for peers to finish before discussions can begin.

Wyness and Dalton (2018) highlighted several procedural features that can impact the effectiveness of team-based learning. These include group assignment, team size, as well as the ethnic and gender diversity of students. Huijbregts et al. (2022) and Deslauriers et al. (2019) stated that team-based learning does require higher cognitive effort. Huijbergts et al. (2022) further added that if the team-based learning period is too short, teams are unlikely to develop into fully effective teams, and students may gain too little experience in active and collaborative learning to recognize the benefits (Huijbregts et al., 2022).

Students sometimes complain about a lack of instructor guidance in terms of what was important to learn, and team-based learning is sometimes perceived by students as inefficient (Huijbregts et al., 2022). This critique was also mentioned by Deslauriers et al. (2019), who stated that students can feel like they learn less even though they actually learn more (Deslauriers et al., 2019). Nonetheless, it is unclear if this is because of the increased cognitive load on students from active learning activities, inefficiencies with teamwork, or a combination of both. Notably, the desire for more direction is another common criticism of student-directed learning (Kirschner et al., 2006).

Due to these issues, researchers have made recommendations on how to properly facilitate team-based learning. Bridges and Hallinger (2007) noted that when using learning teams in the context of PBL, it was essential to provide students with explicit skills in team discussion, problem-solving, and decision-making. Clark et al. (2021) argued that orienting students to team-based learning was even more important for online courses in which students were collaborating remotely (Clark et al., 2021). Michaelsen and Sweet (2008) suggested four essential elements, such as properly forming and managing groups, student accountability, timely feedback, and assignment design (Michaelsen & Sweet, 2008). In their view, these serve as pre-requisites to the success of all team learning.

3.2.5 Active learning in the Asian context

Essay I noted that many of the studies of simulations and serious games have been conducted in Anglo-American-European societies (Hallinger & Wang, 2020b). Far fewer have been conducted in Asian countries, where students have often been perceived to be more passive and even prefer a more passive role in the classroom (Biggs, 1998; Kember, 2000; Watkins, 2012). However, Biggs (1998) asserted that there are quite a few misconceptions of Asian learner characteristics.

Kember (2000) stated that while Asian students can find active learning taxing, they can thrive under certain conditions. He noted the need for a clear course structure and procedures that reduce uncertainty. He also noted that Asian students were more likely to adopt a vocationally oriented approach to education. This suggests the desirability of making the connection between the learning objectives and use in future careers explicit to the learners before starting the unit. Under these conditions, he asserted that Asian students can eventually learn to engage with active learning approaches (Kember, 2000).

Hallinger and Lu (2011, 2013) studied active learning methods, including both simulations and problem-based learning, with graduate students in Thailand. In a longitudinal study, Lu and colleagues (2014) found that the students reported significantly higher levels of engagement than in other courses that used a variety of lecture, discussion, and case teaching methods. However, they identified several conditions that appeared necessary to support students when learning in an active mode. First, they noted the need for setting clear learning goals and ensuring that the learning environment included sufficient structure. For example, they recommended not using a 'student-centered' variant of PBL, in which students are simply given a problem and product specifications. Instead, they recommended, providing a clear structure that also included an introduction that clarified the utility of the project, learning objectives, guiding questions, and formal resources (Hallinger & Lu, 2013).

In a separate paper, Hallinger and Lu (2011) discussed the importance of scaffolding for student success (see also Hmelo-Silver et al., 2006). Scaffolding refers to the intentionally sequenced introduction of skills that support active learning approaches. For example, when introducing problem-based learning into a graduate management

curriculum, they began by introducing units in which students developed team discussion, problem-solving, and project management skills. Only after students had demonstrated proficiency in these skills did they proceed to somewhat less structured PBL projects. Thus, the more advanced projects were ‘scaffolded’ onto skill sets that enabled students to manage the uncertainty often associated with active and discovery learning methods (Hallinger & Lu, 2011). The scaffolding of skills reprises the aforementioned need to develop skills in team-learning for it to achieve the desired goals.

Huang and Lin (2017) reported that student-driven active learning relies heavily on student motivation and self-paced learning. They reported that students may lack incentives to adapt to team-based learning (Huang & Lin, 2017). Similarly, Samad et al. (2013) in Malaysia reported that while students were generally positive about team-based learning, they were concerned about the group dynamics and the accuracy of assessments used in team-based learning. The authors concluded that team-based learning requires a carefully designed structure in the classroom (Samad et al., 2014).

Walker and colleagues (1996), who implemented problem-based learning in Hong Kong, also recommended this approach. They emphasized the need for clarity and structure, aiming to reduce (though not eliminate) the uncertainty that often accompanies student-centered approaches. If these conditions were met, they concluded that PBL could succeed very well with Chinese learners.

In sum, the mixed response of Asian students to active learning methods may have as much to do with how those methods are employed by instructors, as they do with the characteristics of the students themselves (Watkins, 2012). Research suggests that Asian learners may thrive in classrooms that employ active learning approaches. However, in order to obtain the desired effects from active learning certain conditions need to be met. These include clear objectives that link to the vocational aspirations of the learners, clear instructions, and a variety of supporting mechanisms that reduce confusion and uncertainty. When those conditions are met, Asian learners may react just as positively to active learning methods as learners from Western societies.

3.2.6 Active Learning in an Online Environment

With the rapid proliferation of online learning due to the Covid-19 pandemic, researchers have accelerated attempts to document the quality of learning in online environments. Popa et al. (2020) noted that although professors and students were able to adjust to online education, they perceived an overlapping set of perceptions regarding strengths and limitations. Students appreciated the ability to learn from anywhere and to access learning resources at any time. Jain et al. (2022) found that, when instructors were properly trained, students benefitted from the use of virtual collaborative tools and online communities.

Cranfield et al. (2020) stressed the need for careful planning so that a sufficient number of activities were used to keep students engaged. Jain et al., (2022) reported that students suggested the need for a blend of conceptual and experiential learning in order to maintain their engagement. Kamal et al. (2020) also noted that learning participation was crucial in order to achieve course goals and highlighted the role of emotions on the learning experience of students. Similarly, Al-Kumaim et al. (2021) emphasized the importance of motivating students when learning in an online context. For example, it was not uncommon for students to lack the confidence to ask questions even in online communication.

Notably, many of these issues are not only pertinent to learning effectively in an online environment. They represent core issues in teaching and learning in any setting. Nonetheless, they appeared to take on greater importance in the online mode. Indeed, these comments highlight the perception among instructors and students of the need for more careful planning and structuring of class sessions with the explicit goal of actively engaging learners. This was not only a challenge for many instructors who were accustomed to lecturing but also for instructors who had used active learning pedagogies such as role play or problem-based learning in face-to-face settings.

3.3 Conceptual Model and Hypotheses

3.3.1 Conceptual Framework

The conceptual framework used for this experimental study (Figure 3.1) was developed from previous studies on role-play games, CSR communication, and crisis communication. The framework consists of three key sections: learning antecedents (A), the role-play game for CSR communication planning (B), and then the knowledge, attitude, and skill development of the role-play game (C).

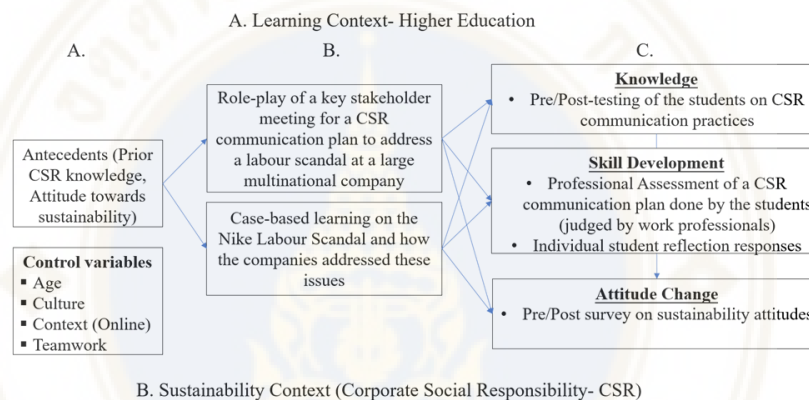


Figure 3.1 Conceptual Model for the Study

According to the literature review, there are two prevailing arguments for the efficacy of role-plays compared to other learning methods. First, role-plays increase emotional engagement by placing students in specific roles and requiring students to take on the perspective of that role (Pettenger et al., 2014; Rao & Stupans, 2012). By acting out the roles, students become immersed in the situation and more emotionally engaged. The students also tend to more deeply consider different perspectives and understand an issue more holistically rather than being passive observers as in case-based learning. That being said, the evidence supporting these arguments in support of role-plays has been mostly anecdotal (Pettenger et al., 2014). Moreover, research has also pushed for more robust research designs to determine the efficacy of role-plays, particularly in comparison to other teaching approaches (Kallestrup, 2018; Pettenger et al., 2014). Therefore, the conceptual

model for this study sought to investigate the efficacy of the original CSR role-play compared to a more conventional case-based learning approach. The model distinguished learning antecedents from the teaching approaches, as well as differentiated between attitude, knowledge, and competency measures as discussed in previous research (Kallestrup, 2018; Wiek et al., 2015).

The first part of the framework focuses on learning antecedents or personal factors that could influence the learning outcomes of individual learners from the role-play or case-based learning activity. For example, Rooney-Varga et al. (2018) noted that participants who reported higher levels of ‘urgency’ on the pre-surveys completed by participants before the role-play had more significant gains in knowledge about climate change. The failure to account for antecedents such as the prior knowledge and experiences of the participants has sometimes made it difficult for empirical studies to discern why students can have different responses and learning outcomes (Emblen-Perry, 2018; Hong & Yu, 2017; Pilz & Zenner, 2018). Therefore, the antecedents (A) were the first part of this framework, which sought to better understand whether and how the learners' characteristics influenced their engagement with the learning method and the learning outcomes.

The second part of the model focuses on the method of learning CSR communication. The two learning methods were role-play and case-based learning. For the purposes of this study, both approaches were conceptualized as forms of team-based learning organized around the solution of a practical problem (Herreid, 2011). Following the recommendations for using active learning with Asian students, the role-play and case-based module each consisted of a problem description, learning objectives, learning resources, instructor mini-lectures, and a challenge to present a CSR communication plan (see Hallinger & Bridges, 2007). The key differentiating feature between the two methods was the incorporation of a role-play activity into the role-play intervention. More specifically, in the role-play module, the learners took on the roles of the stakeholders referenced in the problem scenario. In the case-based learning group, the students were simply organized as a ‘student team’ and given the task of analyzing the problem presented in the case.

The third part of the framework focuses on objective assessments of learning outcomes from role-play and case-based learning activities. Research on educating for sustainability has emphasized that sustainability learning must develop appropriate knowledge, attitudes, and skills to address sustainability issues (Lotz-Sisitka, Wals, Kronlid, & McGarry, 2015; Mogensen & Schnack, 2010; Olsson et al., 2020; Sass et al., 2020). Thus, this part of the framework seeks to provide a holistic objective assessment of the role-play and its impact on the learning of participants. This represents a critical component that has sometimes been missing from previous role-play research.

In terms of the holistic measures that have been discussed to assess sustainability learning, scholars have suggested that attitude, knowledge, and skill development must be effectively measured to truly understand learning outcomes (Lotz-Sisitka, Wals, Kronlid & McGarry, 2015; Olsson, Gericke, Sass, & Boeve-de Pauw, 2020; Sass et al., 2020). Brundiers and Wiek (2017) further argued that the demand for sustainability competencies is increasing rapidly with the recognition that students will need actionable knowledge related to global sustainability challenges now and in the future.

Wiek et al. (2015) operationalized the key competencies into five different categories. These key competencies include the ability to see sustainability problems across different sectors (systems thinking), the ability to anticipate how sustainability problems might occur (futures-thinking), and the ability to compare, reconcile, and negotiate sustainability values (values-thinking). Two other key competencies, according to Wiek et al. (2015), are the ability to develop plans to mobilize resources to address sustainability issues and the ability to facilitate different types of collaboration (Wiek et al., 2015). Although these competencies have been identified, the professional skills required to meet sustainability challenges in the changing workplace are not always taught in higher education (see also Foucrier & Wiek, 2019).

Therefore, the third part of the framework (C), focuses on three outcomes. First, students will be assessed on their knowledge of good CSR communication practices (Choomlucksana & Doolen, 2017; Chow, So, Cheung, & Yeung, 2017; Kallestrup, 2018; Lohmann, 2019). Second, they will also be assessed in terms of their “sustainability mindset”

or attitude towards sustainability issues. Finally, they will also be assessed on skill competencies in CSR communication.

Research in both areas has tended to employ pre/post-test designs without the use of other formative evaluation measures (Kallestrup, 2018; Lohmann, 2020; Mesny, 2013; Pilz & Zenner, 2018). To improve on these past studies, this research will also include the evaluations of working professionals and weekly reflection responses to gain a more holistic picture of the learning process and augment the analysis of the learning outcomes.

3.3.2 Research Hypotheses

The first research question concerned the effectiveness of role-play learning on student knowledge skills, and attitudes. Three hypotheses were formulated to evaluate the effectiveness of the online role-play module on these learning outcomes. The first hypothesis inquired into the effects of the online role-play intervention on the attitude of students toward sustainability. It has been argued that role-plays can change individuals' perceptions and attitudes (Lyle, 2002; Paschall & Wüstenhagen, 2012; Rao & Stupans, 2012).

H₁. Learning about CSR through an online role-play module will significantly improve student attitudes toward sustainability.

The second hypothesis examined whether studying the CSR unit through online role-play resulted in a change in the student's knowledge of CSR communication concepts. These hypotheses were based on past research, which indicated that role-plays could be transformative for cognitive learning outcomes (Chen & Martin, 2015), and therefore implied that role-plays would be effective at impacting student knowledge of both principles and practice of CSR communication.

H₂. Learning through an online role-play learning module will significantly improve student knowledge of CSR communication concepts and practices.

The second research question concerned the effects of case-based learning on student knowledge, skills, and attitudes. Three analogous hypotheses were formulated to address this research question. The third hypothesis proposed that case-based learning would yield improved student attitudes towards sustainability. Although advocates of case-

based learning have asserted that exposure to the ideas of others in group discussions can bring about attitude change, the evidence supporting this type of effect is mixed (Çam & Geban, 2017; Krain, 2016; Lee et al., 2009; Wellmon et al., 2012).

H₃. Learning about CSR through an online case-based learning module will significantly improve student attitudes toward sustainability.

Although scholars have advocated that case-based learning yields significant improvement in knowledge acquisition (Barnes, 1994; Christiansen, 1981, 1991; Garvin, 2007; Herreid, 2011; Pilz & Zenner, 2018), as noted earlier, there is scant empirical evidence supporting the effectiveness of case-based learning on knowledge acquisition. Nonetheless, in order to maintain equivalency for the experimental design, the fourth hypothesis proposed that studying the CSR unit through online case-based learning would result in a positive change in student knowledge and skills in CSR communication.

H₄. Learning through an online case-based module will significantly improve student knowledge of CSR communication concepts and practices.

The third research question inquired into whether the two interventions would differ in their effectiveness in shaping student attitudes toward sustainability and concept knowledge acquisition. As indicated above, empirical results suggest that role-play learning will produce more positive change in student attitudes than case-based learning (Chen & Martin, 2015; Oliver, 2016; Rooney-Varga et al., 2018). While there have not been prior comparisons of these two learning methods with respect to knowledge acquisition, there are more studies indicating positive cognitive outcomes for role-play than for case-based learning (Berry & Kowal, 2022; Chen & Martin, 2015).

H₅. Learning about CSR through an online role-play module will yield a more significant improvement in student attitudes toward sustainability than learning similar content through an online case-based learning module.

H₆. Learning through an online role-play module will yield a more significant improvement in student knowledge of CSR communication concepts than learning similar content through an online case-based learning module.

The fourth research question inquired into whether role-play would be more effective than case-based learning at developing student skills in CSR communication.

Following the recent arguments of Su et al. (2021) and Pyle (2018) that role-plays could help students respond more effectively to a crisis, this hypothesis focused on whether role-play or case-based learning yielded more significant proficiency in CSR communication. To avoid potential bias, this was evaluated through scores given by three CSR experts who had no prior relationship with the participating students.

H₇. Learning through an online role-play module will yield higher ratings of student application of CSR communication skills and strategies than learning similar content through an online case-based learning module.

3.4 Methodology

3.4.1 Research Design

The study employed a pre/post-test experimental design without random selection but with random assignment (Campbell & Stanley, 1966). Two types of experimental research designs were employed in the studies. A pre/post-test experimental research design was used to assess change in student knowledge and attitudes in the two interventions (see Figure 3.2). A post-test experimental research design was implemented in order to assess the quality of student presentations. This combination of research designs would allow the study to assess changes in student learning outcomes based on their participation in one of two learning groups: role-play and case-based learning, on multiple levels.

Role-play learning	O ₁ X O ₂
Case-based learning	O ₁ X O ₂

Figure 3.2 Experimental Pre/Post-Test Research Design Used to Assess Knowledge and Attitude Outcomes of the Interventions (adapted from Campbell & Stanley, 1966)

The diagram in Figure 3.2 shows that the pre-tests and Post-tests were given before and after the implementation of the treatment, X, denoted by the role-play or case-based learning activities. The execution of the treatments began before week one of both

modules. “O” denotes the multiple observations that occurred during the learning module. The pre-tests for sustainability mindset and CSR communication knowledge (O_1) were collected before the intervention. The post-tests on sustainability mindset and CSR communication knowledge (O_2) were collected after the interventions were completed.

This experimental research design was further supplemented by a post-test experimental design (Figure 3.3) with the CSR communication presentation (O_3) at the end of the learning treatments to determine their performance in CSR communication planning as part of a post-test-only experimental design. This would test if either treatment (i.e. the role-play or case-based learning) resulted in higher exhibited skill competency in CSR communication planning (Campbell & Stanley, 1966) between the role-play or case-based learning group. Research has emphasized the need for students to exhibit action competence (Chen & Liu, 2020; Mogensen & Schnack, 2010; Sass et al., 2020). This post-experimental design would provide clearer indications of what the students could apply from the learning interventions and whether there were differences between the two groups.

Role-play learning	R X O_3
Case-based learning	R X O_3

Figure 3.3 Experimental Post-Test Research Design Used to Assess Skill Outcomes of the Interventions (adapted from Campbell & Stanley, 1966)

3.4.2 Sample and Participants

Campbell and Stanley (1966) asserted that it is optimal when conducting an experiment to randomly select the participants (Campbell & Stanley, 1966). This reduces threats to validity and increases the generalizability of the findings. However, this study was conducted within the context of ongoing university courses over which the researcher had no control over student allocation.

Therefore, this study collected data from students who had signed up for the classes. The participants were third and fourth-year students studying in an undergraduate media communication program at a university in Thailand. The first Field Test was conducted with fourth-year students studying a media management course. The second

Field Test was conducted with third-year students studying a corporate communication course. Both courses were offered as part of an international English Bachelor degree program.

Most of the participants were Thai nationals (more than 95%) studying in a second language. All participants were of Asian descent. None of the students had prior working experience. Their only exposure to sustainability topics had been in one general education course (i.e., Life and Sustainability) taken in the first year. While the students had taken courses that covered corporate communication, crisis communication, and CSR topics, the contents usually had adopted a public relations perspective focused primarily on communication strategies. Moreover, prior courses had relied primarily on lecture, or lecture and discussion as the mode of learning. Although the participating students had worked on several group projects in courses, they had not engaged in courses that focused specifically on developing teamwork, group discussion, or problem-solving skills. It was also decided that due to the students limited experience with studying sustainability in their previous courses, it was best for the interventions to focus on a communication-related topic. This made the learning more relevant for the students, and would also enable them to work on an output they were more familiar with, which was the CSR Communication plan.

Consistent with the selected experimental research design, the researcher was able to randomly assign students to the role-play or case-based learning group in both Field Tests. In Field Test One, 36 students were randomly assigned to the role-play, and 35 were randomly assigned to the case-based learning. In Field Test Two, 20 students were randomly assigned to the role-play group and 18 to the case-based learning group. This reduced the likelihood of systematic differences between the two groups and the threat of external factors and other alternative explanations for the performance of the groups (Campbell & Stanley, 1966).

3.4.3 The Interventions

As indicated above the learning outcomes of two different learning methods for teaching to the same learning objectives were compared in this study: role-play and case-based learning. Both treatments used adaptations of the Nike Labor Scandal in which the

employment of underage workers by suppliers put the corporation's reputation, brand image, and profitability at risk. In this experiment, other treatment factors (course objectives, data measurement instruments) were the same for each group. The only difference was in the method of learning used in class.

Each intervention was executed for the same duration in the first Field Test (i.e., five weeks) and the second Field Test (i.e., four weeks). Since the treatments executed in the two Field Tests were of different durations, the data were analyzed separately rather than as a single group of role-play learners and a single group of case-based learners.

As noted above, the problem selected for both the role-play and case-based learning module was based on a case involving the use of child labor by one of Nike's suppliers. This incident, which happened more than a decade earlier, was unfamiliar to the students. The main facts of the Nike case were formulated into a scenario that served as the basis for both the role-play and case-based learning groups. The full module descriptions given to the role-play and case-based learning groups are included in Appendix A (role-play) and B (case-based) respectively.

The learning objectives of the two modules were identical in that it was expected that all the participants would understand the following topics after learning from the two modules:

1. What is CSR communication and what is the rationale for its use?
2. Why CSR communication is challenging.
3. Why CSR communication does not always work.
4. What do we know about the effective practices for CSR communication and how to do it effectively?

The key distinction between the two interventions involved the assignment of stakeholder roles for the students in the role-play intervention. The rationale for this approach was to determine to what extent the assumption of stakeholder roles during the discussion of the case would yield differences in student engagement, perspectives, learning, and attitudes. Thus, the case-based learning intervention was designed as a group-based, rather than an instructor-centered variant of case-based learning. At the end of the module,

student groups in both interventions would present their CSR Communication Plans and Strategies (see Appendix A and B).

In essence, the learning interventions sought to do more than just simply task the students with describing the sustainability problem. As previous research has indicated, students must develop positive attitudes, action competence and an understanding of how to tackle sustainability-related issues (Cripps & Smith, 2023; Lotz-Sisitka et al., 2015; Mogensen & Schnack, 2010; Sipos et al., 2008; Wiek et al., 2015), both interventions sought to help students not only understand the problem and develop positive attitudes towards addressing the problem but also think about actionable solutions to address the problems (Mogensen & Schnack, 2010; Sass et al., 2020). As a result, a mini-lecture on CSR communication strategies was also taught to the students so that they would have ideas on how to address the CSR problem, with the CSR Communication Plans being the outputs for the students to exhibit how they would approach the problems discussed. The specific learning sequences followed in each of the interventions and modules are described in detail below.

