INTEGRATING ENIRONMENTAL, SOCIAL AND GOVERNMENT CURRICULUM IN FINANCE EDUCATION TO DEVELOP INTERNATIONAL CHINESE COLLEGE STUDENTS' SUSTAIABLE FINANCE IN THAILAND

By

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ABSTRACT

In recent years, environmental, social and governance (ESG) and sustainability have become increasingly important. In order to improve the ESG literacy of students, the aim of this study was to build the ESG curriculum and to develop knowledge of sustainable finance to international Chinese college students in Thailand. The ESG curriculum was integrated into the Financial Statement Analysis course. The study applied a quasi-experimental design,involves using quantitative tools to analyse the data.In total, 108 international Chinese students majoring in finance in Thailand participated in the research, 58 students in the experimental group and the rest 50 in the control group. The intervention of ESG curriculum was applied to the experimental group over 45 hours' period in 6 weeks. The control group received a regular teaching in the same period of the class schedule. This study applied ESG learning assessment to the pre-test. The collected data are statistically analyzed using an independent sample t-test, a paired sample t-test, as well a one-way ANCOVA.The result showed that the intervention of ESG curriculum training in the experimental group had a significant improvement on the ESG learning assessment. Also, the

experimental group had better performance on ESG learning outcomes than the control group.

Keywords: ESG, Curriculum, Finance Education, Sustainable Finance, International Chinese College Students

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INTRODUCTION

1.1 Background

The subprime mortgage crisis led to a sharp rise in the awareness of the significant role of corporate social responsibility in financial institutions and of the subsequent bankruptcy of the Greek financial system, which threatened the Eurozone economy as a whole. Following these crises, the financial sector appeared to adopt more ethical strategies in response to public concerns (Paulet et al., 2015), but the development of the globalized economy also caused social and environmental problems that needed to be resolved(Tisdell,2001). These considerations led companies, investors and consumers to increasingly turn their attention to the need for corporate sustainability (Lourenço et al., 2012), which involved including environmental and social aspects in the corporate performance to achieve a triple bottom line of finance (Albertini, 2013) and developing the essential criteria for good environmental, social and corporate governance (ESG) in making investment decisions (Friede et al., 2015).Hence, finance students must understand ESC underlying sustainable development.

Many organizations and groups simultaneously proposed relevant declarations and norms. In 1987, the World Commission on Environment and Development (WCED), published the Brundtland Report, which contained guiding principles for sustainable development (Brundtland, 1987). These sustainable development goals were formalized by the United Nations (UN) in its 2030 Agenda, which included seventeen sustainable development goals (SDGs) with the aim of eradicating poverty, protecting the planet and promoting peace and prosperity for all (Desa,2016).

Subsequently, the European (EU) Commission published an Action Plan for financing sustainable growth that was intended to equip the financial sector and companies in the European Union with an appropriate policy framework of sustainable investment, to mitigate the impact of climate change, as well as integrate social and sustainability considerations into their investment and financing decisions, and to increase the transparency of long-term finance (European, 2018).

This trend also affected education, and it was emphasized in the United Nations Environmental Programme that"no institutions in modern society are better situated and more obliged to facilitate the transition to a sustainable future than colleges and universities" (Dave et al., 2014, p. 18). The UN Decade of Education for Sustainable Development (DESD) was focused on "the critical role of education in moving towards a more sustainable world" (Wals, 2014). Empirical researchers have recently shown the importance of successfully integrating sustainability in the curriculum (Painter et al., 2016), and attempting to integrate it management and business education (Rusinko, 2010). Therefore, more than 800 global universities have signed up to the UN Principles for Responsible Management Education (PRME) since 2007, which has made the PRME the largest sustainable development organization that connects higher education institutions and the United Nations (Haertle et al., 2017). As a result, sustainability has increasingly been embedded in the activities and courses of the business schools in all UN Member States, raising the image of sustainability in education around the world (Alcaraz et al., 2011).