3.4.3.1 Role-play intervention: Learning Sequence. As noted above, the first Field Test of the role-play learning module was conducted over a five-week period. Each class session consisted of three hours of online learning through Microsoft Teams. The learning process for the role-play group is summarized in Table 3.2.

Table 3.2 Summary of Activities in the Role-play Learning Module

Week	Activities in class	Activities after class
Class prior to start of the module	<ul style="list-style-type: none"> • Students informed about data collection • Students' consent form submission • Students complete Pre-tests (sustainability attitude & CSR communication knowledge test) • Written description of the Nike Labor Scandal problem to review before the class 	
1	<ul style="list-style-type: none"> • Course introduction to the Nike Labor Scandal • Students form role-alike groups (e.g. PR, supplier employees, customers, investors) 	<ul style="list-style-type: none"> • Students completed the Online Reflection Questions for Week 1

2	<ul style="list-style-type: none"> • Students role-play Community Meeting about CSR • Students discuss what they learned and summarize the key problems together • The instructor presented a 45-minute mini-lecture on CSR concepts. 	<ul style="list-style-type: none"> • Students completed the Online Reflection Questions for Week 2
3 ¹	<ul style="list-style-type: none"> • Students then formed mixed stakeholder teams to revisit and define the problem facing the company and brainstorm potential solutions. • At the end of the session, each corporate team will produce a definition of the problem and solution options. 	<ul style="list-style-type: none"> • Students completed the Online Reflection Question for Week 3
4 ¹	<ul style="list-style-type: none"> • 60-minute mini-lecture on CSR communication strategy and Crisis Communication. • Students reformed their corporate teams to finalize their CSR strategy and develop a CSR communication presentation to be delivered the following week. 	<ul style="list-style-type: none"> • Students complete Online Reflection Question for Week 4 • Students work on CSR communication presentation in teams • Students complete the Online Reflection Questions for Week 5
5	<p>Student teams do a 15-minute presentation of its CSR Communication Plan to a panel of experts who evaluated them.</p>	<ul style="list-style-type: none"> • The students complete post-test at on CSR communication knowledge and sustainability attitudes • Students complete talkback sheet

¹Weeks 3 and 4 were combined for the second Field Test

3.4.3.2 Case-based learning intervention: Learning sequence. The case-based learning module was taught over the same five-week period as the role-play module (Table 3.3). Each class session consisted of three-hour online synchronous online learning via Microsoft Teams. The learning process for the case-based learning group is elaborated below in Table 3.3:

Table 3.3 Summary of Activities in the Case-based Learning Module

Week	Activities in class	Activities after class	
Class prior to the start of the module	<ul style="list-style-type: none"> • Students informed about data collection • Students' consent form submission • Students complete Pre-tests (sustainability attitude & CSR communication knowledge test) • Written description of the Nike Labor Scandal problem to review before the class 		
	1	<ul style="list-style-type: none"> • Course introduction to the Nike Labor Scandal • Students form their teams to discuss 	<ul style="list-style-type: none"> • Students completed the Online Reflection Questions for Week 1 • Pre-class preparation
	2	<ul style="list-style-type: none"> • Mini lecture introducing the Nike Labor Scandal problem and module timeline • Form teams which then discuss the problem for 30 minutes • Instructor debriefing 	<ul style="list-style-type: none"> • Students completed the Online Reflection Questions for Week 2 • Pre-class preparation
	3 ¹	<ul style="list-style-type: none"> • Mini-lecture on CSR concepts. • Team meetings • Homework the Online Reflection Question and readings 	<ul style="list-style-type: none"> • Students work on solutions to Nike CSR problem • Students completed the Online Reflection Question for Week 3 • Pre-class preparation
	4 ¹	<ul style="list-style-type: none"> • 60-minute mini-lecture on CSR communication strategy and effective presentations • Team meetings to finalize their CSR strategy and develop the 15-minute presentation 	<ul style="list-style-type: none"> • Students complete Online Reflection Question for Week 4 • Students work on CSR communication presentations • Students complete the Online Reflection Questions for Week 5
5	<p>Student teams do a 15-minute presentation of its CSR Communication Plan to a panel of experts who evaluated them.</p>	<ul style="list-style-type: none"> • The students complete post-test on CSR communication knowledge and sustainability attitudes • Students complete talkback sheet 	

¹Classes 3 and 4 were combined in the second Field Test

In Field Test Two, several changes were made based on student feedback from the first Field Test for both interventions. First, readings were consolidated into one video and one article per week to encourage students to use the resources during class preparation. Feedback and instructor observations suggested that a significant number of students were not reviewing the resources stored online. Thus, the resources were consolidated to appear less overwhelming and motivate students to review key resources more actively.

Second, two of the module's class sessions (weeks three and four) were combined, and course materials were streamlined. The researcher also considered that the five-week duration of the module might discourage other instructors from using role-play in their own courses. Therefore, the module was shortened to four weeks.

3.4.4 Data Collection

3.4.4.1 Data Collection Procedures. Data collection proceeded as follows. In the class prior to the launch of the module, students completed a pre-test on CSR communication knowledge and concepts, and a survey on their attitudes towards sustainability. The results were not shared with the students. Nor did the results not have any influence on their group assignment or grade for the course.

Following the pre-test, the instructor used a random number generator to assign students to either the role-play or the case-based learning group. Student codes distinguished their group assignments.

During the week following each of the first three classes, the students responded to questions posted by the instructor to an online discussion forum hosted on Moodle. These questions were designed to prompt reflection and engagement among the students. The same questions were used in both Field Tests.

After class in week four, the students in both groups completed a post-test on CSR communication knowledge and concepts, and a survey of their attitudes toward sustainability. During the final class, student teams from the role-play and case-based learning groups presented their CSR communication plans to the panel of experts. Each team received a joint grade from the experts, in addition to comments on the planning competencies displayed by the teams. Following the last class, the students filled out an

online Talkback Sheet where they discussed what they learned from the module and made suggestions for improvements.

Although the data collection process was similar for both Field Tests, two differences should be noted. First, due to differences in the duration of the two Field Tests, the post-test and presentation took place in week five of the first Field Test and week four of the second. Another difference was that a teamwork scale was added to data collection for the second Field Test. The reason behind this was that several students complained about unbalanced participation in module activities during the first Field Test. Therefore, teamwork scales completed by the students were added to provide more details on this issue for the second Field Test.

3.4.4.2 Data Collection Instruments

This study utilized the following data collection instruments that will be described further below.

3.4.4.2.1 *CSR Communication Knowledge Test*. The study used a multiple-choice exam to assess student knowledge pertaining to CSR communication concepts before and after both treatments. This approach is similar to other studies that assessed knowledge, attitude, and behavior learning outcomes for sustainability learning (Chappin et al., 2017; Kallestrup, 2018). This instrument was used to gather data in response to the first research question.

For this study, the researcher utilized a test of knowledge that focused on the application of CSR communication concepts and featured 15 multiple-choice questions (see Appendix D). The first eight questions focused on conceptual understanding of CSR communication practices. Sample test questions are shown in Figure 3.4.

1. What one of the following practices will best contribute to making corporate social responsibility a part of the company's corporate culture?
 - a. Highlight only the most popular CSR activities of the company to the public
 - b. Show care for the environment in PR communications even when there are no CSR activities being done
 - c. Order staff to participate in environmental conservation activities for the company
 - d. Hold staff meetings to emphasize the importance of sustainability, even if it is not related to their job responsibilities
 - e. Balance the needs of different stakeholders in relation to sustainability issues that impact the company
2. Which of the following statements about CSR is true?
 - a. CSR is easy to understand and implement for all companies so every company should do it without worry
 - b. CSR activities will be the same the same for all companies regardless of the industry
 - c. CSR focuses mainly on environmental issues due to the severity of climate change
 - d. CSR focuses on environment, social, and economic impact of corporate activities
 - e. CSR is limited to activities that impact the communities where the company does business
3. The most effective way of communicating CSR is...
 - a. through written reports because CSR communication must be detailed to be effective
 - b. through video because CSR communication needs to visually show how what the company is actually doing to help people and the planet
 - c. through infographics and short data reports, so technical information will be easier to understand

- d. through continuous posting on social media in order to create a clear impression on stakeholders
- e. it depends on the company's business context

Figure 3.4 Sample CSR Communication Knowledge Test Questions

Seven questions focused on applying CSR communication concepts to a mini-case problem. Su et al. (2021) and Pyle (2018) argued that role-plays could help students respond more effectively to a crisis and act more quickly. Therefore, the case problem focused on a CSR-related crisis to determine if the role-play or case-based learning helped students understand how to respond to crisis situations (Pyle, 2018; Su et al., 2021). This test yielded quantifiable scores that could be used first to determine the extent to which students learned how to respond appropriately to CSR-related problems. Then the results could be compared in a pre/post-test format to assess the relative efficacy of the two different learning conditions.

3.4.4.2.2 *Sustainability Mindset Scale*. The participants also self-assessed their attitude toward sustainability with a sustainability mindset scale (Hallinger, 2019) as part of the pre/post-test (Appendix C) to address RQ2. The participants were asked to indicate their level of agreement to given statements related to sustainability on a five-point Likert Scale (1- strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree). The questions covered not only the environmental dimensions of sustainability but also the economic and social dimensions of sustainability to determine if the student's attitudes towards these different sustainability dimensions had changed. This survey could reflect the participants' attitudes towards sustainability, but also any change in their attitude because of either the role-play or case-based learning. In a previous study, the sustainability mindset scale yielded an acceptable Cronbach's alpha coefficient at 0.645 and was therefore utilized in this study as well (Chatpinyakoo, 2023).

3.4.4.2.3 *CSR Communication Plans*. As part of the final assessment, students in both groups were assigned to create a CSR communication plan and present it to a panel of CSR experts (see Figure 3.5). Students were asked to briefly describe the key problems at the company, before making actionable recommendations to the

company in the form of a CSR campaign to communicate their solutions to the problem. Students also presented taglines and mock-ups of the CSR communication activities (e.g., events, collaborations, social media posts) that would be received favorably by the public.

The CSR expert evaluations (see Appendix E) further supplemented the results from the CSR communication knowledge tests. The CSR expert evaluations were not only based on visual aids or the presented materials. Instead, half of the presentation grades were based on how the students managed their limited presentation time, and how they responded to the CSR expert inquiries about their CSR communication plans.

The CEO and Board of Directors want to organize a new CSR campaign that provides:

- A brief description of the key problems at the company
- Actionable recommendations to fix the key problems at the company
- A CSR campaign that will show how the company will implement the recommendations to the public

Proposed CSR campaigns will need to have:

- Key Taglines for the CSR campaigns that will be memorable in a positive way
- Clear description of communication activities (social media posts, events, collaborations) that will be done as part of the CSR campaign
- Mock-ups of materials that will be posted for the campaign
- A timeline/calendar of their CSR campaign plan

Figure 3.5 Requirements of the CSR Communication Plan

3.4.5 Data Analysis

The study employed a range of different techniques for analyzing the quantitative and qualitative data described in the previous section. These are described in sequence.

3.4.5.1 Sustainability mindset: To address the second research question, the student's attitude was measured with a "sustainability mindset" scale

(Hallinger, 2020). Descriptive statistics were used to show general trends in the data of both groups for each Field Test. Due to differences in the duration of the first and second Field Tests, the results were analyzed separately. The Cronbach Alpha test of internal consistency was used to first check the scale's reliability for this research.

Next, a paired-sample t-test was conducted to determine if there were significant changes in the pre/post-test scores on the sustainability mindset scale for students in the role-play and case-based learning groups. This test was used in separate analyses for the interventions in Field Test One and Two. These analyses responded to the first and third hypotheses, and a 95% confidence interval was used to determine if the change in sustainability mindset was significant.

Finally, the researcher compared the relative effectiveness of the two interventions (i.e., role play and case) in shaping more positive attitudes toward sustainability among the learners. To accomplish this, an independent samples t-test was used to compare results on the sustainability mindset scale for the role play and the case groups in each of the Field Tests. This test would determine if one of the interventions was more effective at changing student attitudes than the other and respond to the fifth hypothesis.

3.4.5.2 Student knowledge of CSR communication concepts: The CSR communication knowledge test yielded a total score and sub-scores focused on student conceptual knowledge of CSR communication practices and crisis communication. Descriptive statistics were generated from the pre/post-test results for each group in Field Tests One and Two. Although the hypothesis testing was based on the total score (i.e., all 15 items), analyses were also conducted on the sub-tests.

A paired-sample t-test was conducted separately on the role-play and case-based learning groups' CSR communication knowledge test results. These tests were used to determine the effectiveness of each of the interventions with respect to change between the pre/post-test results on the test of CSR concepts and practices. These analyses responded to hypotheses two and four.

Following these analyses, the researcher compared the relative effectiveness of the two interventions (i.e., role play and case) in building CSR knowledge

among the learners. An independent samples t-test was used to compare results on the CSR communication test for the role play and the case groups in each of the Field Tests (95% confidence interval). This analysis would determine if there were significant differences in the effects of the interventions on student knowledge of CSR communication concepts and strategies. These analyses responded to the sixth hypothesis.

3.4.5.3 CSR communication skills: To address the third research question, student presentations were graded by a panel of judges with expertise in CSR and crisis communication. The panel graded each team's plan and presentation using a common rubric (see Appendix E). The CSR experts assessed the students on visual aids, presentation style, and their ability to understand and respond to panelist questions about the plans. A single score was assigned to the team's presentation based on an aggregation of the panelists' rubric scores. In addition, the panel members also provided feedback to the groups on their performance.

To further compare both learning groups and examine H₇, an independent samples t-test was also conducted on the presentation scores to determine if teams in either the role-play or case-based learning groups were evaluated more highly by the CSR experts as part of the post-test experimental design. While there was no pre-test, random assignment of students to the interventions should have reduced threats to validity based on differences among the students in each class. This post-test evaluation (i.e., CSR presentation grades) could provide further insight into differences in the skills or competencies exhibited by students in the two interventions.

Additionally, the comments of the CSR experts were coded thematically to determine whether there were differences in the CSR communication planning competencies exhibited by students in the two learning groups. Thematic analysis has been used to find specific patterns of meaning across a range of texts (Pigden & Jegede, 2020). Xu and Zammit (2020) noted that thematic analysis can capture key information about the data in relation to research questions and categorize responses across a data set (Xu & Zammit, 2020). Within thematic analysis, codes are used to capture the meaning of the data. In this essay, the panelists' presentation evaluations were coded on two levels.

First, the CSR experts' comments were coded as either positive or negative with regard to the general quality of the CSR communication presentations. Second, their comments were coded in terms of focus. For example, it was noted if the CSR panelists complimented (or critiqued) students on the feasibility of the proposed CSR communication activities and plans. Through this thematic coding, the comments of the CSR panelist comments could be analyzed more deeply. This offered additional insights into potential differences in the skill outcomes of the two interventions.

3.4.6 Ethical Procedures

The researcher obtained institutional review board (IRB) approval from the university before the study was conducted. The instructor fully informed both learning groups of the Ph.D. study and what the study was for before the first class. Participating students were asked to read the participant information sheet approved by the university institutional review board (IRB). The information sheet disclosed information about the study, why they were selected to participate, what data would be collected, as well as confidentiality and data protection measures. The information sheet also provided details on potential benefits and risks to the participants and their rights. Participants were given time to ask questions about the study before they were asked to provide their written consent to participate in the study. Students who did not provide written consent did not participate in the study.

In total, 109 out of 163 students, or 67% of students from the two classes, consented to participate in the research. Students who did not consent were excluded from the analysis. Research design safeguards were also used to ensure the participants' privacy was protected and their participation remained anonymous. This included anonymizing information, transcribing raw data, and storing data separately from the coding lists. The approved IRB form is provided in Appendix E.

3.5 Results

3.5.1 Analysis of the Effects of Role-Play and Case-Based Learning on Student Attitudes Toward Sustainability

The first research question inquired whether the role-play and case-based learning interventions would significantly improve student attitudes toward sustainability. As noted earlier, students entered the course with little formal education about sustainability. The first analyses evaluated whether the role-play module (H_1) and case-based learning (H_3) interventions would significantly change the sustainability mindset of these bachelor degree students. The results of the two interventions were then compared to determine if one of the pedagogies was more effective at changing student attitudes toward sustainability than the other (H_5).

The first analysis examined the change in students' sustainability mindsets following the role-play interventions. Table 3.4 shows data on the change in the sustainability mindsets of students participating in the interventions in Field Tests One and Two (i.e., H_1). The role-play group in Field Test One began with a moderate level mean sustainability mindset score of 3.84 on the 5-point Likert scale (see Table 3.4). After completing the role-play intervention, the mean sustainability mindset score increased by .33 (6.6%) to 4.17. Results of a paired samples t-test confirmed this positive change in attitude to be statistically significant ($p < .05$; see Table 3.4).

In Field Test Two, students in the role-play intervention began with a mean score of 3.71, which improved by .46 (9.2%) to 4.17 following their participation in the module (see Table 3.4). This result was also statistically significant at $p < .05$ (see Table 3.4). Therefore, students in both role-play learning Field Tests began with a moderately positive sustainability mindset and made meaningful, statistically significant improvements following their role-play experience.

Table 3.4 Analysis of Change in Attitude Towards Sustainability for Students in the Role-play Intervention

Role-play Field Test One (n=36)	Mean	SD	Std. Error Mean	t	df	Sig (2-tailed)
Sust Mind Post-test	4.1722	.53645	.08941			
Sust Mind Pre-test	3.8414	.65060	.10843			
Sust Mind Post-Pre-test Change	.33083	.78000	.13000	2.545	35	.015*
Role-play Field Test Two (n =20)	Mean	SD	Std. Error Mean	t	df	Sig (2-tailed)
Sust Mindset Post-test	4.1790	.45015	.10066			
Sust Mindset Pre-test	3.7145	.47336	.10585			
Sust Mindset Post-Pre-Test Change	.4645	.60692	.13571	3.423	19	.003*

*Significant at .05 level

In the case-based learning intervention (see Table 3.5), students began Field Test One with a sustainability mindset score of 4.06, which increased by .14 points (2.8%) to 4.20 following the module. The students in Field Test Two began with a mean score of 3.77 on the pre-test. This improved by 0.39 (7.8%) to 4.17 following the intervention (see Table 3.5). As indicated in Table 3.5, these results were also statistically significant ($p < .05$). Thus, the case-based intervention also yielded meaningful, statistically significant improvements in student attitudes toward sustainability.

A comparison of student results on the role-play and case-based learning modules from the two Field Tests found that students in all four groups began with moderately positive attitudes toward sustainability. Notably, both interventions yielded meaningful, statistically significant, positive changes in their attitudes toward sustainability. Therefore, the data supported H_1 and H_3 .

Table 3.5 Analysis of Change in Attitude Towards Sustainability for Students in the Case-based Learning Intervention

Case-Based Learning Field Test One (n =35)	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
Sust Mind Pre-test	4.0657	.39909	.06746			
Sust Mind Post-test	4.2363	.57803	.09770			
Sust Mind Post-Pre-Test Change	.17057	.47570	.08041	2.121	34	.041*
Case-Based Learning Field Test Two (n=18)	Mean	SD	Std. Error Mean			
Sust Mindset Pre-test	3.7783	.65409	.15417			
Sust Mindset Post-test	4.1722	.67633	.15941			
Sust Mindset Post-Pre-Test Change	.3939	.38509	.09077	4.340	17	.000*

*Significant at .05 level

Next, an independent samples t-test was used to test H₅, which proposed that the role-play intervention would be more effective at changing the sustainability mindset of students than the case-based learning intervention (see Table 3.6). Consistent with H₅, in Field Test One, the role-play intervention (M =.331) yielded a significantly greater change than the case-based learning intervention (M = .171) on the sustainability mindset of students ($p < 0.05$). In Field Test Two, the independent samples t-test found no significant difference in the degree of change in the sustainability mindset of students in the role-play and case-based learning interventions (.05 level).

These results indicate that both small-group learning interventions produced a significant positive change in student attitudes toward sustainability. However, neither pedagogy appeared to be conclusively superior to the other on this outcome measure. More specifically, contrary to expectations, the role-play intervention did not produce greater attitudinal change among the learners than the case-based learning intervention. Therefore, H₅ was not supported.

Table 3.6 Independent Sample t-test for Student Attitude Towards Sustainability for Role-play and Case-Based Learning Interventions

Role-play vs. Case-Based Learning Field Test One	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference	
						Lower	Upper
Change in Sustainability Mindset	1.02	69	.310	.1577	.1542	-.1498	.4653
	1.03	57.95	.307	.1577	.1532	-.1489	.4643
Role-play vs. Case-Based Learning Field Test Two	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Change in Sustainability Mindset	.484	36	.631	.0808	.1667	-.2573	.4187
	.496	32.33	.624	.0808	.1628	-.2507	.4121

3.5.2 Analysis of the Effects of Role Play and Case-Based Learning on Student Knowledge of CSR Communication Concepts and Practices

The second research question inquired first into the effectiveness of the two interventions in enhancing student knowledge of CSR communication concepts and practices (H₃ and H₄). Then the results were compared to assess whether the role-play intervention was more effective than the case-based learning intervention at building student knowledge of CSR communication concepts and practices (H₅). The analysis begins with descriptive statistics and then moves to the presentation of the significance of the results analyzed by t-tests.

The data in Table 3.7 show that the role-play students started Field Test One with a very low level of knowledge of CSR communication concepts and practices (M=7.39/15 or 49%). Following the intervention, their test result improved to 9.44/15 points (63%). This was equivalent to a gain score of +2.05 points or a 14% improvement. Students participating in Field Test Two of the role-play intervention averaged 8.35 (56%)

on the pre-test and improved to 8.55 (57%) on the post-test. This was equivalent to a gain score of +.20 points, or a 1% improvement, following the role-play intervention. Results on the two sub-tests were generally consistent with the pattern of results on the overall test (see Table 3.7).

Table 3.7 Analysis of the Effects of the Role-play Intervention on Student Knowledge of CSR Communication Concepts and Practices

Role-play Field Test One	Mean	SD	SE	Coefficient of variation
Pre-test Concept CSR (out of 8)	3.28	1.60	0.27	0.487
Post-test Concept CSR (out of 8)	4.25	1.11	0.18	0.260
Pre-test Applied CSR (out of 7)	4.11	1.70	0.28	0.414
Post-test Applied CSR (out of 7)	5.19	1.47	0.25	0.283
Pre-test Total (out of 15)	7.39	3.01	0.50	0.407
Post-test Total (out of 15)	9.44	2.09	0.35	0.221
Role-play Field Test Two	Mean	SD	SE	Coefficient of variation
Pre-test Concept CSR (out of 8)	4.30	2.08	0.47	0.484
Post-test Concept CSR (out of 8)	4.65	1.57	0.35	0.337
Pre-test Applied CSR (out of 7)	4.05	1.23	0.28	0.305
Post-test Applied CSR (out of 7)	4.00	1.45	0.32	0.363
Pre-test Total (out of 15)	8.35	2.82	0.63	0.337
Post-test Total (out of 15)	8.55	2.56	0.57	0.300
Post-test Total (out of 15)	8.06	2.82	0.66	0.350

A paired samples t-test was next used to determine if the changes in knowledge of CSR communication concepts and practices for students in the role-play Field Tests were statistically significant (see Table 3.8). The analysis confirmed that the positive results were statistically significant in Field Test One ($p < .05$), but not in Field Test Two (see Table 3.8). When interpreting these results, it was noted that the gain scores were relatively small, and students failed to achieve a minimum mastery level of 75% in both Field Tests. This reduces confidence in the finding of significant change in Field Test One. Thus, after taking all of the data into account, it cannot be concluded that the role-play intervention had a significant, meaningful effect on student learning of CSR communication concepts and

practices. Thus, H₂, which was concerned with the effectiveness of the role-play intervention, was not supported.

Table 3.8 Paired Samples t-test Results for CSR Communication Knowledge for Students in the Role-Play Learning Intervention

Role-play Field Test One	t	df	p	Cohen's d	SE Cohen's d
Pre-test Concept CSR - Post-test Concept CSR	-3.51	35	0.001**	-0.584	0.216
Pre-test Applied CSR - Post-test Applied CSR	-3.31	35	0.002**	-0.552	0.22
Pre-test Total – Post-test All Items	-3.96	35	< .001*	-0.66	0.218
Role-play Field Test Two	t	df	p	Cohen's d	SE Cohen's d
Pre-test Concept CSR - Post-test Concept CSR	-0.72	19	0.482	-0.16	0.265
Pre-test Applied CSR - Post-test Applied CSR	0.175	19	0.863	0.039	0.21
Pre-test Total – Post-test All Items	-0.39	19	0.703	-0.087	0.191

For the case-based learning intervention, students in Field Test One averaged 7.71/15 (51%) on the CSR communication pre-test and 10.11 (67%) points on the post-test (see Table 3.9). This was equivalent to a gain of +2.4 points or 16%. Students participating in the case-based learning intervention in Field Test Two averaged 7.28 (49%) on the pre-test and improved negligibly to 8.11 (54%) on the post-test. This was equivalent to a gain score of +.83 (5%) following the role-play intervention. Results on the two sub-tests were generally consistent with the pattern of results on the overall test (see Table 3.9).

Table 3.9 Analysis of the Effects of the Case-based Learning Intervention on Student Knowledge of CSR Communication

Case-Based Field Test One	Mean	SD	SE	Coefficient of variation
Pre-test Concept CSR (out of 8)	3.60	1.09	0.18	0.303
Post-test Concept CSR (out of 8)	4.71	1.38	0.23	0.294
Pre-test Applied CSR (out of 7)	4.11	1.53	0.26	0.372
Post-test Applied CSR (out of 7)	5.40	1.22	0.21	0.225
Pre-test Total (out of 15)	7.71	2.20	0.37	0.286
Post-test Total (out of 15)	10.1	2.17	0.37	0.214
Case-Based Field Test Two	Mean	SD	SE	Coefficient of variation
Pre-test Concept CSR (out of 8)	3.83	1.65	0.39	0.431
Post-test Concept CSR (out of 8)	4.33	1.82	0.43	0.419
Pre-test Applied CSR (out of 7)	3.67	1.72	0.4	0.468
Post-test Applied CSR (out of 7)	3.94	1.55	0.37	0.393
Pre-test Total (out of 15)	7.28	2.59	0.61	0.355

The results of the paired samples t-test conducted on the case-based learning data generally followed the same pattern previously reported for the role-play intervention (see Table 3.10). Specifically, the results were confirmed as statistically significant for Field Test One ($p < .05$), but non-significant for Field Test Two (see Table 3.10). These results yielded a similar interpretation and conclusion as previously reported for the role-play intervention. Thus, H_4 was not supported.

In summary, none of the four groups of students achieved a minimum level of mastery ($>75\%$ mean score) on the measure of CSR communication concepts following the learning interventions. Moreover, the improvements were marginal at best, with gain scores ranging from 1% to 16%. Thus, the data do not support the efficacy of either of the active learning modules delivered in a fully online mode to these students.

Table 3.10 Paired Samples t-test Results for CSR Communication Knowledge for Students in the Case-based Learning Intervention

Case-Based Field Test One	t	df	p	Cohen's d	SE Cohen's d
Pre-Test Concept CSR - Post-test Concept CSR	-4.02	34	< .001*	-0.679	0.246
Pre-Test Applied CSR - Post-test Applied CSR	-5.5	34	< .001*	-0.929	0.2
Pre-test Total – Post-test Total	-6.1	34	< .001*	-1.031	0.223
Case-Based Field Test Two	t	df	p	Cohen's d	SE Cohen's d
Pre-Test Concept CSR - Post-test Concept	-1.01	17	0.325	-0.239	0.288
Pre-Test Applied CSR - Post-test Applied CSR	-0.69	17	0.5	-0.163	0.247
Pre-test Total - Post-test Total	-1.26	17	0.226	-0.296	0.233

The next hypothesis (i.e., H₆) proposed that the role-play intervention would yield a stronger improvement in student knowledge of CSR communication concepts than the case-based learning intervention. Independent sample t-tests were run in order to assess differences in the final learning outcomes (i.e., post-test scores) and gain scores of students learning in the two pedagogical interventions (see Table 3.11).

The results showed no statistically significant difference in the CSR communication concepts and practices post-test scores of students learning in the role-play and case-based modules. This finding was consistent in Field Tests One and Two (see Table 3.11). A similar finding emerged with respect to the gain scores of students learning in the role-play and case-based learning interventions across Field Tests One and Two (see Table 3.11). The gain scores of students learning under the two conditions were not significantly different (.05 level). As a result, hypothesis H₆, which stated that students in the role-play intervention would perform better on the CSR knowledge test than students in the case-based learning intervention, was not supported.

Table 3.11 Independent Sample t-tests Comparing Knowledge Test Results for Students in the Role-play and Case-based Learning Interventions

Role-play vs. Case-Based Learning Field Test One	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% CI of the Difference	
						Lower	Upper
CSR Communication Post-test Score	-1.326	69	.189	-.670	.505	-1.678	.338
CSR Communication Pre/Post-test Change	-1.325	68.716	.189	-.670	.505	-1.678	.338
	-.393	69	.696	-.258	.657	-1.568	1.052
	-.394	65.823	.695	-.258	.654	-1.565	1.049

Role-play vs. Case-Based Learning Field Test Two	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	SE Difference	95% CI of the Difference	
						Lower	Upper
CSR Communication Post-test Score	.566	36	.575	.494	.873	-1.278	2.265
CSR Communication Pre/Post-test Change	.564	34.594	.577	.494	.877	-1.288	2.276
	-.674	36	.504	-.528	.783	-2.115	1.059
	-.668	33.342	.509	-.528	.790	-2.135	1.079

3.5.3 Analysis of the Effects of Role-Play and Case-Based Learning on Student Skills in CSR Communication

The next research question and associated hypothesis focused on the capacity of the two interventions to improve student skills in communicating their plans for addressing the CSR problem presented in the scenario. In contrast to the earlier analyses, this question was addressed using a mixed method, experimental post-test-only research design. Therefore, rather than comparing changes in student skills, the researcher only compared the measure of CSR communication skills collected after the module. As discussed in the Method section of this chapter, the data were obtained from a panel of experts who assessed the student presentations using a common analytical rubric (see Appendix E).

Although the rubric emphasized presentation delivery and visual aids, the judges were briefed to grade specifically on the feasibility of the CSR communication plans presented, the students' ability to present their plans clearly, and their responses to queries regarding their communication plans. The quantitative data will be presented first, followed by qualitative analysis.

3.5.3.1 Quantitative Analysis of the Effects of Role Play and Case-Based Learning on Student Skills in CSR Communication: More specifically, three CSR experts listened to each group's presentations of their CSR communication plan before giving an overall grade (based on 24 points). The presentations were graded on delivery as well as the ability of the teams to justify their CSR communication plans. Rubric scores were calculated for all of the teams in the Field Tests for both interventions. A mean score was then calculated for the role-play and case-based learning teams participating in Field Tests One and Two (see Tables 3.12 and 3.13).

The performance scores of the role-play teams ranged from 10.33 to 17.33 in Field Test One, and from 14.67 to 15.67 in Field Test Two. In Field Test One, the seven role-play teams achieved a mean score of about 12.99 out of 24 points, equivalent to a percentile score of 54.16% (see Tables 3.12 and 3.13). In Field Test Two, the three teams achieved a mean score of 15.22 points, for a percentile score of 63.4%. Notably, none of the role-play teams achieved mastery in CSR communication skills, set by the instructor at 18 points or 75%. Indeed, across the two field tests, only one role-play team came close to achieving mastery (17.33).

The performance scores of the case-based learning teams ranged from 8.67 to 20.33 in Field Test One, and from 12.00 to 15.33 in Field Test Two. In Field Test One, the seven teams averaged a mean score of about 13.38 (55.75%) in Field Test One. In Field Test Two, the three teams averaged a mean score of 13.89 (57.8%). Although one team scored 20.33 out of 24 points among the three CSR experts in Field Test One, only this team mastered CSR communication skills in the two field tests.

Regarding the strengths of the role-play and case-based learning teams, the strengths of the teams were the use of different communication activities and the creativity of their ideas, especially from the role-play students. The CSR judges were also

very impressed that the students had done their background research on the problems and tried to find novel solutions to the problems. Moreover, although it was not a key focus of this assessment, the CSR judges were also complimentary regarding the presentation delivery from both case-based and role-play learning teams, though teams in both learning groups needed to improve on responding to queries at the end of their presentations.

The key weakness for teams from both learning groups was the feasibility of the communication activities presented. For instance, the CSR experts said that some groups misinterpreted the role of different government entities and some proposed activities that were quite expensive and did not seem feasible. On a similar note, the judges also commented that the timelines on some of the plans were ambitious and unrealistic if implemented in real life.

Table 3.12 CSR Presentation Scores Comparisons from the CSR Experts

Criterion	Role-play Learning Intervention		Case-based Learning Intervention	
	Field Test One Mean Score	Field Test Two Mean Score	Field Test One Mean Score	Field Test Two Mean Score
Materials and Content of the CSR Plan	1.714	2	1.86	1.67
Use of Evidence to Persuade	1.524	1.78	1.71	1.78
Maintain Judges' Interest	1.714	1.67	1.81	1.67
Use of Visual Aids	1.810	1.67	1.76	1.67
Understand Judges' Queries	1.571	2.11	1.48	1.67
Responses to Judges' Queries	1.381	2.11	1.43	2
Use of Time	1.714	2.11	1.86	1.67
Poise and Confidence	1.571	1.78	1.48	1.78
Total Score	13	15.22	13.38	13.89

The similarity in scores obtained from student teams that participated in the two interventions made the need for inferential analysis superfluous. Nonetheless, it was conducted for the purpose of hypothesis testing. The Shapiro-Wilk test for normality results was used to assess the normality of the results. Since the results deviated from the normal curve for Field Test One (df= 14, sig = .434) and Field Test Two (df = 6, sig = .066), a Mann-Whitney U test was then used to test for differences in the CSR presentation grades. As indicated in Table 3.12, the results of the Mann-Whitney U test confirmed a lack of significant differences between the two interventions regarding student CSR communication skills.

Table 3.13 CSR Presentation Overall Score Comparisons from the CSR Experts, Mann-Whitney U Test

Type of Intervention	Field Test	n	Min	Max	Mean	SD	SE	Coefficient of Variation
Role-play Learning Intervention	1	7	10.33	17.33	12.99	2.513	1.026	0.19
	2	3	14.667	15.67	15.22	0.415	0.293	0.027
Case-based Learning Intervention	1	7	8.67	20.33	13.38	3.357	1.370	0.250
	2	3	12.00	15.33	13.89	1.708	2.245	0.465

These results suggest that neither of the interventions could be considered successful in developing student skills in CSR communication. The absence of a pre-test does, however, leave open the question of how far the students came in terms of developing relevant skills in CSR communication. The similarity of scores between students in the two interventions yielded the conclusion that neither of the interventions was superior on this criterion. Thus, H₆, which proposed that the role-play intervention would produce stronger effects on student skills, was not supported.

3.6 Discussion

3.6.1 Limitations

There are several limitations that should be highlighted for this study. First, this was an experimental study of two pedagogies delivered by an instructor who had limited experience teaching these modules and had never taught a full course completely online prior to the Covid-19 pandemic. It is possible that the quality of teaching of the modules could have had an impact on the results of the study.

Second, the study was conducted with undergraduate students studying media communication at a Thai university. As noted, the students lacked experience using small-group learning methods and had never been taught how to manage their learning in a team setting. Thus, they lacked prior collaborative and team learning skills, which could have impacted the results.

Third, both interventions were conducted in a fully asynchronous, online mode. This made it far more difficult for the instructor and the students to communicate effectively than in a face-to-face learning environment. Indeed, the study was initially planned for implementation in a face-to-face learning environment. The switch to online learning necessitated by the COVID-19 pandemic was nonetheless approached as an opportunity to explore the realities and potential of these small-group learning methods in an online learning setting with undergraduate students.

3.6.2 Interpretation of the Findings

It was noted in the results section that four of the six hypotheses were not supported by the data. This implies that the results attained in this research were largely unexpected. Indeed, the only hypotheses supported by the data were H₁ and H₃, which stated that role-play and case-based learning would yield significant positive effects on student attitudes toward sustainability. This was an encouraging finding since it suggested that the modules raised student sensitivity to the importance of CSR/sustainability challenges. This

could prompt the students to seek out more information on these topics in the future, and potentially lead to behavioral change (Ajzen, 1991).

However, the broader results did not align with the researcher's predictions. Neither intervention resulted in the students – on average – attaining a minimum level of mastery of the conceptual knowledge that formed the cognitive learning objectives for the two modules. Nor did students achieve a minimum level of mastery on the measure of CSR communication skill presentation. Moreover, the interventions also failed to yield significant “change in students’ knowledge of CSR communication concepts” (i.e., H₂ and H₄). Taken together, these results suggest that neither of the small-group, online learning interventions could be considered “successful” in achieving the learning aims of the course. This pattern of results was disappointing.

Four possible reasons can be proposed for this pattern of results. The first concerns the requirements needed to successfully implement the two interventions: the students themselves. The second concerns how the students' characteristics interacted with the interventions. The third concerns the context for this study, which was conducted in Thailand. Finally, the researcher must also consider his role. How might his implementation of the interventions have impacted the results? These will be considered in turn, though in some cases, the explanations interact with or blend into one another.

For these active learning interventions to achieve their desired outcomes, certain conditions must be fulfilled in the classroom (Hallinger & Bridges, 2007). The pedagogies used in this study demanded a high level of student interdependence and placed a premium on student skills in team-based learning. Unfortunately, the students had not gained either explicit skills or substantial experience in the use of small-group active learning pedagogies in their prior coursework, which was largely lecture-based. Thus, students lacked the necessary skills in problem-framing, managing team discussions, project planning, and problem-solving, all of which are critical to successful small-group, active learning (Anas et al., 2022; Huang & Lin, 2017; Huijbregts et al., 2022; Michaelsen & Sweet, 2008). Thus, even though the modules followed the precepts and design principles of role-play and case-based learning, the students were not adequately prepared to enact the pedagogies successfully and thereby gain their benefits.

The rapid transition to online learning, necessitated by the COVID-19 pandemic, further heightened the challenge for students to adapt to these small-group, active learning pedagogies. The students generally lacked prior experience in learning online. Sitting in a virtual classroom and taking notes while viewing an instructor's lecture is straightforward. However, small-group learning in an online mode is more complex and introduces far more uncertainties in the learning process, both for the instructor and students. These uncertainties extended to all aspects of the interventions, including presenting information clearly to the class, students and the instructor moving in and out of break-out rooms, the instructor's monitoring of learning, challenges of students collaborating in problem-solving in their teams, assessing classmates' body language via the computer screen, and accessing and sharing resources.

Thus, it is apparent that the instructional modules probably made unrealistic demands on students who were insufficiently prepared to engage in small-group, active learning in an online learning environment. Whether the results would have been more positive in a face-to-face environment is uncertain. Nonetheless, this study represented a 'natural experiment' introduced by the COVID-19 pandemic. Thus, the results can potentially offer additional insights into the conditions that are needed to support active learning in an online environment, especially in the context of an international undergraduate program in Southeast Asia.

The researcher's interpretation of these results reprises a controversy that ensued 20 years ago following the popularization of problem-based learning in K-12 and higher education during the 1990s. A school of psychologists critiqued PBL from the perspective of students' cognitive preparation for learning. More specifically, these scholars questioned the efficacy of "minimally guided instruction" (Clark et al., 2012; Sweller et al., 2007). They asserted that learners – especially those who lack fundamental skills in learning independently – will tend to flounder, "spin their wheels", and proceed in an inefficient manner that also fails to achieve the learning objectives (Clark et al., 2012). This was an explicit critique of PBL and other "constructivist" active learning pedagogies.

Advocates for student-centered, team-oriented learning countered with the argument that active learning methods can overcome the ambiguities that often accompany

constructivist approaches by providing “cognitive scaffolds” (Hmelo-Silver et al., 2007; Schmidt et al., 2007). Cognitive scaffolds can take diverse forms. For example, training students in team discussion, collaborative learning, and project management skills represent scaffolds that assist students when working on unstructured problems in a team learning setting (Hallinger & Bridges, 2007; Michaelsen & Sweet, 2008). Moreover, greater structure can be introduced through the inclusion of specific learning objectives, relevant learning resources, and “mini-lectures” designed to supplement group discussions (Hallinger & Bridges, 2007; Michaelsen & Sweet, 2008). Indeed, several of these “cognitive scaffolds” were incorporated into the two interventions used in this study. For example, the instructor provided learning objectives, learning resources, and mini-lectures as a means of reducing some of the uncertainty for the learners.

Nonetheless, these were apparently insufficient. In most learning teams, students clearly floundered when it came to framing the problem, accessing knowledge from the resources, and sharing and applying what they had learned to the problem scenario. They were also unsure how to manage classmates who failed to fulfill their responsibilities. These fundamental skill deficits were further exacerbated by the online learning environment. This increased the complexities of student-to-student and instructor-to-student communication.

In addition, features of the student sample may also have factored into the non-significant results. The sample consisted primarily of Thai students studying in an English language format. In traditional lecture classes, teachers typically deliver the information to students using direct instruction (i.e., lecture). Although readings are assigned, students can often absorb much of the core content through the lectures. In these small-group interventions, however, there was a much greater emphasis on students learning through the resources provided by the instructor and interaction with one another. The instructor’s expectation that students would learn through self-directed examination of the resources provided in the modules may have exceeded their capabilities.

Another dimension worthy of consideration when interpreting the results is the cultural context of the study. Scholars have noted that the assumptions that drive small-group, active learning methods are not uniformly supported across different cultures

(Frambach et al., 2012; Hallinger & Lu, 2013; Walker, 1996). This recognizes the observation that learning is socially constructed. Cultural values and norms shape student expectations, attitudes, and experiences in classrooms (Hallinger & Bridges, 2007; Walker, 1996). Thus, the execution of this study with Bachelor degree students from Thailand should also be considered a potentially important moderating factor.

Twenty-five years ago, there was a general perception among educators that Asian learners preferred passive learning approaches that emphasized information given by the teacher and received by students (Watkins & Ismail, 1994; Watkins et al., 1991). The high power distance prevalent in Asian societies shapes students' expectations that the teacher is the expert who will dispense knowledge. Thus, the underlying assumptions of constructivist, team-oriented learning pedagogies may counter the traditional norms that shape student behavior in Asia.

Moreover, researchers have also found that Asian students tend to experience greater discomfort with the ambiguity often embedded in constructivist learning methods. This was, for example, observed in studies of the use of problem-based learning in Asian societies (Hallinger & Bridges, 2007; Hallinger & Lu, 2013; Walker et al., 1996). These cultural norms have, at times, hindered the successful adoption of student-centered learning (Hallinger & Lu, 2013; Pham & Renshaw, 2013; Ting et al., 2019) in Asian societies.

At the same time, scholars have studied the classroom conditions that support Asian students when using small-group, active learning pedagogies (Hallinger & Bridges, 2007; Ho, 2009; King et al., 2015; Vongsila & Reinders, 2016; Walker, 1996). Researchers have documented successful cases of small-group active learning in Thailand (Chatpinyakoo, 2023; Chatpinyakoo et al., 2024; Hallinger & Bridges, 2007; Hallinger & Lu, 2013) as well as in other Asian societies (Nguyen & Le, 2024; Pham & Renshaw, 2013; Ting et al., 2019). This has led to a more refined and nuanced interpretation of the perception of Asian learning styles (Ho, 2009; King et al., 2015). These findings suggest that Asian learners value clear, practically oriented learning objectives and well-structured learning tasks. They require a safe environment in which to share ideas. Moreover, as with students more generally, they must develop skills that facilitate knowledge sharing and learning collaboratively.

For example, scholars have not only emphasized the development of team learning skills but also the use of a circular curriculum. This involves the staged introduction of skills and problem scenarios of gradually increasing complexity and ambiguity (Hallinger & Bridges, 2007; Hallinger & Lu, 2013). Thus, for example, Hallinger and Bridges (2007) recommended introducing students to PBL with the more structured “problem-stimulated” variant of PBL and gradually advancing toward the use of the student-centered variant as learners gain skills in problem-solving, independent learning, and team collaboration. This contrasts with the current study in which Asian learners were confronted with learning modules that were essentially “stand-alone units” implemented without the benefits of prior experience or skill preparation.

The last explanation for the disappointing results has been alluded to already. This concerns the instructor’s effectiveness in implementing the small-group, active learning interventions. For example, the instructor had never attempted to manage multiple student teams that were using two different pedagogies simultaneously in the same classroom. This would have been challenging even in a face-to-face physical classroom setting, especially in Field Test One, which featured 14 student teams.

In the online environment, however, it was even more challenging. At the most basic level, teaching online requires considerable facility with the software. While software such as Microsoft Teams and Moodle provide the instructor with many options, it takes years of use to become truly proficient in their use. Moreover, even with proficiency, the online learning mode made it more difficult for the instructor to check for students’ understanding of instructions, monitor their levels of engagement, and provide feedback to teams in the break-out rooms. The instructor’s preparation and implementation of the module were probably not the most critical factors explaining the poor knowledge outcomes. Nonetheless, they no doubt interacted with the students’ lack of readiness for engaging the interventions in an online mode. That is, the complexities introduced by the online format, reduced the instructor's capability to provide students with a level of support that could have compensated, to some degree, for their skills deficits.

Moreover, as the study sought to investigate methods of developing action competence among students as opposed to just knowledge of sustainability issues

(Mogensen & Schnack, 2010; Sass et al., 2020), the additional requirement of the students to formulate a CSR Communication Plan in a very short amount of time without much prior knowledge could have been a challenge they were not quite ready to face with the limited timeframe of the learning interventions. In this case, it may have been better for the students to have more time to digest what was learned rather than shorten the learning activities by one week. It is also possible that teamwork issues could have influenced this factor, which was further investigated in Essay III.