In 2015, Thailand, along with 195 other countries in the United Nations, pledged to make the world a better place by bringing together their politics, enterprises, media, higher education institutions, and local NGOs to achieve the Sustainable

Development Goals (SDGs) by 2030 and to improve the living standards of their people. (Desa, 2016). Hence, students in Thailand must be developed their sustainability towards SDGs including international students. In the heart of South East Asia, Thailand has always been a famous country for international students to study, with the most significant number of Chinese students studying abroad. The population of Chinese students in Thailand has largely increased over the past few years, from 8,444 in 2011 (Jaroensubphayanont, 2014) to around 400,000 in 2016(Fernquest & Wangkiat, 2016), and endure to enlarge significantly (Chen et al., 2020). Due to the impact of COVID-19,nearly 13,000 international Chinese students were in Thailand in 2020, with over 5,000 studying at national universities and over 7,500 at private universities (Economic Base, 2020). Thus, this study intends to apply ESG to develop knowledge and ability of financial sustainability to international Chinese colleges students in Thailand.

1.2 Problem Statement

In recent years, a number of economic crises have been caused by mismanagement in the financial sector, which has led to financial sustainability becoming a critical concept in public management (Afonso & Jalles, 2015). At the same time, the financial crisis has triggered many reflections and several debates on the underlying assumptions of the main financial theories. The former concept of corporate governance based on profit maximization needed to change; therefore, companies began to think about their impact on society and the environment, leading to the notion of corporate social responsibility (Barber et al., 2014). It was in this context that companies and investors discovered that the adoption of a sustainability strategy could bring them better risk-adjusted returns (Vives & Wadhwa, 2012);

therefore, their mode of operation shifted from conventional shareholder-orientated management (Friedman, 1970) to sustainable business that takes account of all stakeholders(Freeman & McVea, 2001) and is focused on the reduction of externalities and the maximization of social value based on ESG (Xie et al., 2019).

This trend also affected university education and challenged the finance education teaching content of business schools. The idea of ESG is derived from corporate social responsibility (CSR) (Armstrong, 2020). The UN Global Compact mentions that corporate social responsibility (CSR) and sustainable development must be the driving force behind corporate and educational behaviour (Compact, 2007). As a result, to avoid future financial crises, it is important for business education to improve with the adoption of sustainability in the accounting and finance curriculum (de Lange, 2013), and contribute to the development of a sustainable society based on the reform of financial education (Stoner &Werner, 2015). Hira (2012) points out the significance of financial education recognizing the need to change the attitudes and values of long-term financial security. However, it is unfortunate that the current finance and accounting industry still emphasizes the concept of profit maximization. It represents that profit-driven capitalism still influences the global financial system, which limits the progress of a sustainable society (Oner, 2019). Hence, developing ESC course to enhanceconcept of sustainability to college students in finance is inevitable.

Despite the efforts of higher education to inform students of the importance of CSR, there is evidence that the maximization of profit is still a prominent component of the curriculum (Wymer & Rundle-thiele, 2017), whereas other important external factors, including the environment, public safety, labour issues, etc., are ignored. It is

essential that finance and accounting students are equipped with the knowledge, skills and positive attitude necessary to become future finance professionals (Set ó-Pamies & Papaoikonomou, 2016); yet, current research is sparse on the role of financial education in promoting sustainability(Oner, 2019). Finance programs are lagging behind other disciplines in the incorporation of sustainability concepts (Rascheet al., 2013) and the necessary materialsfor teaching sustainable finance are also relatively scarce (Starik et al., 2010). Developing ESG course is urgent in higher education to enhance knowledge capacity of sustainabilityto college students in finance and accountingtoward attainment of sustainable developmentgoals by UN.