These interpretations suggest that the lack of successful learning outcomes observed for both interventions is most likely attributable to a confluence of factors. The students required greater skill preparation before being able to address the presented problem successfully. The effects of this skill deficit were probably heightened by the norms of the cultural context and then again by the necessity to deliver the interventions in a wholly online mode, which was still new to the students and instructor. Notably, this interpretation of the findings is consistent with prior research (Adedoyin & Soykan, 2020; Al-Kumaim et al., 2021). Nonetheless, the researcher will examine the validity of this explanation for the results in the next chapter using qualitative data collected on the students' experience of the modules.

The aforementioned interpretations focused on the efficacy (or lack thereof) of the two small-group, active learning interventions. However, it should not be forgotten that three other hypotheses proposed that the role-play intervention would be more effective than case-based learning at enhancing student attitudes, knowledge, and skills. However, the study found no significant differences between the two interventions on any of these learning outcomes. A critical assessment might conclude that the modules were "equally ineffective." What might account for this consistent lack of differences between the effects of the two interventions?

The author hypothesized that the role-play intervention would be more effective based on the assumption that taking on stakeholder roles during the learning process would prompt learners to address the problem with greater emotional engagement (Chen & Martin, 2015; Duchatelet et al., 2019; Paschall & Wüstenhagen, 2012). In addition, proponents of role-play have proposed that discussions among team members who take on alternative

roles can prompt consideration of the problem and potential solutions from more diverse points of view (Duchatelet et al., 2019; Gordon & Thomas, 2018; Paschall & Wüstenhagen, 2012). This contrasts, in both respects, with the case approach in which there is a tendency for learners to analyze the case more “dispassionately”, sometimes without explicitly considering diverse perspectives on the problem (Bridges & Hallinger, 1995; Radi Afsouran et al., 2018). However, as noted, the effects of the two interventions were essentially indistinguishable.

The explanation for the lack of observable differences in the effectiveness of the two interventions could be due, at least in part, to how the two interventions were structured. More specifically, the researcher tailored the two interventions to be similar in all respects except for the role-play feature. Thus, the learning objectives, problem scenario, duration and sequence of learning activities, learning resources, team orientation, and deliverables were the same for students in the role-play and case-based learning interventions. The only distinguishing element was that students in the role-play intervention assumed stakeholder roles during the team meetings and in their presentations. This approach to the design of the interventions reflected the researcher’s desire to assess just how much of a difference the “role-play” element would play in the context of small-group active learning.

The researcher wishes to highlight this feature of the study’s design because “case teaching” and “case-based learning” encompass many pedagogical practices. They span large-class, teacher-directed case-based learning (Barnes et al., 1994; Christensen, 1981, 1991; Gragg, 1951) as well as small-group, team-oriented versions such as the design used in this study (Bick & Carmichael, 2010; Desiraju & Gopinath, 2001; Flynn & Klein, 2001; Rezaee & Mosalanejad, 2015). If the researcher had structured the case-based learning intervention along the lines of the more traditional large-class lecture and case discussion approach, it is possible that the results would have differed in some respects.

The researcher did not adopt this approach for two reasons. First, with larger differences like the interventions, it would have been more difficult to determine the extent to which the “role-play element” was the “cause” of observed differences in learning outcomes. Second, there has been a trend over the past two decades for proponents of case-

based learning to adopt more participatory, team-oriented versions (Austin, 2012; Bick & Carmichael, 2010). Thus, rather than emphasize differences between the interventions, the researcher structured the case-based learning intervention to be consistent with the more common variant used in the current era (Brenner et al., 2020; Kapasi & Davis, 2017; Servant-Miklos, 2019). The result, however, was that no differences were found between the two interventions, either on student attitudes toward sustainability or knowledge and skills.

The finding of “no significant differences” between the two interventions on any of the measures suggests that the assumption of stakeholder roles did not yield the expected positive impact. However, it could also be that the role-play element lost some of its emotional impact due to students interacting in an online environment, rather than “face-to-face in a physical classroom. The “breakout room feature” of the online learning software did make it possible for students to interact online in small groups. However, the researcher’s anecdotal observations of the break-out rooms suggested that the nature of the interaction was qualitatively different from past role plays when students were seated together face-to-face in small groups (Bouaoud & Saintigny, 2022; de Oliveira Dias et al., 2020; Tiedemann & Simmenroth, 2021). Thus, to some extent, the emotional engagement frequently highlighted in studies of role-plays might have been diluted in the online learning environment. This possibility should be explored in future research through the use of experimental studies that compare role-play learning when conducted online and in physical classrooms.

In summary, these findings suggest that the two interventions were more similar than different in both process and outcomes. With this finding in mind, the researcher has reconceptualized this as a study of “small-group, active, online learning.” While the quantitative results presented in this Chapter were quite conclusive concerning the learning outcomes of the two small-group, active learning interventions, the researcher has, thus far, only offered speculative responses for why. As noted above, qualitative data gathered during the study may also assist in narrowing down the explanations for the lack of differences in the results of the two interventions. This will be addressed in Chapter 4, in which the researcher examines the learning process from the students' perspective.

CHAPTER IV

**ESSAY III: EXPLORING THE STUDENT EXPERIENCE OF
ONLINE ROLE-PLAY AND ONLINE CASE-BASED LEARNING
FOR CSR COMMUNICATION**

4.1 Introduction

The quantitative results reported in Chapter Three revealed mixed findings on the impact of online role-play and case-based learning interventions on student knowledge, skills, and attitudes. While both pedagogies yielded a significant positive change in student attitudes toward sustainability, neither module produced knowledge or skill mastery or a significant change in student capabilities. In Chapter 3, the researcher proposed several possible explanations for this pattern of results that were related to student characteristics and readiness to use active learning methods in an online environment. This prompted the researcher to inquire into students' experience of learning through these pedagogies in a fully online environment.

It was earlier noted that the research design employed in this dissertation was changed due to the constraints imposed by the COVID-19 pandemic. More specifically, the two small-group, active learning interventions were implemented in a fully online mode, rather than in a face-to-face classroom environment as originally planned. This challenged both the instructor and students who lacked previous experience in teaching and learning in an online learning environment. Although research supports the value of these active learning methods, most studies have been conducted in face-to-face settings (Bouaoud & Saintigny, 2022; de Oliveira Dias et al., 2020; Tiedemann & Simmenroth, 2021). There is far less evidence concerning their efficacy when used in an online environment (Cole et al., 2021; Khan et al., 2017).

Following the pandemic, university instructors throughout the world have continued to employ online learning at a level unseen prior to the pandemic (Huang & Wang, 2023; Liew et al., 2023; Pathak & Singh, 2023; Tiedemann & Simmenroth, 2021). While researchers have discussed the general conditions that underpin successful online learning (Cranfield et al., 2021; Kamal et al., 2020; Popa et al., 2020), fewer studies have investigated the use of small-group, active learning pedagogies such as role-plays and case-based learning in a fully online synchronous learning environment (Bouaoud & Saintigny, 2022; Koehler et al., 2020; Sistermans, 2020; Tiedemann & Simmenroth, 2021). Thus, research is urgently needed that explores the conditions that contribute to student success when active learning pedagogies are used in a synchronous, online environment (Bouaoud & Saintigny, 2022; Koehler et al., 2020; Sistermans, 2020). These were the research gaps addressed in this Chapter. The following research questions guided the empirical analyses presented in this Chapter.

1. How did students experience the role-play and case-based learning interventions in small groups?
2. What obstacles did students encounter in using these active learning pedagogies in a fully online learning mode?
3. Were differences observed in the experiences of role-play students vs. the case-based learning students?
4. How can instructors create conditions for successful active small group learning online in the Asian context?

This Chapter was reconceptualized from the original proposal to take advantage of the “natural experiment” that ensued in the use of these active learning pedagogies in a fully online learning environment. In this Chapter, the researcher will present a qualitative study utilizing sentiment and thematic analysis of reflection responses from participating students. The results provide insights into the nature of the learning experience of students while engaged in role-play and case-based learning in an online mode. This analysis will also highlight similarities and differences in using the two small-group, active learning pedagogies as experienced by the students. Finally, the instructor will elaborate on his experience delivering the online active learning modules. These results may inform using

these and other small-group, active learning pedagogies when adapted for an online environment.

4.2 Literature Review

Research on the use of small-group, active learning methods in a fully synchronous, online environment is of relatively recent vintage. Indeed, it was only with the advent of the COVID-19 pandemic that fully synchronous, online learning became ubiquitous. This literature overview will examine empirical research on the use of role-play and case-based learning in a fully synchronous learning mode.

4.2.1 Conducting Role-Plays Online

Theorists contend that role-plays help students develop higher-order thinking skills and perspectives that enable them to apply knowledge in more holistic ways and transfer learning to other settings (Latif et al., 2018; Paschall & Wüstenhagen, 2012). However, many of these arguments have been made for offline role-plays. Virtual peer role-plays are only just now started to be implemented (Bouaoud & Saintigny, 2022; de Oliveira Dias et al., 2020; Tiedemann & Simmenroth, 2021) despite some initial research being done on online simulation (Moratis et al., 2006).

Moratis et al. (2005) developed an online CSR simulation (*experienceCSR*) in which participants had to develop a CSR strategy for a fictitious company as CSR consultants. The authors argued that in comparison to board games on CSR, the online simulation could suit the learning needs of the students better and provide additional features. In the case of *experience CSR*, the online simulation is done individually as the students are tasked with implementing a CSR strategy as if they were CSR consultants. The students must obtain corporate information by interviewing internal and external stakeholders before implementing tactics to gain “buy-in” from the different stakeholders. As tactics trigger different responses from different stakeholders, students can decide to adjust or reconsider their strategy. Moreover, the simulation reviewed the behaviors and

choices of the students after the simulation was over, and allowed the students to play the simulation again with their new knowledge.

In terms of learning outcomes from the simulation, the study by Moratis et al. (2006) reported the students were “very positive” and that the simulation had a central role in realizing the course's objectives. They valued the playful way of getting acquainted with CSR and developing awareness and consciousness of the topic, but also how the simulation required instant reflection and responsibility. The students did have some criticisms of the online simulation. For example, the “playful” way of learning did lead to some students not taking the simulation seriously. Furthermore, some students were too focused on achieving “optimal” outcomes and not on their learning.

The role-play also resulted in free rider behavior, with some students relying on others to tell them how to achieve good outcomes in the online simulation (Moratis et al., 2006). Interestingly, no other in-depth studies have been conducted on this online simulation since then, even during the COVID-19 pandemic. Therefore, other online role-plays conducted during the COVID-19 pandemic were analyzed instead to better understand their efficacy.

A study conducted by Bouaoud & Saintigny (2021) utilized a virtual role-play session to help students learn how to break bad news. The study featured 10 virtual peer role-play sessions (VPRP) supervised by two teachers with over 237 students. The VPRP sessions featured scaffolding, such as the students first being reminded on the general principles of communication and relation skills, before a brainstorming session was done around a challenging clinical situation. The participants were asked to discuss “how to give hope to a patient in a seemingly hopeless situation,” and tips and advice were given to the students on how to address the situation. It was only after these steps that the VPRP session was conducted. The study revealed that 80% of participants felt better prepared for breaking bad news communication after the VPRP sessions, and recommended that these virtual role-play sessions be maintained in the curriculum of future students (Bouaoud & Saintigny, 2022). However, the authors did conclude that the learning benefits of VPRP, such as knowledge, skills, and perceptions, could be evaluated more deeply in future studies.

Another study of a role-play simulation was conducted by De Oliveira et al. (2020) in a negotiation and conflict management course as part of an MBA course. In this research, the instructors chose to remove all group dynamics and had students do the role-play simulation individually due to concerns that the students could not physically meet. Instead, the students did a role-play simulation with extensive negotiation mapping and preparation before students completed the assignment individually. Participation grading was used as an incentive for students to participate (de Oliveira Dias et al., 2020). Results indicated that there were significant technical issues with some students struggling with poor internet connection. The study also found that the exercises took 30 to 40 minutes longer, and outcomes were 20% lower than in the classroom. De Oliveira Dias et al. (2020) further concluded that the lack of visual cues and less quality interactions among the participants impacted learning and ultimately recommended that virtual classes not replace physical classrooms after the COVID-19 pandemic was over. The qualitative nature of the study did limit the generalizability of the findings.

Tiedemann & Simmenroth (2021) studied an online role-play focused on alcohol and smoking counseling. The role-play was used as part of a practical component in which students took turns role-playing as the student, patient, or observer. Students were given a written exam at the end to determine what was learned. The students were also asked to conduct a counseling session in the form of a brief intervention. Interestingly, not all students reported feeling confident enough to conduct a counseling interview on their own. Moreover, some students reported not always receiving proper feedback from their role-play partners or had reflected on their counseling after receiving feedback from experts.

Albright et al. (2021) examined the use of an online role-play simulation for teaching family, friends, and coworkers to effectively manage problem-solving conversations with individuals who may be dealing with substance use. The study utilized the One Degree: Shift the Influence Simulation, which was built around a series of mini conversations where users individually interact with intelligent, fully animated, and emotionally responsive virtual humans (VH) experiencing the negative effects of alcohol and/or cannabis use.

These VH characters could adapt their verbal and non-verbal responses to the conversation or dialog options participants select through the role-play, with options representing effective, neutral, and ineffective tactics for managing these conversations (Albright et al., 2021) Participants highly rated the simulation, and results indicated that the participants reported significant increases in preparedness and self-efficacy regarding the topic. However, there were no significant changes in the self-reported behaviors regarding starting conversations or solving problems with substance abuse. Qualitative data did highlight that several participants had already dealt with these issues previously, which could have resulted in participants reporting less change in their behavior (Albright et al., 2021).

Regarding the online role-play studies, the learners reported similar experiences even with the different role-plays that have been used. While studies reportedly that a majority of students enjoyed role-playing, students did not always learn effectively and remember the key learning objectives of the role-play activities (Bouaoud & Saintigny, 2022; Tiedemann & Simmenroth, 2021). One other limitation was that limited the generalizability of the studies was the non-systematic data collection. Evidence has been mostly anecdotal and not done over multiple study groups (Bouaoud & Saintigny, 2022; de Oliveira Dias et al., 2020; Moratis et al., 2006).

The most in-depth studies have been conducted in the medical field (Albright et al., 2021; Bouaoud & Saintigny, 2022; Tiedemann & Simmenroth, 2021), and while the studies feature much more quantitative data, they do not always contain insights from qualitative data. The main obstacles that seemed to impact the learning results were not all students being engaged with role-plays especially when they had to rely on their peers to role-play effectively. Significantly, the most effective role-plays appeared to be the ones that were done by students individually, with non-human characters taking on the other key roles (Albright et al., 2021; Moratis et al., 2006) It appears that while instructors have a pivotal role in facilitating these role-plays, they are also heavily reliant on participants to actively engage in them. Students can impact learning results positively or negatively, especially if they must play different roles appropriately with their peers.

4.2.2 Conducting Case-Based Learning Online

Even before the COVID-19 pandemic, scholars debated the effectiveness of online case-based learning. Some have argued that the introduction of Web 3.0 tools can facilitate interactive and non-sequential online environments suitable for helping learner groups with problem-solving (Sisternans, 2020). Others have said that certain actions or experiences cannot occur online (Savin-Baden, 2007). Savin-Baden (2007) suggested that the lack of non-verbal cues can make successful collaboration difficult online. Other studies investigating online case-based learning also noted that students reported having issues with focus and becoming more distracted. A review of key studies on case-based learning online found that there are also challenges for students, particularly when case-based learning is conducted with teams (Koehler et al., 2020; Nicklen et al., 2016).

In a study by Nicklen et al. (2016), the researchers investigated remote online case-based learning compared to face-to-face learning in a randomized controlled trial. The participants had already had two years of face-to-face case-based learning experience and were given multiple-choice tests to determine how their knowledge had changed. Interestingly, the study found that the face-to-face and remote online CBL groups did not differ regarding the knowledge post-test results. However, the study also highlighted that several students said they felt they could respond to case discussions more effectively in a face-to-face setting, and the students in the remote online learning did not enjoy the case-based learning method. The authors did note that having students collaborate on a task together vs. completing a task individually could have also influenced the learning experience of the students (Nicklen et al., 2016). Although the study by Nicklen et al. (2016) found that online case-based learning allowed participants flexibility in terms of time, location, and pacing of their learning, technical difficulties with the study did impact the results and the perceptions of remote online learning.

In a later qualitative study by Koehler et al. (2020) of six graduate students navigating asynchronous online discussions after learning through case-based learning, the authors discovered similar issues with student engagement in case-based learning. The study noted that students could focus on simply meeting the guidelines of the instructor for online learning as opposed to using online discussions with their peers to expand their

learning (Koehler et al., 2020). Koehler et al. (2020) suggested that students and instructors can have differing understandings of a case discussion and that students may need more guidance on how to navigate a case discussion as a shared social experience. The authors also noted the importance of students sharing ownership in the evaluation process of case-based discussions online (Koehler et al., 2020).

Other review studies on case-based learning have emphasized that case-based learning can be engaging but requires focus, clarity, and some storytelling. Hoffer (2020) suggested that case-based teaching is effective both face-to-face and online, but also emphasized the importance of storytelling, citing an example from Tan (2017) in which students who learned through a storytelling case demonstrated an ability to apply knowledge (Hoffer, 2020; Tan, 2017).

In a more recent scoping review conducted by Donkin et al. (2023) on online case-based learning, the authors had similar findings in that most studies found that students perceive the online CBL environment as being “inferior” in many studies, though the authors mentioned this perception seemed to be linked to the effectiveness of small group collaborative learning. The authors stated that students could struggle to build rapport and have in-depth discussions online, and subsequently had negative perceptions of online learning (Donkin et al., 2023). As a result, the authors recommended that metacognitive support be provided for both facilitators and students, such as interactive online resources to promote engagement, adaptability, and emotional support (Donkin et al., 2023). Donkin et al. (2023) also added that many studies featured poor study designs and a lack of consistency in the key study components due to the pilot nature or rapid readjustment focus of the studies due to the Covid-19 pandemic, leading to further recommendations for more robust research designs to be utilized in future research.

4.2.3 Challenges of Online Role-Plays and Case-Based Learning

In summary, research has found that it is possible for role-plays and case-based learning activities to be used in an online mode effectively. However, the process of converting them to an online format is not a straightforward or simple process (de Oliveira

Dias et al., 2020; Savin-Baden, 2007; Sistermans, 2020). Instructors cannot just conduct online versions of learning activities the same way as face-to-face, and creating a suitable online learning environment is essential for students to benefit from these activities when they need to be done online (Al-Kumaim et al., 2021; Anas et al., 2022; Bouaoud & Saintigny, 2022). It is also imperative for students to actively engage in these learning activities, as lack of discussion or feedback from peers has had an adverse effect on both online and role-play learning activities (Bouaoud & Saintigny, 2022; Donkin et al., 2023; Koehler et al., 2020).

From Essay II, it was evident that the online role-play and case-based learning activities were only effective in changing sustainability attitudes but not in improving CSR communication knowledge. To address the research questions and better understand the student experience and the perceived learning conditions that helped or hindered their learning in the online role-play or case-based learning approach, a qualitative sentiment analysis approach was used to analyze the learning experiences of the participating students.

4.3 Methodology

4.3.1 Research Design

The study adopted a qualitative research design to analyze the learning experience of the students in role-play and case-based learning groups. To address the research questions, sentiment analysis was used to first analyze the student experience with these active learning approaches in small groups through weekly reflection responses completed by the students after each week of learning. Thematic analysis was then utilized to further categorize the responses and understand the key obstacles for the students and the instructor with the online active learning approaches.

The methodology is further detailed in this section. It should be highlighted that several minor changes were made to both activities due to feedback from participants in Field Test One. First, the reading materials and resources were consolidated into one key

reading and one key video each week rather than several reading materials each week. Students reported that reviewing the reading materials was overwhelming even when working in teams and there were some indications that several students in both groups did not review the materials before their respective modules. Second, the instructions for both activities were made clearer and more concise to help students better understand the activities they would be doing and why.

Finally, learning activities were reduced from five to four weeks, as it was determined that more concise directions and explanations meant that another week of learning was no longer necessary for either module. In essence, the same topics taught in Field Test Two were also taught to the participants of Field Test One, but some modules were combined so that the learning could be done over a shorter time period (e.g., modules three and four from Field Test One were combined to be module three for Field Test Two). These changes were factored into the data collection and analysis to investigate if these minor changes made a significant difference in the experience of the students in both learning modules.

4.3.2 Sample of Participants

The participants were the same as earlier described in Essay II. Students were randomly assigned to the role-play or case-based learning group before the learning activities were conducted.

4.3.3 Data Collection

After the learning activities for each week, both groups of students were asked to write weekly reflections about their experiences each week. Students were encouraged not only to describe what they learned but also to describe their feelings about their learning experience in the modules each week. For this study, the learning experience of the participants was analyzed in two different parts: Field Test One and Field Test Two. Students who learned from the activities in a media business management course were in Field Test One, and the students who participated in the activities in a corporate communication course were in Field Test Two. The reflection responses were analyzed in

Field Test One before minor changes were made to the learning activities for Field Test Two to determine if the changes made any difference in the learning experience of the participants.

4.3.3.1 Weekly Reflection Responses: Studies that only collect quantitative data are not always able to gain insights into the experience of the students (Hallinger et al., 2020). Therefore, the study also collected qualitative data in student responses to weekly reflection questions posted in an online forum. This helped to monitor the students' learning experience through each module and were analyzed to gain insights into how the students experienced each of the two interventions. Below is a sample of the reflection questions (Figure 4.1).

Week 1

1. Describe what happened in class and how you are preparing for the role-play or case-based learning next week.
2. What are some challenges you expect to face or discuss next week as part of the role-play or case-based learning?

Week 2

1. What did you learn from the role-play or Nike case in terms of problems at the company from the different stakeholders?
2. What was one thing that surprised you from the role-play or case-based learning? Why?

Week 3/4

1. What did you learn from the debriefing of the role-play session or the Nike case on how various stakeholders reacted to the issue?
2. What are some solutions to the problems you discussed in class?
3. What were the key CSR communication strategies discussed in class?
4. Have you changed your mind about anything you discussed in your last response?

Week 4/5

1. How do you think your CSR communication presentations went with the panel of judges?
2. What were some strengths and weaknesses of your presentations?

3. Did the learning activities help you to prepare for the presentation? In what way?
4. What would you have liked to do differently (if anything)?

Figure 4.1 Weekly Online Discussion Forum Questions

Students were required to respond to these questions each week. In addition, they were also encouraged to comment on each other's posts to the Online Forum hosted on Moodle. These student posts to the Online Forum were treated as qualitative data that could offer insight into students' experience of the module. This could enable the researcher to better understand 'what happened' during the module from the students' point of view and make sense of the quantitative results. In addition, the Online Forum could also be used as a source of formative evaluation data for the subsequent improvement of the learning modules.