Buathong and Lai (2019) conducted a comprehensive survey on sustainable activity development in Thailand. The results suggest that government and business sector efforts to promote sustainable activity practices in Thailand are insufficient and need to be extended to the education curriculum. The universities should become more entrepreneurial and contribute to society and the economy as well as to sustainable development in a changing external environment (Liu & van der Sijde, 2021). For the section on educational innovation, the 'Thailand 4.0 Blueprint' also presents a new approach. Most lecturers teaching in higher education institutions are trained to use traditional methods, and they must change their mindset and teaching methods to teach students adapting to new environments and challenges (Buasuwan, 2018). In China, the current global climate warming and political environment are conducive to the implementation of education policies for sustainable development(Han, 2015). objectives, it is important for China to be part of the global education trend and to promote the common prosperity of education in countries along the route(Paliszewska-Mojsiuk, 2019) and an increasing number of international

Chinese students have studied for their higher education in Thailand (Chen et al., 2020). Therefore, this study intends to build an ESG curriculum to improve the concept and knowledge of sustainability for Chinese college students majoring in finance in Thailand.

1.3 Research Objectives

Education is the best way to promote the practice of sustainability and reduce the risk of potential social, environmental and financial threats. Universities need to better understand and build on the needs of current and future generations to help sustainability professionals effectively promote sustainable social models, become leaders in sustainability(Lozano et al., 2020).Hira (2012) suggests that long-term financial sustainability should be at the heart of financial education and that teaching personal finance should reflect one's financial situation and be based on long-term values, rather than being limited to teaching mathematics and theory.

Therefore, the purpose of this study is to integrate ESG in the curriculum, examine the adjustment of undergraduate financial students using an educational intervention and propose an ESG curriculum model to develop the sustainability of international Chinese college students in the field of finance. This will entail achieving the following objectives:

A. To explore the learning outcomes of sustainability in the context of ESG in the programme of finance in higher education;
B. To integrate ESG in the curriculum of the financial programme for international Chinese college studentsin financein Thailand;

C. To determine whether or not international Chinese college students' outcomes of learning about sustainable finance were enhanced by the ESG intervention, compared with those are in the traditionalteaching of finance.

1.4 Research Questions

Based on these objectives, the research questions are as follows:

A. What are the learning outcomes of sustainable finance in the context of ESG in the programme of finance in higher education?

B. How can ESG be integrated into the curriculum of a finance programme for international Chinese college studentsin financein Thailand?

C. Are international Chinese college students' learning outcomes of sustainable finance enhanced by the ESG interventioncompared with those in the traditionalteaching of finance?

1.5 Significance of Research

1.5.1 Theoretical contribution

Brunstein et al. (2019) claim that reinforcing critical-reflective approaches in the teaching of finance enables new generations of students to better understand sustainable finance. Therefore, this teaching experiment is based on the integration of ESG teaching in a university financial statement analysis course, which is designed to enable students to think critically about involving sustainability in the learning process and to contribute to the development of sustainable teaching in finance education in universities.

In fact, sustainability and the financial system and two contradictory concepts (Lagoarde-Segot & Paranque, 2018). Traditional finance teaching teaches students to

pursue profit maximisation.Still, Malloch et al. (2013) believe that financiers and investors have neglected to invest ethically in their quest to maximize profit, and the only way to restore their ethical principles is to transform old thinking models. Therefore, this study is an attempt to incorporate ESG concepts in the professional finance curriculum and the results can be a useful reference for students in finance education to develop sustainable thinking.

1.5.2 Empirical contribution

Integrating sustainability into financial education will influence finance students' future career development as the concept of sustainability becomes an essential element of the financial industry (Oner, 2019).

There are studies that show that including the topic of sustainability in financial education affects students to reconfigure their way of thinking about sustainable finance (Brunstein et al., 2019).

Higher education institutions (HEIs) and practitioners should consider increasing students' specialisation in sustainable finance; for example, further specialization in financial sustainability indicators and international financial valuation methods. (Belinga & Morsing, 2020).

1.6 Research Ethics

In terms of participants' rights, particular care is taken in this study to ensure that consent to participate is voluntary and free of coercion and that the participants remain anonymous in the reporting of the research by concealing their names. If they felt uncomfortable during the fieldwork, they can stop at any time and withdraw from the study without having to explain why. Additionally, the Forum for Ethical Review Committee in Thailand (FERCIT) is applied to this study (Sueblinwong, et al., 2007),

which imposes an obligation on educational researchers to ensure that they take care in designing the research process to reduce errors, maintain the reliability of the results, inform participants about the study and maintain the integrity of the study and comply with the ethical principles of research.In this case, the purpose and process of the research were explained to the main participants, who are eighteen to twenty-one-year-old students, and they were asked whether or not they wished to take part. They were given a letter of informed consent to obtain their written agreement to participate in this research and confirm that they knew about its contents and purpose. If they agreed to take part, they had to provide the personal information requested, and sign the letter as an agreement after they had read the informed consent, and then return the letter to the researcher.