4.3.3.2 Talk-Back Sheets: The study also collected talk-back sheets from the students at the very end of both role-play and case-based learning modules (Figure 4.2). The students were able to discuss how they felt when they were first randomly assigned to either activity and their perceived effectiveness of the activities. The students also provided feedback on what parts of the activities were helpful for their learning and what should be improved with these activities in the future:

1. How did you feel when you were first assigned to the learning activity (case-based or roleplay)?
2. What did you learn about CSR communication planning from the past 5 weeks?
3. How effective were the learning activities with helping you learn more about effective CSR communication planning?
4. Was the learning activity different than other courses you have taken at the faculty?
5. What parts of the activities helped you learn effective CSR communication the most (e.g. the learning activities themselves, the weekly reflections, or the presentation at the end to the experts?)
6. How should the lessons from what you learned be applied to media management in other contexts?
7. What can be done to improve the learning activity?

Figure 4.2 Talk-back sheet questions

4.3.4 Data Analysis

Sentiment and thematic analyses were used to analyze the reflection responses and talkback reflection sheets. As in Essay II, the learning experience of the participants was analyzed in two different parts: Field Test One and Field Test Two. Sentiment analysis was conducted on the weekly reflection responses written by the students in which they discussed their learning experiences from the multiweek modules. Sentiment analysis, or opinion mining, is a field of natural language processing (NLP) that analyzes people's opinions and emotions expressed in text and computationally categorizes the text as positive, negative, or neutral (Bonta & Janardhan, 2019).

Sentiment analysis evaluates written text based upon the emotions expressed by the writers. Although there are several different applications for conducting sentiment analysis, this research utilized the VADER Sentiment Analysis tool. Research has reported that Vader sentiment analysis was not only more accurate than human raters (Hutto & Gilbert, 2014), but also compared favorably in terms of accuracy with other sentiment analysis tools (Bonta & Janardhan, 2019). The VADER Sentiment Analysis tool (Hutto & Gilbert, 2014) uses a scale from -1 (negative) to 1 (positive). A score of 0 on the scale indicates a neutral sentiment towards the topic of focus among the writers.

To address the first research question on the student experience, the sentiment analysis results were analyzed to understand if the students had a positive or negative perception of their learning experience each week. Sentiment analysis would allow the researcher to objectively assess how the experience of the students changed over the course of the two learning modules. Since data were collected throughout the modules, it was also possible to determine how students' emotional engagement with the learning process changed over time.

To address the second and third research questions, thematic analysis was used to further investigate the positive or negative experiences of the students. Written reflections were also analyzed using qualitative thematic analysis similar to Essay II to better understand the reasons behind the positive or negative sentiments expressed by the students. Since this essay focused on understanding the experience of the students in the

online learning intervention (Meulenbroeks, 2020; Popa et al., 2020), reflection responses were also coded thematically

Coding was conducted on two different levels. First, the comments of the students were first coded as to whether they were generally positive or negative regarding the learning modules. In addition, if several students mentioned that they would have preferred for the activities to be done face-to-face as opposed to online, while several other students mentioned that team-based learning was very difficult in this context, these two types of comments would have been coded differently from each other. This differentiation in coding would allow this study to better understand what aspects of the modules the students liked or would like to see improved.

Responses that were assessed as positive or negative from the sentiment analysis were coded thematically to find if there were any frequently mentioned issues among the participants. For example, if participants frequently mentioned unclear directions or issues with working in their teams, the thematic analysis would reveal the frequency with which these issues were mentioned and provide further details on the challenges faced by the participating students. The responses were also used to understand the obstacles with the instruction online and address the third research question on instruction.

To address the fourth research question, the talkback reflection sheets were analyzed to determine how the students evaluated their overall experience, and what they identified as the key challenges or areas of improvement for each learning module.

4.4 Results

The sentiment analysis results for Field Test One and Field Test Two will be presented first.

4.4.1 Sentiment Analysis Results for Students in the Role-Play

Intervention

For the sentiment analysis, boxplot graphs were utilized to visualize the data and depict the number of positive and negative sentiments expressed by the students. Boxplots divided the sentiment scores into quartiles to analyze the distribution of positive and negative responses. Outliers were also presented in the boxplots.

In Field Test One (Figure 4.1), most role-play students were initially very positive and excited to engage in the small-group learning project. This was reflected in their generally positive sentiment analysis scores in week one ($M = .712$). Although some students appeared apprehensive concerning what would be required of them (see outliers in week one in Figure 4.1), most of the students appeared to be excited to be learning in this experiential learning format.

For week two, the broadly positive sentiment carried over into week two, and responses on average were more positive than week one ($M = .772$) (see Figure 4.1). In particular, there were fewer outliers, as more responses were in the positive sentiment area than in week one. Students reported that they found the role-play more interesting than they thought, even though it was conducted online. In terms of the more negative responses, some students did write that some of their peers did not contribute at all to doing the role-play, leading to frustration among the students. Other than these negative responses, sentiments were very positive for the role-play.

However, student sentiment shifted in week three when they were assigned to cross-stakeholder teams. This was when students began to engage more actively with each other online and required them to find different stakeholders with whom to collaborate. Although there were not many outliers, it was noticeable that the quartiles for week three were much larger and ranged from very negative to very positive. This signaled that the sentiments were markedly more negative than in previous weeks ($M = 0.461$), and there were a few reasons for the negative sentiments.

Firstly, many students did not see the stakeholder list posted on MS Teams that clearly listed which students were in which stakeholder group. This led to quite a bit of confusion and guessing among the students as to which students were in which group. Since

none of the students reported this problem to the instructor during the online session, the instructor was not able to address the problem during class time. In fact, it was only after reviewing the reflection responses for that week that the instructor realized that the students did not see the stakeholder list. This problem in forming cross-stakeholder teams complicated the collaboration between role-play students and more than likely added to the stress of working more intensively on solving the problem and developing a CSR communication plan. Another reason for the more negative sentiments was ongoing teamwork issues, as several students reported that some of their peers continued to be very passive during the online learning module.

In week four, the sentiments were less negative than in week three ($M = 0.592$). Students had adjusted to working in their cross-stakeholder teams, and several students did mention that after the frustrations they faced with forming teams the previous week, they had adapted to the changes. There were still several outliers, and this was again due to issues related to teamwork and the lack of contribution from some students to their small groups for developing the CSR communication plans.

For week five, the sentiment was much more positive ($M = 0.713$), as the students were quite happy to present their CSR communication plans in a formal setting to experienced work professionals. The presence of a few outliers were again, a result of some online communication challenges that were also present in week three. In this case, the students were constantly reminded from the first week that CSR professionals would be evaluating the final CSR presentations. Even with constant reminders, several students indicated shock and surprise when they saw CSR professionals for their presentations and reported that they did not know that they would be involved in the presentations. Regarding the reasons for this confusion, some students indicated that they simply missed the announcements in the previous weeks about the CSR experts. Interestingly, other students mentioned they remembered the announcement, but misunderstood that the CSR professionals would just be the instructor as it was a “role-play” activity. As a result, they did not believe that the CSR professionals would be real. Despite this miscommunication, sentiment analysis indicated that most students had very positive reactions to the CSR

presentation component, and several indicated that they learned quite a bit from presenting to the CSR experts and answering their inquiries.

First, the student sentiments in Field Test Two ($M = 0.504$) were more negative than in Field Test One (Figure 4.2). Due to the realistic nature of the role-play, the students expressed some concern regarding whether they or their peers could role-play stakeholders appropriately. This initial increase in anxiety led to more stress in week two when students had to conduct the role-play ($M = 0.411$). Several students indicated after the role-play that they were uncertain if they played their roles appropriately, but several did say they learned quite a bit from the online role-play. It is very possible that the reduced length of the module afforded the students less time to become accustomed to the roles.

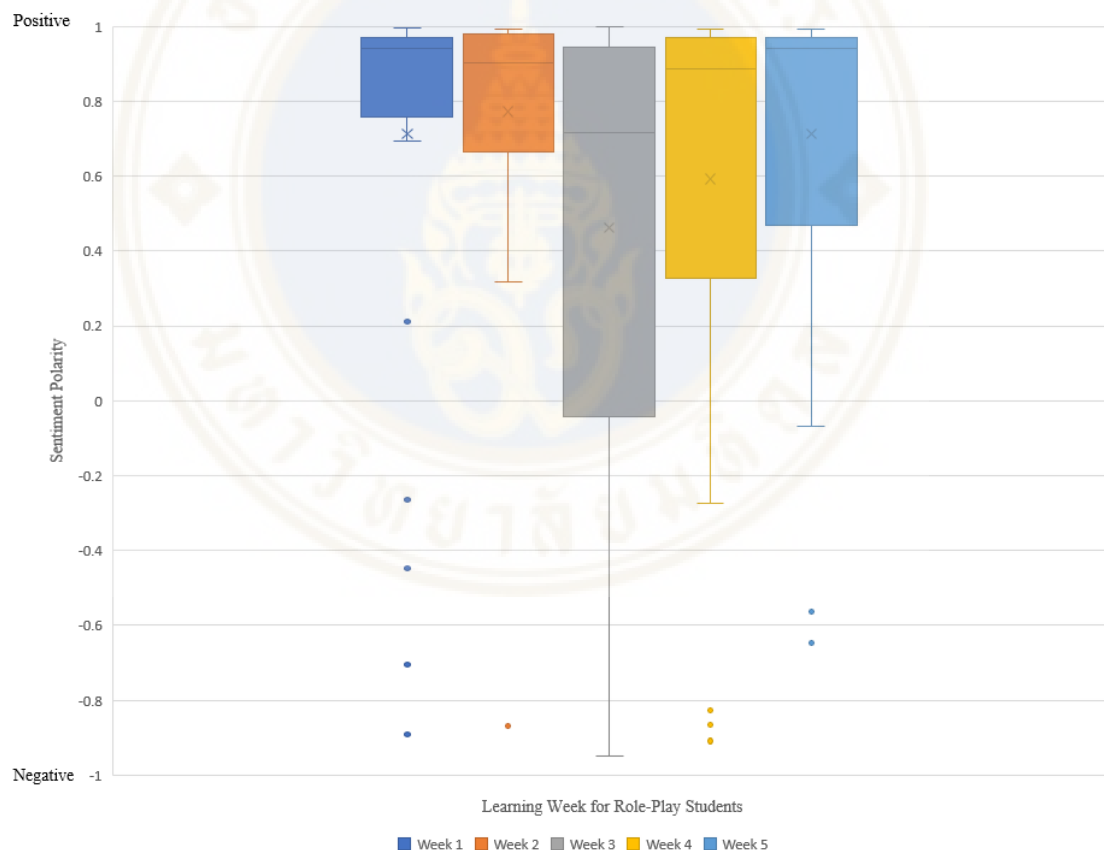


Figure 4.3 Sentiment Analysis Compound Scores for Role-Play Students (Field Test One)

However, it is interesting to note that the sentiments of the students became much more positive in week three compared to field test one ($M = 0.769$). This was partly because the students were reminded about which students were in which stakeholder role. Although there was still some frustration with some students not being very active in collaborating on the CSR communication plans, the students' sentiments were still much more positive than Field Test One. For Field Test Two, the students were notified before the role-play that CSR work professionals would be involved in the role-play, and this eliminated the shock and surprise among the students that occurred in Field Test One. As a result, the students were even more positive about the presentation to the CSR work professionals ($M = 0.865$), as they received good feedback from CSR experts and, again, felt like they learned something significant from the CSR presentations.

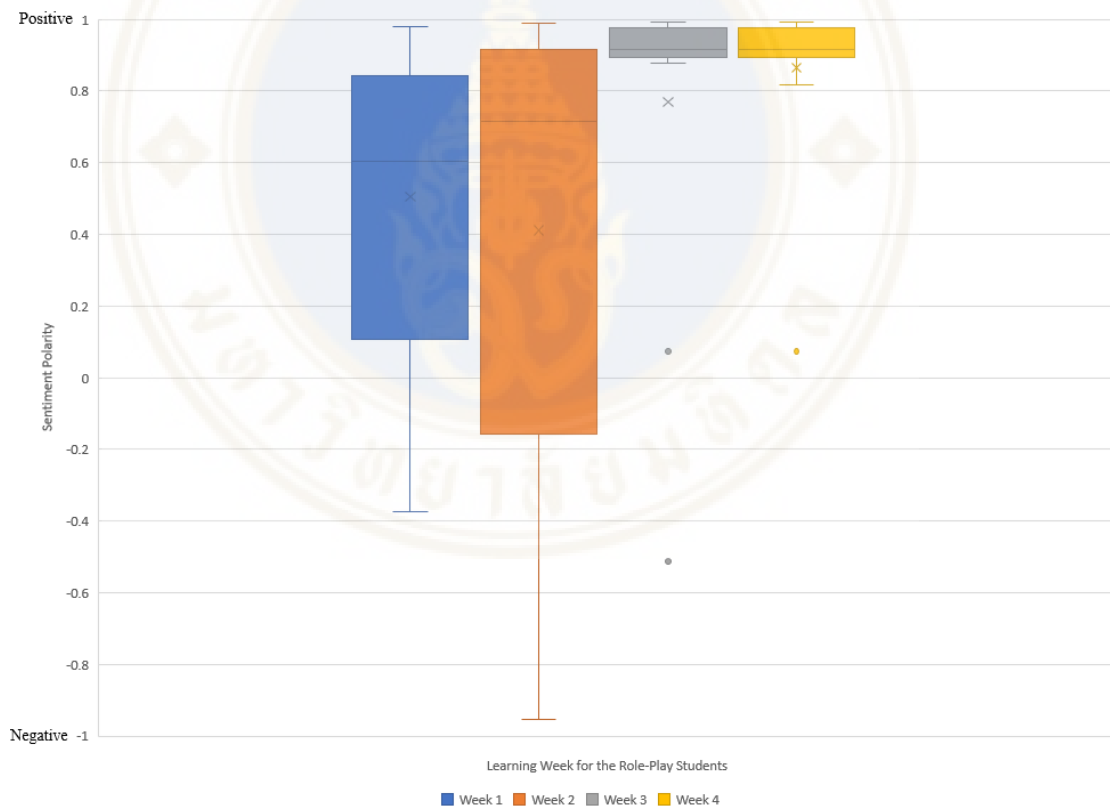


Figure 4.4 Sentiment Analysis Compound Scores for Role-play Students (Field Test Two)

4.4.2 Sentiment Analysis Results for Students in the Case-Based

Learning Intervention

For the case-based learning students in Field Test One (Figure 4.3), the students were generally positive ($M = 0.566$), but a bit apprehensive about having to review key materials before online class discussions. Some reported that they were overwhelmed and anxious about reviewing the resources they had to prepare to discuss each week. The learning did not seem very “fun” because the active learning was based on reviewing resources for active discussion.

These concerns were also expressed in week two ($M = 0.561$) and seemed to increase in week three ($M = 0.346$). Although a video resource was introduced as part of the discussion for the learning groups that the groups enjoyed watching at week three, the more negative sentiments appeared to be the result of the students feeling disappointed that they had to go back to reviewing reading materials before class discussions. Additionally, students observed that some of their peers were not contributing to preparing for class or class discussions. Several students also mentioned that due to their lack of familiarity with the case being discussed, it required much more time and energy to carefully review the materials.

In week four, the sentiment did become even more negative ($M = 0.300$). This was due to several students indicating that they were unsure how to address the CSR problem and continued frustration that some of the case-based participants were not “pulling their weight” and helping their small group develop a CSR communication plan.

Despite the negative sentiments expressed by the case-based students in weeks one to four, the student sentiments became very positive in week five ($M = 0.841$). The more negative sentiments followed by the very positive sentiments expressed in Week Five indicate that although the students experienced many challenges, it also seemed they experienced a large learning “payoff” in that the case-based learning helped them prepare for the CSR presentations to the CSR experts. Students reported being very happy about their experience presenting to the CSR experts, and several indicated that the challenges they had faced in previous weeks did help them prepare for the CSR presentations.

The case-based learning group for Field Test Two featured similar trends to Field Test One (Figure 4.4). In week one, many of the students were quite negative about the learning activity when introduced to the learning format. However, with the revision of the materials to feature one key reading and one video, student sentiments improved greatly in week two ($M = 0.783$). Despite the more positive sentiment expressed in week two, the sentiment became more negative in week three ($M = 0.505$). Although students expressed fewer concerns with the learning materials than in Field Test One, the students still indicated frustration with the ineffective collaboration in some of the groups.

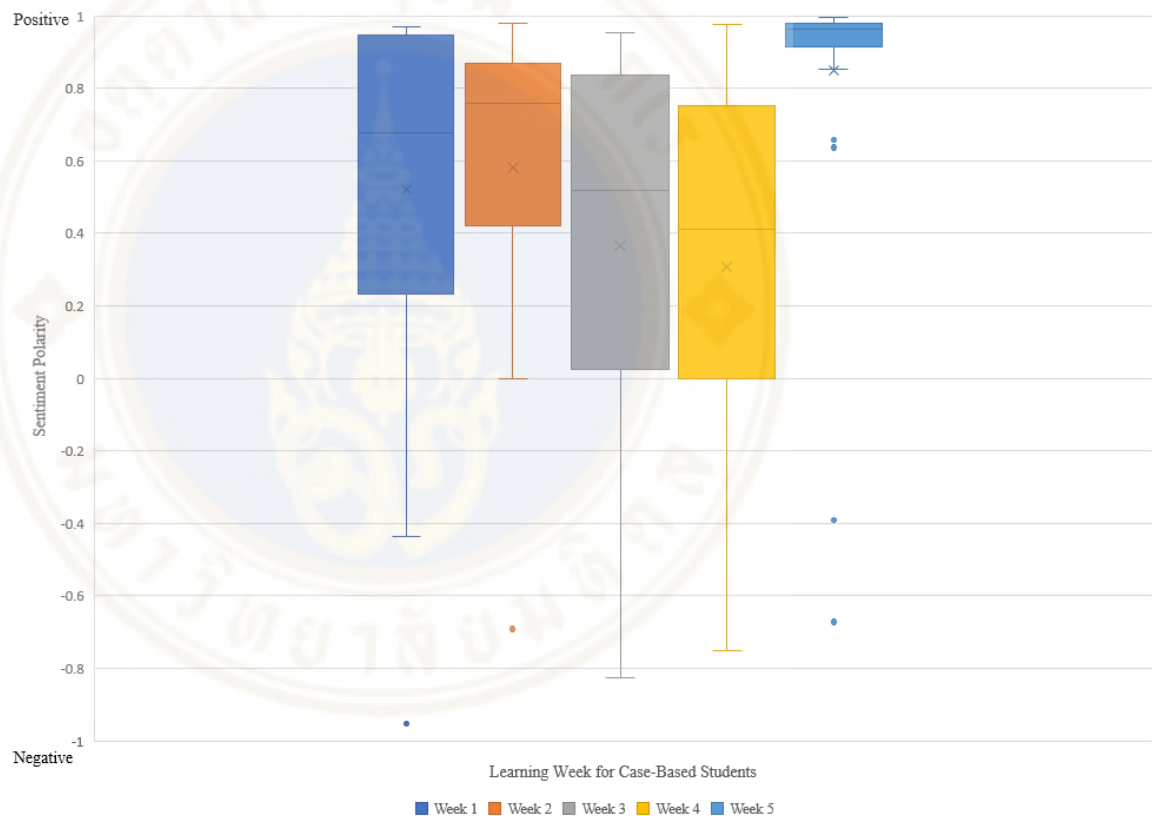


Figure 4.5 Sentiment Analysis Compound Scores for Case-Based Learning Students (Field Test One)

The only slightly more positive sentiments expressed at week four ($M = 0.556$) were also due to the fact that one of the groups misunderstood the focus of the CSR communication plan and was, therefore, unable to present their CSR communication plan

in the allotted time. In the reflections of this particular group, students noted that they did not collaborate that effectively and that the team-based learning component did not necessarily help the team learn how to work effectively. As a result, it appeared that the changes made to the learning modules for Field Test Two had a negligible impact on the students' perceptions. Evidently, the team-based nature of both learning activities led to significant challenges for both the role-play and case-based learning groups. The sentiment analysis results led to further investigation of the weekly reflection responses through thematic analysis for both learning groups.

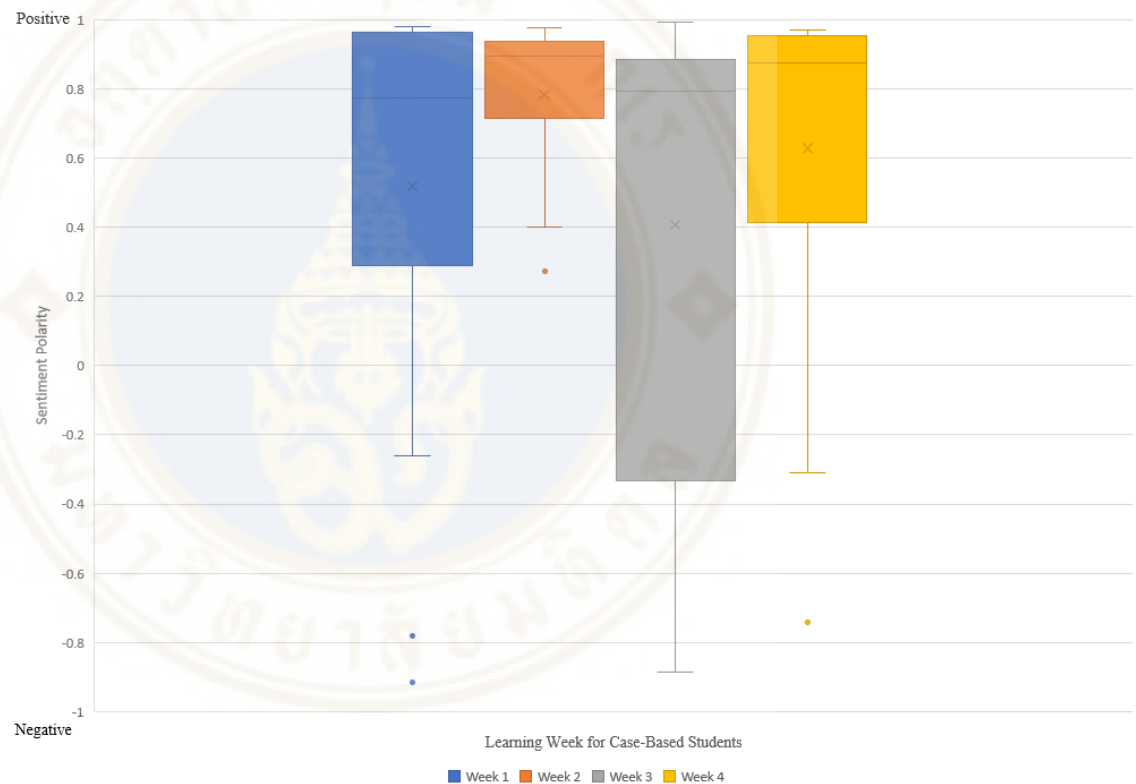


Figure 4.6 Sentiment Analysis Compound Scores for Case-Based Learning Students (Field Test Two)

4.4.3 Comparison of Sentiment Analysis for Students in the Role-Play and Case-Based Learning Groups

The sentiment analysis results will next be compared between the role-play and case-based learning groups. For the role-play group, it appears that the students were generally happy to role-play the scenario rather than actively discuss the scenario. However, this did not mean that they found the role-play easier or more engaging. The sentiment analysis indicated that role-play students in both field tests were anxious about engaging in the roles. Moreover, participation in the role-play did not necessarily provide students with more insights into how to formulate a suitable CSR communication plan. As shall be discussed in greater detail in the next section, some indicated that their lack of real-world experience led to uncertainty and a lack of confidence. Students also expressed frustration with classmates who were “free riders” during the activity, failing to contribute productively. In contrast, while the case-based students also expressed anxiety, it was more due to the expectation to carefully review the materials and apply the learning to the case in class. Free riders were also a problem in the case-based learning groups.

Thus, it was evident that both groups dealt with similar challenges associated with active small-group learning. The complex nature of the case was overwhelming for the students in both interventions. Their lack of experience in learning in groups left them with few tools to manage problems (e.g., free riders) that they encountered. They acutely felt their lack of real-world experience, which was especially highlighted by students in the role-play intervention.

Efforts to meet these challenges were further exacerbated by the constraints of the online learning environment. The quality of communication from the instructor to students and from students to students was degraded due to the need to communicate only via text messages and online Microsoft Team meetings. This led to numerous instances where students were inadequately prepared, or misinterpreted instructions. Thus, the necessity of conducting the interventions in a full-online mode added a significant layer of complexity to an already complex problem and task for the students.

4.4.4 Thematic Analysis of the Role-Play Students' Reflections on their Experience

In order to gain further insight into the “meaning” of the sentiment analysis, thematic analysis was conducted on the weekly reflection responses of students in the role-play and case-based learning interventions. The thematic analysis provided more context for the overall positive sentiments of the students at the start of the role-play in Field Test One, but also the uncertainty for students in Field Test Two. The thematic analysis clarified that, although some of the students were confused, they were also excited to learn in this experiential learning format. Many students expressed uncertainty over how they would perform their roles in the role-play. This led to a subsequent reluctance among some students to speak out during the role-play due to fear that they would not portray the role realistically. Despite this uncertainty, several students reported that the experience was quite interesting overall.

At first, I'm not so sure if I did it right or not but the result turn out to be better than I expected. I got to hear more point of views from other stakeholder. So far, one thing that surprise me is I that I must do whatever it takes to protect the role I played and think carefully that it is the best for the team. I kind of enjoyed so far when I got to ask hard questions to other stakeholders. – Role-play student 1 (Field Test Two)

I found that during the role-play game I got really into the role that I was assigned to and it was really fun! I really enjoy getting challenged by questions that were being asked and also enjoying challenging others with my opinions too. When the claim about child Labor and prostitution was being raised in the meeting I went completely blank because I couldn't recall that issue from my brief and I was afraid that I might have missed something. I think it at that part, I

felt like I got a bit lost and didn't know how to response to that. – Role-play student 6 (Field Test Two)

Except just a little confusion I got, the role-plays started to be more enjoyable when the instructor stated that we will discuss and negotiate with others roles. With that statement, I feel more confident in what we supposed to do in the role-play since at the beginning I still cannot grab the gist and the orders of the activities. – Role-Play Student 31 (Field Test One)

The role that I got is supplier employee. I am a group of people who got abused both physically and verbally. I felt excited and still confused with what to do in the next 4-5 weeks and waiting for the coming task to be completed. I hope that I can help my teammates and instructor to get the maximum advantages of being in this role. – Role-play Student 14 (Field Test One)

Several students reported that they thought that doing this role-play in an online format would be boring. However, they were surprised to find how engaging and realistic the role-play was, even conducted online. Although students in Field Test Two were also quite positive, they were a bit more uncertain about their ability to role-play.

At first, I think that it must be getting boring. Listening to other teams speak and ask another team would be nothing to do. But it seems like I overestimated it. The Q&A session, was quite interesting and fun since I heard many interesting questions from different stakeholders. Also, the answer of some teams is really good and provides a new angle for thinking and discussing in the further meeting. – Role-Play Student 20 (Field Test One)

During the activity, it was fun, I really liked how we cooperate and understand the real situation that every

person is different and we can know the problem and find the consensus. – Role-Play Student 29 (Field Test One)

Although I got to learn many different kinds of aspect during the meeting and when we group up. I find myself (which surprised me) scared to ask question or to raise the topic because I don't know if I am right or wrong. I don't know if I ask the question and when people response back, I am scared that I won't be able to answer to them. I feel that this is really challenging because it is hard to find the solution since all of us have different perspective. I also feel scared that I couldn't do best on my part. – Role-play student 12 (Field Test Two)

However, some students were frustrated by the lack of participation of some team members. Here, the lack of participation included passivity during meetings as well as the failure to prepare for discussions and complete project tasks. The online format of the stakeholder meeting also proved difficult for the teams. More specifically, they found it awkward to communicate and lacked skills in moderating their meetings. This was an obstacle to collaborating and gaining balanced participation among team members.

It was impossible to determine if the groups would have interacted more effectively in a face-to-face setting. Nonetheless, the online mode definitely introduced an additional constraint on student management of the team learning process. For example, peer pressure to participate and contribute was reduced in the online mode when compared with a face-to-face classroom. Lack of experience in small-group learning and a lack of team learning skills represented significant impediments for most of the students and teams.

I have never heard [one student's] voice and opinion since the first week. I think he just logged-in to the meeting and disappeared. – Role-Play Student 6 (Field Test One)

Only [one classmate] help answering question out loud the other just hanging in the group chat giving some answered (but since I'm a fast thinker I answered it before they

finished their opinion in the chat T-T) That is why I think it is a bit all on me and felt overwhelmed by it. – Role-Play Student 9 (Field Test One)

There are several problems with how some people in the group do not talk about their opinions. Overall it was a good week for learning something new but not good for team working. – Role-Play Student 35 (Field Test One)

I think we did all right together as a team in our private group chat. Everyone delivered what was needed to be done, showed contribution, and shared ideas. But the other 2 members in the group went completely quiet during the role-play game and showed no support. It was only me who did all the talking. At first we agreed that I'll be the one who present our roles to the other stakeholders and then we would all help each other out in the discussion part, but that was not the case at all. – Role-play student 6 (Field Test Two)

Not all of my teammates helped much, some of them don't even answer when myself or this one other student asked or talked. When it came to presenting during the stakeholder meeting, only myself and another student showed up. – Role-play student 17 (Field Test Two)

The sentiment analysis results suggested that students' attitudes began to show more negativity when they separated into cross-stakeholder teams, especially for Field Test One. Two issues stood out. First, there was some confusion over the assignment of student roles in the teams. Not all students had read the online communication about student assignments. This both ate into the time students had to work on the project in week three and caused frustration.

However, the more serious issues concerned the perception that some students did not realistically 'play' their roles and that there continued to be a lack of balanced

participation. The lack of realism was due, in some cases, to a lack of preparation. In others was due to students simply being unsure of how a stakeholder in their assigned role might react, and the student portraying that stakeholder role not helping to clarify this uncertainty.

As we separate into different kinds of roles, each individual would merely acknowledge what information had been provided on their role. Thus, if the members are not actively participating in the activity or do not like to talk much to others, then it is difficult to work with and know what we should do. – Role-Play Student 37 (Field Test One)

I generally feel frustrated in the first place since during the group meeting there was not much effort from some of the group members as I expected. I was not trying to claim my reward, however, most of the ideas and typing information were done by me... I personally think that they did not pay much attention enough to produce the best work and put effort into the team since it is an online class they should have prepare themselves before the meeting. – Role-Play Student 41 (Field Test One)

These became significant problems for several of the teams and certainly influenced student perceptions of the learning method and module. Some teams found the issue very problematic. Indeed, one student commented that it might be better for all participants to be ‘checked’ for a proper understanding of their stakeholder role before being allowed to become a member of one of the cross-stakeholder teams:

I think this activity relies heavily on the investment of the student’s role in the activity where I think that not everyone invests the same amount of thoughts and efforts in this role playing activity which can surely can affect the efficiency and quality of the ideas of those particular stakeholder groups to which those students belong to. The solution to this could easily be for other students and their stakeholder

groups to help ensure and check that each individual stakeholder representative in each of the team consistently helping provide ideas and shares their opinions from their stakeholder group to make this activity more efficient. – Role-play student 13 (Field Test Two)

Another notable issue that arose was the final presentation for Field Test One. The class was told several times that work professionals would serve on the CSR panel to judge the quality of their CSR communication plans. However, quite a few students stated in their reflections that they thought the panel would be just a “part of the role play.” They expected to present to the instructor, not a group of professionals. When they arrived in class and saw the three external judges on the panel, these students were shocked. This raised their level of concern and stress, which led to more negative feelings about their CSR communication presentations. It should be noted that this issue was alleviated in Field Test Two by communicating about the CSR experts clearly beforehand as opposed to constant announcements during the learning interventions.

From my perspective, I think that my group did very well during the presentation. The transition of each section of the presentation went smoothly and we did all of the things the same as we prepared. Even though we were shocked and excited a bit when we saw all of the judges for the first time since we were not prepared to present to the anonymous person. But everything went well and I could say that this is the best we can do. – Role-Play Student 29 (Field Test One)

Although the instructor already said that there will be a CEO and board members, I thought [the instructor] just mentioned this so we would be more active. However, there were real people sitting there to judge our idea, so it made

me a little bit stressed out. – Role-Play Student 35 (Field Test One)

In summary, the thematic analysis of student reflections on their participation in the role-play intervention highlighted the underlying reasons for the pattern sentiment analysis results. These included communication issues, lack of understanding of stakeholder roles, increased expectations for preparation before class and active participation in class, and the inability of teams to achieve balanced, effective participation among team members. Thus, despite initial enthusiasm for trying a new learning approach, there was considerable confusion and frustration during the module.

4.4.5 Thematic Analysis of Student Reflections on the Case-Based Learning Intervention

In Field Tests One and Two, the more negative sentiments were due to the case-based learning students expressing concerns about having to review resources before the class. This reflects the fact that students would be, to some extent, “publicly accountable” to their classmates if they came to class unprepared. This contrasted with the typical class where students could sit passively and listen to a lecture or respond voluntarily to questions posed by an instructor. In the second field test, students were challenged by the need to review resources prior to active participation in class discussions during the following week.

For the first class, I felt worried and panic because the class went too fast. I was worried to answer all of the questions and send them on time. I hope that after I read all articles that are provided, I will understand more about the case and hope that this case will be beneficial for making further CSR campaign. – Case-Based Learning Student 32 (Field Test One)

To speak frankly, I really don't like reading through the case and study from it because I hate reading. Anyway, when the class comes, I can see that the lesson was really intense and needed the brain to process those stuffs that the

professor was talking in order to catch up and not lose. The feeling of the first class of myself would be “hopelessness” since it was really fast and hard to catch up but I tried my best to pay attention and participate in the class. – Case-Based Learning Student 42 (Field Test One)

At first, I felt very frustrated because it was a bit hard and confusing for me to understand the subject matter because I was confused about some details taught in class like the stakeholder theory. Also, I didn't know much about the Nike business insight, but the professor was really helpful in guiding us to the answer to the question he was throwing in the class. – Case-Based Learning Student 3 (Field Test Two)

For my first class, as it is a morning class, I feel confused and frustrated about the information. It encourages me to always pay attention in the class and try to engage as well but it's a good thing to make me understand more about it and awake to listen to the professor. Moreover, for the assignment, I still get confused and do not understand much. So my friend and I don't really know whether what we did is correct or not so it's kind of confusing for us. – Case-Based Learning Student 6 (Field Test Two)

The class was a bit confusing for me at first since I was so confused about the whole stakeholders' thing. The class was also stressful for me because I couldn't understand anything but then the group work was fun. – Case-Based Learning Student 10 (Field Test Two)

Student perceptions improved as they began to adjust to the learning format. Thus, they felt less overwhelmed than in the first week. As the activity progressed and the students discussed the Nike Labor Scandal in greater detail, they began to appreciate the

case-based learning approach more as the module progressed. The students' negative sentiment appeared to come from being overwhelmed with the topic, with some admitting to becoming disengaged with the learning.

My anxiety is decreasing and hopefully I can be more relaxed compared to the first class. As my group discussed and shared our opinions toward the documents before the class started. I can possibly adapt and understand more.—
Case-Based Learning Student 8 (Field Test One)

From my feeling in this class, I felt more understanding and can follow this lesson, because I think that this class is slower than the first one, but our team has some questions which are not unclear or misunderstand that make us unable to answer some questions, so we need to work hard and communicate more as well. – Case-Based Learning Student 11 (Field Test One).

The students were quite positive about a documentary film they reviewed on the Nike Labor Scandal (Nike Sweatshops: Beyond the Swoosh). However, students reported that having to go back to mainly reviewing reading materials as opposed to utilizing video resources impacted their feelings on the case-based learning module. This led to the sentiment becoming somewhat more negative than in previous weeks.

The video clip we watched together is enjoyable. But after that I felt stressed when the reading materials came again. –
Case-Based Learning Student 8 (Field Test One)

The documentary is good yet heartbreaking. It gave me a clearer picture and understanding of the issue. However, the readings are quite a lot which is hard to digest all of the information. I much prefer the documentary to the readings.
– Case-Based Learning Student 24 (Field Test One)

I think sometimes the material in each week becomes harder and longer. Therefore, sometimes I feel stressed while I am

reading alone. Moreover, I am not sure that I got the right answers for [the] homework. – Case-Based Learning Student 25 (Field Test One)

I am really glad that the videos is really helping me understand the case more because personally reading doesn't really motivates me into wanting to find out more about the case and that's just on me for missing beneficial information. So I'm looking forward to the next class. – Case-Based Student 4 (Field Test Two)

Similar to the role-play group, many students in the case-based learning intervention reported teamwork problems. While some teams reported a strong commitment from all their members, other teams reported that some of their members did not prepare adequately before class each week. Again, many students reported that some of their team members were not helpful or active in participating in the case-based learning activities or in working on CSR presentations.

I asked in the group chat for the answers and opinions but no one answer me. It seems like some of them didn't even read all of the article summaries. [A student] helped a lot during the first class but she didn't attend this class and she didn't give us notice beforehand or say anything after the class. [Another student] said he is sorry for not helping much because he fell asleep during the class. Others were rarely active. I feel like only me and [one other student] did the work during the class. However, I gave them feedback and asked them to be more active for the rest of the group assignments so hopefully, it will be better. – Case-Based Learning Student 25 (Field Test One)

I felt bad and stressed. The problem is not from the case base, I do like it especially when we discuss thing and interact in classes. I felt like I have learned more thing by

sharing ideas between the groups. However, the point I felt like working in this group stressed me out. When I ask my group to share their opinion, they tend to be silent. No one speak up at all. We did a lot of mistakes in this project because no one communicate to others. I tried to remind members that we need to help each other and shares ideas and always check the work before send it. – Case-Based Student 32 (Field Test One)

The group work approach is more individualistic than collaborative; rather than thinking collectively about each question's response, we just isolate each question for each member and then allow me or another active member of the group determine whether or not it meets our standard. This is a very typical approach to work, and it is far from ideal for group work. –Case Based Student 6 (Field Test Two)

I feel like I'm the only one who contribute everything to the team. No one really paying attention in class, so when it comes to working as a group, I have to elaborate everything again and write down my own answers I learned in the class. It always takes a lot of toll on me when it comes to group work. I have to manage all the things by myself. When I asked about their opinions, most of the time I'll get close to none useful ideas to use in our group work. – Case Based Student 18 (Field Test Two)

These feelings were further exacerbated as the students became anxious about preparing the CSR communication presentations. Additionally, there was confusion among the students who did not seem to understand what they should be doing in each class. This again highlighted communication breakdowns. In some instances, the instructor was not sufficiently clear; in others, students either did not listen carefully or failed to read online communications posted by the instructor.

Reflecting from this class, it was anxiety. I felt like I had no idea what we were going to do with the final presentation on Adsport21's CSR, so we had to figure it out together in a limited time. It seemed like we were coming at the right track, but there could be the more-right track that we needed to head to. When we received the feedback, I felt some hope that we could continue working on that. – Case-Based Student 2 (Field Test One)

I still feel lots of pressure in class since sometimes, I could not catch up with lessons. Together with my group was not able to catch up on some points and was not able to come up with the best solutions to the problems. Moreover, when I got things right or when I don't understand something, I still feel bad about myself. To be honest, I think my anxiety did not get any better but because everyone in the group tried very hard to understand and do the presentation, it helped me relieve some my of stress. – Case Based Student 7 (Field Test One)

Several students reported that although this learning experience was difficult and challenging, they learned many useful things about CSR communication by discussing the case of the Nike Labor Scandal in detail. Students also emphasized that the learning activities helped them prepare for the CSR presentations and learn from their experiences.

The previous week had been quite stressful and anxious to complete all of the tasks in a timely and efficient manner, but pitching with an outsider on board made me feel like I had taken my experience to the next level and faced the simulated atmosphere that will be useful in the future. I think I feel happy right now. –Case-Based Learning Student 4 (Field Test One)

Certainly, first I did not really understand the point [of case-based learning] but when we actually started to get deeper and actually plan the presentation, the learning activities were very helpful. The class discussions were very helpful. When thinking and planning the presentation and looking back at the notes during the class discussions, it helped in knowing what to do and what not to and what not to do. – Case-Based Learning Student 8 (Field Test One)

I think the most enjoyable part of the case base is planning a communication strategic plan. Because we are able to analyze, plan, create mockups and illustrate things out in our own versions. –Case-Based Learning Student 15 (Field Test One)

The learning activity did so much help, it can make me generate things that should be done and shouldn't be done because I have reviews the case study and know the consequences of the actions, plus from the different point of view from classmate. – Case-Based Learning Student 3 (Field Test Two)

As was the case for the role-play intervention, several participants reported that the collective inexperience of the students had hindered their ability to address the complex issues presented in the case. This may have led them to focus on the wrong aspects of the presentation. Interestingly, despite this somewhat negative experience working as a team, several students reported that they learned quite a bit from presenting their CSR communication plans to CSR experts.

The learning activities helped me to prepare for the presentation as I gained more knowledge and information from the assignments I did. I have been reading, brainstorming, and discussing CSR campaigns with my classmates. So, I can make use of this from the presentation

to plan the CSR campaign and think thoroughly about the factors that included stakeholders as well. Moreover, know what will make good for the organization and its reputation. – Case Based Learning Student 1 (Field Test Two)

I felt very satisfied with the outcome. I loved hearing from all the judges as all those comments have broadened my horizons and have addressed me to the things that I, sometimes, did not pay much attention to. All those comments and recommendations were very useful as I'm, surely, going to use them in the future when it comes to doing CSR campaigns as I found things like this to be very interesting and eye-opening for me. – Case Based Learning Student 18 (Field Test Two)

In summary, student reflections on the case-based learning module largely centered on the same features of small-group learning highlighted by students in the role-play intervention. These will be discussed in the next section.

4.5 Discussion

4.5.1 Limitations

The study was carried out on a limited sample of Thai university students, so the results of this study are not generalizable due to a limited sample and the cultural context. It is very possible that students from different cultural contexts may have had different reactions to these online active learning activities. The sentiment analysis tool was also imperfect in its coding of positive or negative sentiments over a very limited number of responses, but these responses were checked and recoded so that they did not impact the overall sentiment analysis results.

4.5.2 Interpretation of the Findings

In conclusion, the results of the sentiment analysis were more similar than different for the role-play and case-based learning interventions. Initial student enthusiasm was followed by confusion over student roles in the role-play intervention and the learning process in both modules. Notably, there was also considerable variability in student responses across the students in their responses to the modules. Nonetheless, despite the positive responses of some students, student learning outcomes on both modules required levels of active student engagement and productive collaboration that were not achieved. This, no doubt, explains the lack of efficacy in student learning outcomes reported in Chapter Three.

Thematic analysis of student reflections was conducted to gain insights into the pattern of results reported in the sentiment analysis. The thematic analysis reinforced the view that student experiences in the two modules were more similar than different. Indeed, the only notable difference surfaced by the thematic analysis concerned the challenge that the role-play students reported with respect to playing their stakeholder roles in a realistic fashion. Nonetheless, this is an important issue because this was the key differentiating feature between the two modules. That is, the two modules were designed to be similar in all respects except the inclusion of the role-play feature. This was consistent with the theoretical assumption that taking on a stakeholder role would cause students to engage with the case problem in a qualitatively different manner.

In fact, the thematic analysis suggested that students in the role-play module did not respond to the challenge uniformly. Some engaged and tried their best to portray their stakeholder roles. Even so, many reported they lacked confidence in whether their perceptions and performances were “realistic.” In response to the uncertainty, some other students disengaged. Students in the case-based learning intervention did not face this challenge but still struggled with the broader challenge of learning in small groups in a fully online mode.

Indeed, as noted above, students responded in a remarkably similar fashion to the two learning interventions. The thematic analysis of student reflections identified

several obstacles to effective learning which explained the pattern of results in the sentiment analysis. The first obstacle concerned students' ability to manage the team learning process. The lack of student experience and skills in this area made it difficult for them to gain the most from these two small-group learning methods. For example, students noted a significant number of "free riders" in their groups. Moreover, as novices to small-group learning, they lacked the tools to manage their groups effectively. This phenomenon has also been observed in face-to-face classrooms, and some students mentioned similar problems when engaging in group work in face-to-face classes before the Covid-19 pandemic. Nonetheless, these problems could have been intensified by features of the online learning environment.

This leads to the next obstacle, which concerns the challenge of managing the learning process in a fully online learning mode. Numerous communication problems arising from the online mode were noted. These included miscommunication between the instructor and students and among the students themselves. It could be that students accustomed to face-to-face instruction missed the multiple channels of communication normally open to instructors.

Although the Microsoft Teams platform allowed students to work in breakout rooms, it should also be noted that this reduced the amount of interpersonal information (e.g., body language) available to students. Body language is essential to building rapport. In the best of cases, students meeting in a breakout room are unable to observe the body language of their team members as clearly as in a face-to-face setting. In the worst-case scenario, team members might turn off their video link and "disappear" literally or figuratively. Thus, the necessity of managing the small-group learning modules in a fully online mode, definitely added layers of complexity to what was already a complex learning experience for the students.

A third issue concerned the students' lack of experience in real-world organizational settings. This hindered their ability to conduct the role plays realistically and reduced their confidence in the proposed analysis and solutions in both interventions. While this feature was perhaps less influenced by the online delivery of the modules, from the students' perspectives it appeared to reduce the impact of the learning methods.

Indeed, the unfamiliarity of the topic for many of the students made the whole learning experience overwhelming for several students. Although scholars have advocated for more real-life contexts to be implemented in sustainability education (Martinez Casanovas et al., 2022), students must also be adequately prepared with enough baseline knowledge and competencies to benefit fully from these activities. It was clear that students lacked both baseline knowledge of CSR communication and competency with working in teams. Student inexperience with the topic led to a greater cognitive load on the participants in both field tests, which could help explain some of the lack of participation in the active learning activities. Among the role-play students, this led to hesitancy in playing their role. Some students felt like they were the ‘blind leading the blind.’ This phenomenon has been discussed in prior critiques of problem-based learning (Clark et al., 2012).

In addition to the challenges of team-based learning, there were some interesting results in terms of how different Asian students engaged with the activities. Although some of the students were quite passive and disengaged as reported in some research (Ho, 2009; Vongsila & Reinders, 2016; Watkins & Ismail, 1994), there were quite a few students who engaged substantively with these online active learning approaches and reported that they learned much from the activities. This result would indicate that active learning approaches can indeed be effective with Asian learners, as reported in previous literature (Hallinger & Lu, 2013; Pattanaphanchai, 2019). However, it was also clear that some Asian learners preferred more passive learning approaches. How Asian students, in particular, can be encouraged and motivated to engage in active learning should be further examined.

CHAPTER V

CONCLUSION

This Chapter will summarize and interpret the overall findings of this dissertation study. Implications and limitations of the research will also be considered.

5.1 Summary and Discussion of Findings

Firstly, the bibliometric review presented in Chapter 2 analyzed the literature on simulation and gaming in education. Key findings from the review included the following. The literature is dominated by studies conducted in Western, developed societies. This is problematic since learning methods are culturally situated (Frambach et al., 2012; Lu et al., 2014). Thus, the field of simulations and games needs empirical studies from a broader set of cultural contexts.

There has been a lack of cross-fertilization among researchers studying the use of simulations and games. Co-citation analysis identified management and medical education as the two most dominant fields in which these methods of active learning have been used. Yet, scholars in these fields seldom reference each other. This is particularly unfortunate for the field of management education since medical educators have tended to use stronger research methods in studying the use of simulations and games (e.g., Beal et al., 2017; Boyle et al., 2016; Issenberg et al., 2005; So et al., 2019).

The topic of “sustainability” is an emerging focus in this domain due to the perception among educators that simulations and games meet the requirements for learning to address sustainability challenges (Hallinger & Wang, 2020; Hallinger et al., 2021). More specifically, sustainability scholars have called for the use and study of active learning methods such as simulations and games based on the assertion that they are more capable

of developing wholistic things and the application of knowledge to real problems (Ajzen, 1991; Fischer et al., 2012; Kirkpatrick & Kirkpatrick, 2005; Oliver, 2016).

Yet, the review of literature on simulation and gaming also found that empirical studies of simulations and games, especially those focusing on sustainability, lean toward descriptive rather than experimental research. The lack of a critical mass of experimental studies means that scholarly assertions about the superiority of simulations and games in teaching sustainability topics have yet to be adequately tested (Hallinger et al., 2020).

These findings laid the groundwork for the author's quasi-experimental study of a CSR role-play module conducted with Bachelor degree students at a university in Thailand. First, the study addressed the need for more studies conducted outside of Anglo-European-American contexts. Educators have long debated the response of Asian learners to active learning approaches (King et al., 2015; Pham & Renshaw, 2013; Vongsila & Reinders, 2016; Watkins & Ismail, 1994). Twenty years ago it was commonly asserted that Asian students preferred passive learning approaches over more active ones (e.g., Biggs, 1994; Walker et al., 1996; Watkins et al., 1991; Watkins & Ismail, 1994). During the ensuing decades, findings have countered this conclusion. Nonetheless, more research is needed in order to understand the conditions under which Asian learners thrive in the context of active learning methods (Lu et al., 2014; Salas, Wildman, et al., 2009).

These findings set the stage for a mixed-method study of role-play and case-based learning for teaching CSR communication that formed the basis for Chapters 4 and 5. Research on role-plays has indicated that role-plays are able to impact attitudes and knowledge due to the emotional engagement of the activities (Blanchard & Buchs, 2015; Chen & Martin, 2015; Gordon & Thomas, 2018). In contrast, advocates of case-based learning have argued that case-based learning is most suited for knowledge acquisition and retention (Christensen, 1981; Donkin et al., 2023; Herreid, 2011). Research has not always supported these claims in support of role-plays or case-based learning (Kallestrup, 2018; Korkmaz, 2012; Nicklen et al., 2016; Pilz & Zenner, 2018). Interestingly, more recent studies have argued that even case-based learning can be emotionally engaging, especially if storytelling is integrated as part of the learning (Hoffer, 2020; Tan, 2017). Further research has also advocated for the use of small group work so that students can share

workload and learn from each other (Anas et al., 2022; Burgess et al., 2019; Huijbregts et al., 2022)

The quasi-experimental study conducted in Chapter 4 compared the effects of role-play and case-based learning. Both multi-week small-group learning modules were constructed around the same CSR problem. Due to the onset of the COVID-19 pandemic, the researcher was forced, at the last minute, to change the intervention from face-to-face classroom instruction to fully online learning using the Microsoft Teams platform. Students were randomly assigned to one of the interventions and proceeded to work online over the course of the module to address the CSR problem and develop a CSR communication plan and strategy for presentation to a group of industry professionals.

The results of the study can be summarized as follows:

- Both of the interventions yielded a positive significant change in student attitudes toward sustainability issues.
- Contrary to the author's hypotheses, the online role-play module was neither more nor less effective at developing student knowledge and skill than the online case-based learning module. There were no significant differences between the two modules on student learning outcomes.
- Neither of the modules produced significant improvement in student knowledge of CSR communication concepts and skills.

These results were disappointing. Thus, the study presented in Chapter 4 was designed to gain insights into why neither of the small-group, active learning methods was successful. This study employed qualitative methods to analyze changes in the learners' perceptions of their learning experience over the course of the two modules. The data were drawn from student reflections posted online during the modules as well as reflections summarized in "Talk Back" sheets at the conclusion. The data were analyzed using a combination of sentiment analysis and thematic analysis. The sentiment analysis quantitatively portrayed the tenor of students' emotional engagement during the module (i.e., positive, neutral, negative). The thematic analysis put words to the pattern of weekly quantitative summaries.

The qualitative analyses affirmed that the students' experience was largely similar in the two modules. As suggested above, the researcher had hypothesized that students assuming stakeholder roles in the role-play module would prompt stronger engagement and superior learning outcomes. However, as noted, this was not the case. Student reflections found that the need to take on an unfamiliar role as a manager, supplier, or community member created a high level of uncertainty among quite a few Bachelor degree students. Acutely aware of their lack of experience, they expressed a lack of confidence in whether they were fulfilling the role in a realistic manner, consequently making some reluctant to participate fully in the role-play. In addition, students in both interventions mentioned a lack of prior CSR knowledge as an impediment to their success in the modules.

Wiek et al. (2015) emphasized that there are different sustainability competencies, such as 'systems thinking', 'future thinking', and 'values thinking' (Wiek et al., 2015). While the learning interventions both appeared effective at developing values thinking among the participants, the learning activities appeared less effective at helping students understand how to address the systemic issues or enabled them to think about the future and how this kind of labor exploitation can be addressed. For this study, many students reported that their lack of prior knowledge of CSR communication other than communication techniques led to several difficulties in learning through either role-play or case-based approaches. Students also added that the lack of assistance from some of their peers in doing the learning activities also added an additional burden.

These challenges increased the cognitive load and decreased the students' confidence in portraying the roles for the role-play or in analyzing the case. It is evident that baseline knowledge is needed in addition to positive attitudes towards sustainability. However, in consideration of other research that has also emphasized the importance of developing sustainability mindsets (Cripps & Smith, 2023; Sipos et al., 2008), it should be emphasized that while the learning interventions did not quite achieve the goal of instilling more knowledge or action competence among the students (Mogensen & Schnack, 2010; Olsson et al., 2020; Sass et al., 2020), both online active learning approaches were still able to significantly change the sustainability mindsets of the students (Cripps & Smith, 2023).

Cripps and Smith (2023) noted that shifting student mindsets towards viewing sustainability from different perspectives can be crucial to helping students see the connection between free-market and the social and environmental externalities. This is essential for helping students develop new ways of approaching problems (Cripps & Smith, 2023).

The study did highlight, however, especially with undergraduate students learning online, more time and better teamwork may have been necessary for students to be able to translate their more positive sustainability mindsets into appropriate actions (Lotz-Sisitka et al., 2015; Sass et al., 2020).

Merely immersing students in a complex real-life scenario, without appropriate baseline knowledge or key skills such as teamwork, may not be the best way to help students gain skills and competencies toward addressing sustainability issues (Chen & Liu, 2020; Lotz-Sisitka et al., 2015; Mogensen & Schnack, 2010). In fact, it can have a detrimental impact on students' confidence in tackling these problems (Emblen-Perry, 2022; Howieson & Rogers, 2018; Sogunro, 2004). Educators should address carefully the nature and extent of antecedent knowledge and skills needed to help students properly benefit from online active learning approaches when planning their instruction.

This study further highlighted that learning activities could be more effective in some aspects of sustainability learning than others, and it may take a combination of learning activities, rather than any particular experiential learning activity, to be able to develop sustainability competencies (Brundiers & Wiek, 2017; Cripps & Smith, 2023; Sipos et al., 2008; Wiek et al., 2015). The added complexity of sustainability also means that if the learning has to be conducted online, such as in this case, the context needs to be considered carefully so that students feel they can meet the challenges, rather than be overwhelmed by them (Al-Kumaim et al., 2021; Popa et al., 2020).

The pattern of student perceptions and learning outcomes reprises assertions made by Clark et al. (2012) and Sweller et al. (2007), who critiqued the efficacy of “minimally guided instruction.” They claimed that minimally guided instructional methods such as role-play, discovery, and problem-based learning make untenable assumptions about the capacity of learners to process information when learning a new subject. More advanced students (e.g., executive MBA students) with industry might find the exercise of

taking on a stakeholder role engaging. The meeting with other stakeholders could prompt them to see the problem differently than before. However, with these Bachelor degree students, the pre-requisites for success seemed to be lacking.

Indeed, both Walker et al. (1996) and Bridges and Hallinger (2007) noted a need for more structure among the Asian Master degree students in their studies of problem-based learning. This highlights the need for “cognitive scaffolds” that reduce cognitive overload among novice learners. Examples of cognitive scaffolds include employing the “spiral curriculum approach in which students begin to learn how to learning small groups with more structured problems and then moving on to more complex ones (Hallinger & Bridges, 2007). Other examples of cognitive scaffolds include the provision of training in how to manage learning teams and learn independently.

The students in both groups felt unclear on what they should be doing at times, which led to frustration and anxiety. The reported issues with team-based learning further compounded these problems and highlighted the need for students to be further trained in team-based learning instead of simply being tasked to learn in teams. The free-riders frustrated the students in both groups, and several students appeared very passive to their peers throughout both activities without much change. Prior knowledge of problem-framing, managing team discussions, and project management could have made a difference in the learning outcomes of students in both learning activities. An example of how this would have helped is from the last part of the modules where students in both learning interventions received a mini-lecture about CSR communication strategies before formulating their CSR communication presentations. Although this mini-lecture was given to help formulate solutions to the problems, the lack of input and contribution from some team members afterward meant the engaged students had to comprehend what they learned from this lecture independently without much support from their other team members. In many cases, this led to an inefficient working process for both learning groups, further exacerbated by the limited preparation time for the CSR communication presentations.

Students participating in both interventions highlighted a problem of “free riders” and unbalanced participation among team members. It was noted that the students in these classes had only cursory experiences with small-group active learning in other

classes. Moreover, there had been no prior instruction on managing their learning and team members in small-group activities. Thus, students lacked the skills needed to succeed, regardless of whether they were in the role-play or case-based module. Thus, the qualitative data were very useful in helping to make sense of the disappointing quantitative results.

In addition, the qualitative data further highlighted the impact that learning in an online mode had on the results for both small-group active learning interventions. Although the students mentioned that the activities were more engaging online than anticipated, they still struggled with learning some of the concepts in both modules. First, the online environment made communication between the instructor and students and among students more difficult and uncertain. At times, the instructor assumed that students had read and/or listened to instructions when they hadn't. In a face-to-face classroom, these instances of miscommunication would have surfaced and been dealt with quickly. However, with students distributed across Microsoft Team breakout rooms, it could take 20 minutes before the instructor could address problems resulting from unclear communication.

A second problem arising from the online learning mode concerned obstacles to effective student-to-student communication. Even when all cameras were turned on, students were deprived of information via their peers' body language. Moreover, some students turned their cameras off, further impeding intra-group communication. While successfully managing a team in an online meeting is not impossible, it requires a level of skills that these students have yet to develop.

These additional layers of complexity introduced by the online context also contributed to the unbalanced participation observed among team members. Team members who were positive and engaged became frustrated by their disengaged classmates. The disengaged students did the minimum required.

The study also described several challenges in converting classroom role plays and case-based learning activities into an online format. It should be emphasized that because these activities were primarily team-based, the commitment and dedication of individual participants had a significant impact on the learning experience of the students. Sentiment analysis revealed why students struggled with the activities, and it was evident from some of the analyzed responses that team-based learning had a significant impact in

positive and negative ways. Students who worked with other participants who were deeply committed to participating in these active learning activities reported better learning experiences than students who struggled to work with disengaged participants.

In these types of team-based learning activities, the participants' commitment is just as important as the technology used to connect them online. Educators must be aware of how adept students are with team-based learning and may need to consider other more individual-based learning activities (e.g., computer simulations) if team-based learning is not ideal. The study encourages further research on how students should be prepared for learning about sustainability, and what conditions are best for team-based or individual-based learning online.

5.2 Implications for Future Research, Practice and Policy

Although the researcher had hoped for more positive findings, this research sought to capitalize on a real-world challenge. This was the need for universities to quickly change instruction from a face-to-face to an online mode in a matter of weeks. This was exactly the situation that faced the researcher. Thus, the opportunistic nature of this study offers perhaps even more lessons than would have been obtained from a study that carefully planned and optimized the conditions for teaching and learning. Like university instructors throughout the world, the researcher was forced to do the best that he could in delivering two different small-group active learning modules to Bachelor degree students under challenging circumstances. Thus, despite the lack of broadly positive results, the research has implications for research, practice, and policy.

5.2.1 Implications for Research

As noted earlier in the dissertation, this study was originally planned as a comparison of role-play and case-based learning in face-to-face classrooms. While this study sought to try and understand the impact of module delivery in a fully online mode, the reasons posited for the poor results are speculative. Experimental studies should,

therefore, be conducted that compare the efficacy of role-play and case-based learning in face-to-face, hybrid, and fully online modes. These studies should be conducted with learners of different levels of experience. The relevance of such studies cannot be understated in the post-COVID higher education environment. Educators need to better understand the types of active learning approaches that transfer across different learning contexts, as well as the conditions that are necessary for their success.

A second implication arising from this study lies in the use of sentiment analysis to make sense of students' reflections posted during and after the modules. The results of the sentiment analysis provided a more transparent, systematically derived visualization of students' emotional responses and how they changed over time. This provided a very useful bridge between the quantitative results on student outcomes and the narrative thematic analysis. Indeed, from the researcher's perspective, the thematic analysis benefitted greatly by having the results of the sentiment analysis to build upon.

Finally, the results of this study suggest that educators should be cautious about advocating the efficacy of one learning approach over another or arguing for the transformative learning that results from certain activities. In this study the researcher hypothesized that the emotional engagement engendered through role-play would lead to transformative learning outcomes in both sustainability knowledge and attitude. In fact, this hypothesis was not supported. Rather than question the efficacy of role-play or case-based learning, this study advocates for research to dig deeper into the optimal conditions for learning that enable different types of active learning to achieve their desired outcomes.

5.2.2 Implications for Practice

This study highlighted the importance of “cognitive scaffolds” in supporting the acquisition of new knowledge (Hmelo-Silver et al., 2007). From the study, it is apparent that the students required more background knowledge before learning through role play or case-based learning, especially since they were undergraduate students. Speaking with experts, especially during the CSR presentations, was very insightful for the students. One method of helping prepare the students to conduct a role play or analyze a case study could

be to provide an opportunity for the students to interact with CSR experts during the module rather than only at the end (see Hallinger & Bridges, 2007).

It is also recommended that students be more prepared for team-based learning. It is not sufficient for students to simply work with their peers on several projects after lectures and be considered “ready” for team-based learning. The CSR presentations in this case required careful collaboration among team members along with problem-framing and problem-solving, which not all teams were able to do. Pre-modules on project management, problem-framing, meeting management, and presentation skills could help alleviate some of the issues the students encountered in both modules. It may also be beneficial for computer simulations to be used as pre-training tools to help introduce students to some of the key concepts so that they are more familiar with the problem rather than being introduced to the problem through a role-play or case study without much prior knowledge.

When conducting these learning activities online, it may be easier for students to miss important announcements. Several information sessions before Field Test Two began about the learning format and the CSR presentations to experts were more effective in Field Test Two than constant announcements during each class in Field Test One. Providing an individual assessment could also be useful as some students did not engage with the learning throughout the two active learning approaches. Students in both learning groups expressed frustration at the number of free riders in their groups who did not contribute much to the development of the CSR communication plans. Students completing an individual assessment before being permitted to work in teams could compel them to engage with the content. This may be particularly important if these active learning activities are conducted with undergraduate students who may not see the immediate relevance of sustainability to their future careers.

The results of Essay III also indicated that even for the most engaged students, there can still be issues with confidence about whether they are role-playing or analyzing the case appropriately (Emblen-Perry, 2022; Sogunro, 2004). When using either method with undergraduate students, having work professionals participate as consultants could help ensure that the role-play is realistic. This would reduce the cognitive load on the students while helping them stay on track in their analysis.

Although the instructor did try to serve this role for the students, the number of groups that needed to be advised (14 groups for Field Test One, 6 for Field Test Two) was too large and led to an inefficient use of time. Especially when conducting these activities with larger groups of less experienced learners, including several mentors may be quite important for ensuring that students remain actively engaged with these activities. This would have also lessened the burden on the instructor and ensured efficient instruction for larger classes. Thus, class size is another condition that should be considered when using such complex learning methods, especially in an online setting.

It should be emphasized that many of the above recommendations are geared toward contexts in which the learners are undergraduate students. A more advanced group of learners, perhaps work professionals who have relevant experience with CSR, could participate in these activities without the need for some of the above recommendations. As the role-play and case-based learning approaches were still engaging for undergraduate students (even online), graduate students with more background knowledge and related work experience would probably engage more. For instructors looking to utilize more active learning approaches with their students, they should carefully consider the education level of the students, their prior knowledge, and how these students have been taught previously (Ploum et al., 2018). It is apparent that competencies for addressing sustainability issues take time to develop and require careful instruction and facilitation (Aragon-Correa et al., 2017; Cullen, 2017; Sipos et al., 2008). No one learning approach can necessarily accelerate this process.

In terms of cultural context, the study's findings also indicate that our understanding of how Asian learners react to active learning approaches is still inconclusive. The results of this study found that there were both passive and active learning-oriented students who responded differently to active learning approaches. It is apparent at this point that research should investigate the learning characteristics of different students, as opposed to just their nationality or gender. Additional research should also be done on these activities with non-Asian learners. Would the results have been much different with students with more experience in problem-solving and critical thinking? Or with students from a Western context? Would the results have been different if the activities could be done on-site in class

instead of online? The results of this study only indicate that Asian learners may not all be adept at active learning approaches (especially online) but can still engage substantively with active learning. However, whether the students would learn more effectively on-site still needs further investigation.

As indicated in the literature, the amount of prior experience students have with different learning activities or their mindsets toward active learning could have a more profound impact on their learning outcome than just their cultural context (Hallinger & Lu, 2013; Kember, 2000; Pham & Renshaw, 2013; Sistermans, 2020). As Asian institutions move more towards active learning approaches (Buasuwan, 2018; Hallinger & Lu, 2013; Pattanaphanchai, 2019; Pham & Renshaw, 2013). Educators should no longer assume that Asian learners are simply passive. Instead, it should seek to understand not only why some Asian students are more passive than others but also under what conditions passive students could be motivated to engage more with active learning approaches.

In conclusion, this dissertation provided empirical data that validates some of the key challenges with active learning approaches (García-Rosell, 2019; Lotz-Sisitka et al., 2015; Sogunro, 2004) but also offers interesting areas for further exploration. Data revealed that student-centric and active learning approaches may not be effective for all learners. Other experiential learning activities, such as computer simulations or game-based learning, may be more effective.

Finally, research within sustainability education should also adopt a wider perspective on how students are prepared to learn about sustainability issues. Research has described sustainability problems as ‘wicked’ with no clear and obvious solutions (Savage et al., 2015; Wyness & Dalton, 2018). Students cannot be expected to be able to immediately address these problems, and more research must be done on how different competencies can be nurtured and developed among students from different cultures (Wiek et al., 2015). Additionally, how students can gain these competencies through different learning approaches (case studies, role-plays, computer simulations) should also be explored further through both quasi-experimental and experimental approaches.

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Appendix A: CSR Communication Role-Play Module Description

The Problem

A few months ago, Adsport21 was exposed by media outlets for poor working conditions and unethical Labor practices (child Labor and mistreatment of workers). Labor activists have started protesting in front of stores and the stock price for Adsport21 has been rapidly decreasing over the past few months. The CEO and Board of Directors is looking for recommendations and a new CSR campaign that will show the company is actively trying to resolve the issue and not simply doing public relations management until the crisis is over.

For the Role-play Group

The CEO and Board of Directors has asked for a large stakeholder meeting to be organized to better understand the key priorities and problems for the key stakeholders at the company

- Students will role-play as the following stakeholders:
 - PR Communication Team
 - Junior Executive Team
 - Supplier Employee Reps
 - Customers
 - Labor Activist Members
 - Investor Group
- The role-play group will have the following tasks to complete as part of every class to prepare their CSR campaign pitches:
 - Task 1 – Stakeholder Priorities and Problems
 - Task 2 – Problems and Recommendations
 - Task 3 – Communication Strategies

Role-play Learning Sequence

Week One (Assigning roles, and Preparation for Stakeholder meeting)

- Instructor will introduce role-play learning and ask if there are any questions
- Instructor will assign students stakeholder roles

- Students will go to breakout rooms to discuss their role and what they think the key priorities and problems are from their role perspective
- Instructor will give a mini lecture on the key facts and issues of the case and go over expectations for each role
- Students will return to breakout rooms to complete Task 1- Problems and priorities and upload it to Moodle
- Instructor will give a mini lecture on consensus building and conflicting values, and then assign students to answer the following question in an online discussion forum
- What questions do you have about how companies should work with different stakeholders?

Week Two (Stakeholder meeting)

- Students will have time to review their Task 1 problems and priorities handouts with their stakeholder groups and change anything (if needed), as well as elect their two speakers
 - Students will upload their completed priority and problem handouts to Moodle that will be shared publicly with the large group as they present
- Role-play will begin and each role will summarize their Task 1 handouts in 2 minutes
 - Each role will then answer questions from the other stakeholders
- Each Stakeholder group will return to their breakout rooms to discuss what they have learned during the meeting so far and if they would like to change anything in their Task 1 handouts from what was discussed
- Each stakeholder group will summarize to the whole group what they have learned from the meeting and what they believe are the key problems for the company that must be addressed
- The stakeholder groups will vote on the problems and the voting results will be shared for students to consider further in their reflection responses

Week Three (Stakeholder meeting debriefing)

- The instructor will invite students to share their experiences and what they learned from the stakeholder meeting
- The instructor will inform the groups of an update from the CEO:
 - The CEO is happy about the meeting, but is still concerned that the PR Communication team will not come up with a good plan if they simply work together as usual
 - Therefore, for the upcoming CSR campaign pitches, the CEO wants the PR Communication Team to be split up and grouped with members of the other stakeholders to form cross-stakeholder teams

- Each member of the PR Communication will oversee one group (6 teams), but everyone must contribute to the plans
 - In their new teams, they will conceptualize a CSR Campaign to present to the CEO/Board
 - The CEO has made it clear he does not want the PR Communication teams working with each other, and wants unique campaign pitches from each of them (nothing copied)
- The PR Communication Team member selection
 - The PR communication team will select students in each role to join their CSR Campaign Planning teams
 - The instructor will make breakout rooms for the PR teams to meet privately with their new groups and start completing Task 2
 - The new cross-role teams will meet in their breakout rooms to complete the Task 2 handout (Problems, Recommendations)
 - The cross role teams will present their Task 2 handouts for group discussion and then be given Task 3 (Communication Strategies)
 - The instructor will give students time to work together on Task 3 to present at the start of next class

Week Four (Communication strategies and Actions)

- The instructor will invite all students to share their Task 3 handouts with their initial communication strategies for discussion as a large group
- The instructor will do a mini lecture on the challenges of implementing various solutions from the Nike Case, and the strengths and weaknesses of various communication strategies, and what has changed with social media
- Students will meet in their breakout rooms to revise Task 3 Part 1 (Communication strategies)
- The instructor will introduce the CSR presentation that will be done for the CEO and Board, and students will be invited to ask questions to help with preparations
- Students will go into their breakout rooms to start creating their CSR presentations they will present to the CEO/Board next week
- Students will complete Task 3 (part 2) which will remind the students of the key parts to focus on for their presentations

Week Five (CSR Presentation to CSR panelists to resolve the Labor Scandal)

- The groups will present their recommendations and communication strategies to the CEO/Board
- Each group will have 15 minute presentation and Q&A with the work professionals role-playing the CEO/Board
- The CEO/Board members will grade each presentation and will also comment on the quality of the presentations

Appendix B: CSR Communication Case-Based Module Description

The Problem

A few months ago, Adsport21 was exposed by media outlets for poor working conditions and unethical Labor practices (child Labor and mistreatment of workers). Labor activists have started protesting in front of stores and the stock price for Adsport21 has been rapidly decreasing over the past few months. The CEO and Board of Directors is looking for recommendations and a new CSR campaign that will show the company is actively trying to resolve the issue and not simply doing public relations management until the crisis is over.

For the Case-Based Learning Group

The CEO and Board of Directors has decided to work with students to do a research project on a similar case (The Nike Labor Scandal from the 1990s), as the key facts and information for Adsport21 are very similar to the Nike Case:

- Students will be divided into different groups of a roughly equal number of students
- The students will be asked to review key materials about the Nike case before class each week and then answer questions about the key problems of the case correctly
- The instructor will keep track of the answers and that the groups answer the questions correctly

The case-based learning group will have the following tasks to complete as part of every class to prepare their CSR Campaign Pitches:

- Task 1 – The Key Stakeholders in the Nike Scandal
- Task 2 – The problems and Nike responses
- Task 3 – Communication Strategies

Case-Based Learning Sequence

Week One (Defining the key stakeholders in the Nike Scandal)

- The instructor will introduce case-based learning and how it works
- The instructor will do a mini lecture detailing the history of Nike and its key stakeholders
- Students will discuss in their groups how Nike first started developing as a company in the early years

- Students will do the first half of Task 1: the key stakeholders of Nike in the first stage (1970s-1990s)
 - Students will share their answers on the key stakeholders of Nike in the first stage, and instructor will check their understanding with some open ended questions for each group to answer as a large group
- Instructor will then discuss the further development of Nike and how it changed as it grew
- Students will return to breakout rooms to complete the second half of Task 1- the key stakeholders of Nike in the second stage (1990s-2000s)
- Instructor will give a mini lecture on consensus building and conflicting values of different stakeholders, and then assign students to answer the following question in an online discussion forum:
 - How did the stakeholders for Nike change as the company grew? What were the conflicting priorities and viewpoints of these stakeholders?
- Students will also be given key resources to review on the start of the Nike Scandal to review before the next class

Week Two (The crisis and initial Nike Response)

- Students will summarize the key stakeholders and their priorities and problems from the Task 1 handout
- Instructor will give a mini lecture on the start of the Labor scandal at Nike
- The students will go into breakout rooms to summarize what happened, and write what the Nike stakeholders did at the start of the crisis on Task 2 handout (The Start of the Crisis and the initial Nike Response)
- Students will share the key facts on the start of the scandal
- The instructor will do a mini lecture on how Nike responded
- The students will complete the first half of the Task 2 handout by summarizing how Nike responded, and how the stakeholders reacted based on what was discussed and also the key reading

Week Three (The end of the Crisis and Nike's Responses)

- The students will summarize the initial response to Nike and the reactions to Nike's actions of the different stakeholders
- The instructor will do a mini lecture on a key development in the Nike Labor Scandal
- The leaked Ernst and Young audit of the Nike factory in Vietnam
- The students will discuss the reaction to the Ernst and Young audit by the Nike Stakeholders in breakout rooms
- The instructor will do a mini lecture on the Nike partnerships and the decision by Nike to disclose their list of suppliers around the world

- In breakout rooms, the students will discuss the reaction of the Nike stakeholders to the Nike partnerships, and the reaction to the decision by Nike to disclose their list of suppliers around the world while completing the Task 2 handout
- The instructor will summarize the key findings and Students will be asked to download resources to start working on the Task 3 handout (Communication strategies) in breakout rooms for the next class

Week Four (Communication strategies/Actions by Nike and what has changed)

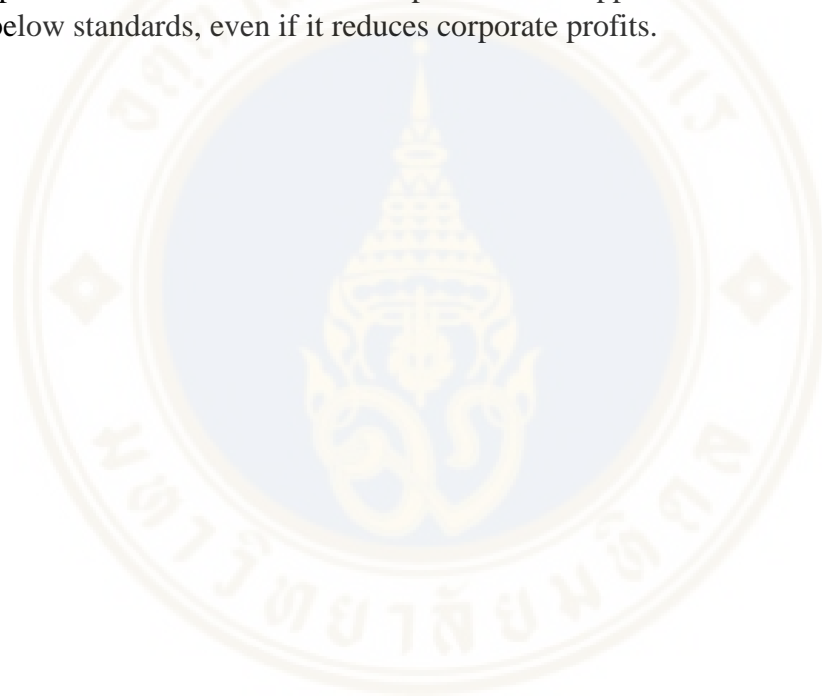
- Students in each group will share Task 3 handouts with their initial communication strategies for discussion as a large group
- Students will meet in their breakout rooms to revise Task 3 (Communication strategies) and discuss what has changed since the Nike Scandal of the 1990s
- The instructor will do a mini lecture on the challenges of implementing various solutions from the Nike Case, and the strengths and weaknesses of various communication strategies, and what has changed with social media
- The instructor will introduce the CSR presentation that will be done for the CEO and Board, students will be invited to ask questions
- Students will go into their breakout rooms to start creating their CSR presentations they will present to the CEO/Board next week
 - Task 3 (part 2) will remind the students of the key parts to focus on for their presentations

Week Five (CSR Presentation to CEO and 2 Board Members to address the crisis)

- The groups will present their recommendations and communication strategies to the CEO/Board
- Each group will have 15 minute presentations and Q&A with the work professionals role-playing the CEO/Board
- The CEO/Board members will grade each presentation and will also comment on the quality of the presentations

Appendix C: Attitude toward Sustainability Scale

1. Wealthy nations should sacrifice for the benefit of less economically developed countries.
2. Companies have a responsibility to improve the quality of life in the communities where they do business, even when it increases their costs.
3. Changing what I buy and use in my daily life can make a positive difference for the environment.
4. Companies should monitor the environmental practices of their suppliers and take action when they fall below standards, even if it reduces corporate profits.
5. Having a plan today can reduce future risk in the society.
6. I pay attention to how much I need, not just to how much I want.
7. Companies should monitor the labor practices of suppliers and take action when they fall below standards, even if it reduces corporate profits.



Appendix D: CSR Communication Knowledge Pre-test and Post-test

1. What one of the following practices will best contribute to making corporate social responsibility a part of the company's corporate culture?
 - a. Highlight only the most popular CSR activities of the company to the public
 - b. Show care for environment in PR communications even when there are no CSR activities being done
 - c. Order staff to participate in environmental conservation activities for the company
 - d. Hold staff meetings to emphasize the importance of sustainability, even if it is not related to their job responsibilities
 - e. Balance the needs of different stakeholders in relation to sustainability issues that impact the company
2. Which of the following statements about CSR is true?
 - a. CSR is easy to understand and implement for all companies so every company should do it without worry
 - b. CSR activities will be the same the same for all companies regardless of the industry
 - c. CSR focuses mainly on environmental issues due to the severity of climate change
 - d. CSR focuses on environment, social, and economic impact of corporate activities
 - e. CSR is limited to activities that impact the communities where the company does business
3. The most effective way of communicating CSR is...
 - a. through written reports because CSR communication must be detailed to be effective
 - b. through video because CSR communication needs to visually show how what the company is actually doing to help people and the planet
 - c. through infographics and short data reports, so technical information will be easier to understand
 - d. through continuous posting on social media in order to create a clear impression on stakeholders
 - e. it depends on the company's business context
4. What are some reasons why CSR communication is effective?
 - a. CSR communications reach all stakeholder groups inside and outside the company
 - b. CSR communication focuses on providing information related to relevant CSR issues for the company
 - c. CSR communications are based on relevant practices, events and activities of the company
 - d. CSR communication focuses on the company's contributions to the well-being of society

5. What one of the following practices will best contribute to making corporate social responsibility a part of the company's corporate culture?
 - a. Highlight only the most popular CSR activities of the company to the public
 - b. Show care for environment in PR communications even when there are no CSR activities being done
 - c. Order staff to participate in environmental conservation activities for the company
 - d. Hold staff meetings to emphasize the importance of sustainability, even if it is not related to their job responsibilities
 - e. Balance the needs of different stakeholders in relation to sustainability issues that impact the company
6. Which of the following statements about CSR is true?
 - a. CSR is easy to understand and implement for all companies so every company should do it without worry
 - b. CSR activities will be the same the same for all companies regardless of the industry
 - c. CSR focuses mainly on environmental issues due to the severity of climate change
 - d. CSR focuses on environment, social, and economic impact of corporate activities
 - e. CSR is limited to activities that impact the communities where the company does business
7. The most effective way of communicating CSR is...
 - a. through written reports because CSR communication must be detailed to be effective
 - b. through video because CSR communication needs to visually show how what the company is actually doing to help people and the planet
 - c. through infographics and short data reports, so technical information will be easier to understand
 - d. through continuous posting on social media in order to create a clear impression on stakeholders
 - e. it depends on the company's business context
8. What are some reasons why CSR communication is effective?
 - a. CSR communications reach all stakeholder groups inside and outside the company
 - b. CSR communication focuses on providing information related to relevant CSR issues for the company
 - c. CSR communications are based on relevant practices, events and activities of the company
 - d. CSR communication focuses on the company's contributions to the well-being of society
 - e. All of the above are true

9. Which of the following reasons indicate why external stakeholders may not trust CSR messaging? (Select all that apply)
 - a. The information can be misleading
 - b. The information can lead to confrontation and bad feelings
 - c. The information is too honest
 - d. The information may only be produced only for promotional purposes
 - e. The information is very expensive to produce
10. Which of the following is a recommended practice for addressing CSR issues effectively in a crisis situation?
 - a. Develop a long-term plan before you begin to communicate with any stakeholders
 - b. Communicate quickly even if the information may not be accurate
 - c. Focus all communications inside the company before you begin to communicate outside
 - d. Ensure consistency between CSR messaging and actions taken by the company
 - e. All of the above are recommended practices
11. Which stakeholder group should be involved in the development of a company's CSR messaging strategies?
 - a. Employees
 - b. Community Members
 - c. Customers
 - d. Investors
 - e. All of the above
12. Which of the following are recommended ways of implementing CSR in a company? (Select all that apply)
 - a. Measure the effectiveness of the CSR activities after they are implemented
 - b. Do a series of public campaigns and make them go viral
 - c. Require all staff and managers to attend all CSR activities
 - d. Consult with employees about useful CSR activities
 - e. All of the above are recommended

Part II

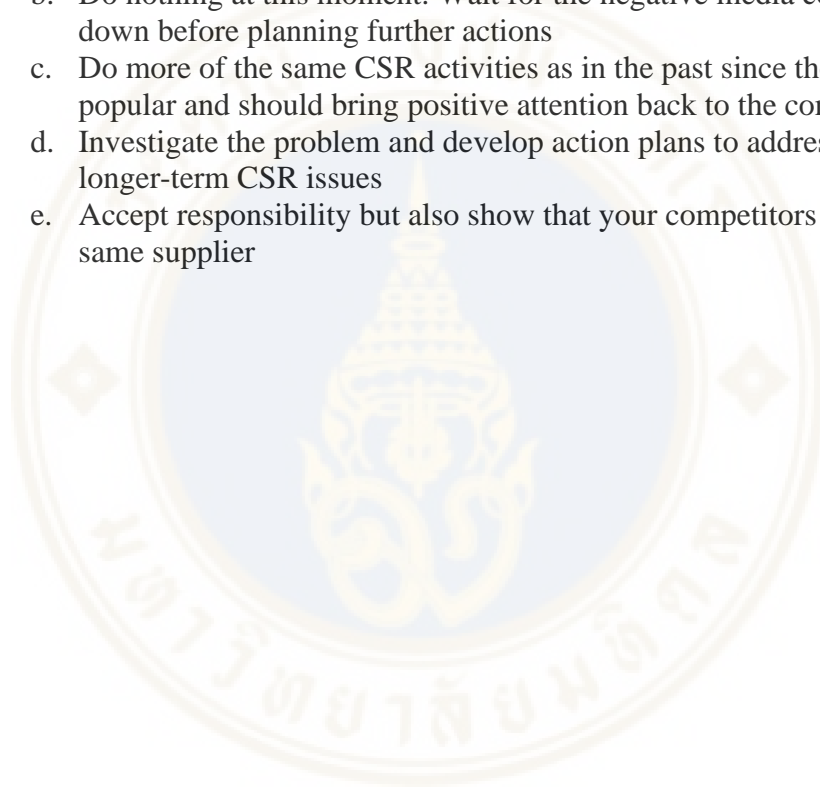
Base your answers to the questions below on this short case.

You have been hired as a consultant to a Thai company that is currently in crisis due a variety of labor violations by its suppliers (e.g. child labor, unsafe working conditions). You have been hired to help the company change policies and implement measures that will lead to more sustainable operations. You must also create a CSR communication plan to help the company repair their reputation with its stakeholders while it implements more sustainable business practices. Your first day on the job, you discover that the management and staff are open to change. However, they are surprised that people are so upset about this problem with the suppliers. Cheap labor is what has enabled the company

to earn millions of baht for its investors. Moreover, two years ago, the company started a series of popular environmental conservation CSR activities to show its commitment to sustainability.

13. What is the most effective strategy for managing the crisis in this case?
 - a. Deny any knowledge that the crisis ever happened
 - b. Accept responsibility and announce plans to fix the problem
 - c. Shift the responsibility to another party (e.g. the manager of the suppliers)
 - d. Emphasize that the problem was happening before you started using the supplier
 - e. Remind people of past good works and contributions of the company
14. A good communication strategy for managing this crisis
 - a. Should be created by a mixed stakeholder team that understands the corporate values and mission
 - b. Should be developed and communicated within 24 hours
 - c. Should attack the honesty of the people who are criticizing the company
 - d. Is best created by PR experts with many years of experience
 - e. A and B
15. Which of the following strategies is key to managing the CSR crisis response in this case?
 - a. Highlight the strong environmental CSR record of the company
 - b. Show long-term commitment to solving the problem
 - c. Downplay the severity of the problems at the company
 - d. Describe clear actions the company will take to address the crisis
 - e. B and D
16. When creating an appropriate CSR communication plan for this case, which stakeholder group should be the target of your message?
 - a. Suppliers because we need their products
 - b. Business managers because we want to keep their support
 - c. Investors because they provide capital for the company
 - d. Customers because our company depends on them for profitability
 - e. All of the above
17. What is the main reason why the company's reputation is suffering now despite its past record of CSR activities?
 - a. The public has forgotten about the company's past CSR activities
 - b. Past CSR communication was not honest about the company's environmental impact
 - c. Past CSR activities focused on the environment, but did not address social impact of the company
 - d. Communication about the company's contributions to environmental protection were ineffective
 - e. B and C
18. Which priority actions should be taken by the company and reported to the public? (Select all that apply)

- a. Develop a set of labor standards that all suppliers will need to meet if they wish to do business with the company
 - b. Hire lawyer to sue your suppliers in court
 - c. Report your suppliers to the Ministry of Labor
 - d. Conduct CSR training with corporate employees on social sustainability issues
 - e. C and D
19. Which CSR strategy should the company use over the next few months?
- a. Immediately launch a new campaign with many famous environmental influencers to bring positive attention back to the company
 - b. Do nothing at this moment. Wait for the negative media coverage to die down before planning further actions
 - c. Do more of the same CSR activities as in the past since they were quite popular and should bring positive attention back to the company
 - d. Investigate the problem and develop action plans to address short-term and longer-term CSR issues
 - e. Accept responsibility but also show that your competitors are using the same supplier



Appendix E: Grading Rubric for the CSR Communication Presentation

Criteria		Below Standard (0)	Acceptable (1)	Good (2)	Excellent (3)
Formal Presentation (50%)	Materials presented	Materials not logically presented; need to be clearer and more concise	Materials are presented logically; some parts need clarity and conciseness	Materials are clear and logically presented	Materials are clear, concise, convincingly presented logically and creatively
	Persuasiveness and Use of Evidence	Team does not provide compelling evidence of the effectiveness of the CSR plan	Team provide an interesting plan, but needs more relevant, supporting evidence of its effectiveness	Team provides compelling evidence supporting their plan with meaningful examples; some gaps in explanation	Team provides persuasive evidence supporting the plan with meaningful examples and no gaps in explanation
	Maintain Judges' Interest	Presentation was not interesting; some parts seemed irrelevant	Parts of the presentation were hard to follow and do not maintain interest	Presentation was focused for the most part and maintains interest	Presentation was interesting and engaging
	Use of Visual Aids	The visual aids are not relevant to the presentation topic, not clear nor easy to understand	The visual aids are relevant to the presentation topic, but need to make it a little clearer to see and easier to understand	The visual aids are clear, easy to understand and relevant to the presentation topic	The visual aids are clear, easy to understand, aesthetically pleasing, creative and relevant to the presentation topic
Questions & Answers (50%)	Understand Judges' Queries	The judges have to repeat the questions several times before the team understands the inquiries	The team has to ask the judges to repeat the questions or concur with each other in order to understand judges' inquiries	The team has the ability to understand judges' inquiries well without the judges having to repeat the questions	The team has the ability to understand the judges' inquiries in a clear and concise manner and give appropriate explanation
	Responses to Queries	The team cannot respond to the judges' inquiries appropriately	The team can appropriately respond to the judges' inquiries but the answers are not that convincing	The team can appropriately respond to judges' inquiries with substantive and concise answers, but could be improved	The team can convincingly respond to judges' inquiries with substantive and concessive answers
	Use of Time	The team does not use the time allocated well	Some team members use more time than necessary to answer a judge's inquiry	The team has the ability to use the time allocated well, with minimal redundancy	Several team members respond appropriately to the judges' inquiries, with minimal redundancy
	Poise and Confidence	The team needs to improve on their composure and needs to be more confidence while answering judges' inquiries	Some team member has good poise and confidence and can think on their feet, but some still need improvement	Every team member has good poise and confidence and can effectively think on his/her feet	The team excludes confidence without over doing it? And can effectively think on their feet

Appendix E: IRB Approved Ethics Form

Date.....

My name is agedyears old, now living at the address no Street Sub-district District Province Postal code Tel. No

I have read the statements in the information sheet for research participants. (Or, it was read to me by the research assistant who comes to meet me). I understand the research project’s rationale and objectives, its procedural details, its expected benefits and potential risks/harms that may occur to the participants, including methods to prevent and handle harmful consequences. I have been given satisfactory explanations to my questions about this research.

I am aware of my right as a participant to decline answering any questions or to withdraw from participation at any time, if I want to, without any undesirable consequences on the welfare and services that I and my family may need.

I hereby express my consent to participate as a participant in the research project entitled “Assessing the Effects of a Role-Play Game in CSR Communication”

I consent to the researchers’ use of information obtained from me in this interview, but do not consent to disclosure of my name or identity that can be used to identify me as individual.

I thoroughly understand the statements in the participant information sheet and in this consent form. I hereby give my signature.

Signature

(.....)

Participant/ Proxy