1.7 Structure of Thesis

A mixture of quantitative and qualitative methods is applied to this study due to its aim to systematically review and analyse several aspects, which include the nature of the learning outcomes of sustainable finance in the context of ESG in the programme of finance in higher education, how ESG can be integrated into the financial curriculum of international Chinese college students, how an ESG intervention in the course can develop the sustainable finance of international Chinese college students, and how the learning outcomes of sustainable finance of international Chinese college students are enhanced by this ESG intervention. The study consists of six chapters, as detailed below.

Chapter one consists of an overview of the study, with a brief introduction of the background of the research and the current status of the problem. This chapter

presents an explanation of the purpose of the study and the research questions and reviews empirical studies presented by previous scholars on related issues.

Chapter two is a comprehensive review of the relevant literature, which includes research in relation to teaching and learning that was previously introduced in this field of research to explain the ESG theory and sustainable finance. This chapter provides a further discussion of ESG fundamentals and research related to the development of sustainable finance, as well as other scholars' findings related to sustainable teaching in the educational field.

Chapter three consists of an outline of the method used to design and implement the course in this research, as well as the framework of the teaching experiment and the data collection, management and analysis procedures. The design, teaching materials and learning results of the main teaching course in this experiment are described in this section. The aim of the research is to integrate ESG content to the financial curriculum for international Chinese college students in Thailand. Hence, the experimental group intervened in the financial reports analysis course, which consisted of a total of 45 classhours over 15 weeks, while the control group received a non-interventional traditional financial reports analysis course during the same period of the class schedule. Before and after the intervention, both groups used CFA ESG samples as the question bank to select questions as before and after the tests. In addition, this chapter describes the pilot data collection and the analysis of the reliability and validity of the collected data for the project.

Chapter four contains an analysis of the data obtained from the teaching study. The results of the learning assessment indicate that the inclusion of ESG in financial

education is effective for Chinese students in Thailand. Feedback from the assignment is also used to understand students' views and opinions of sustainable finance.

The results of this teaching experiment are discussed in detail in Chapter 5. The purpose of the discussion is to explain and justify the importance of this research question as articulated through the results of the student learning assessment and to explain the implications of the questions in the study. This chapter illustrates the contribution of this pedagogical study to practice and shows the contribution of the research questions and the importance of this study to sustainable teaching and learning in the field of financial education.

The study is concluded in Chapter six with a further summary of the main results of the teaching experiment and an evaluation of the research questions. In addition, this chapter contains some suggestions for further research in this field and the development of sustainable finance courses for Chinese students in Thailand, and a reflection on the way the research was conducted.

CHAPTER 2
LITERATURE REVIEW

The aim of this study is to integrate ESG into the finance education curriculum in Thailand in order to develop Chinese international students' concept of sustainable finance. The theories that underpin the development of sustainable finance, ESG, the current state of development of ESG in finance education will be explored in this chapter, and the learning goals and outcomes of ESG.

2.1 Sustainable finance

The constant search for economic development has caused serious financial, social and environmental problems in the form of climate change, the depletion of natural resources, social inequity, underpayment, child labour, economic crises, unemployment, fiscal deficits, etc. (Schoenmaker & Schramade, 2018). While it is clear that sustainable development is essential to integrate the economy, natural resources and human well-being now and in the future, it is equally clear that the behaviour of companies and investors can take a leadership position in sustaining the climate and the global economy. This is because participants in the financial market have the ability to influence the corporate behaviour of management and individuals (Cosma et al., 2020), and the role of finance is fundamental to sustainable development because it focuses on profit maximisation and changes in shareholder wealth, and is concerned with environmental issues, a low-carbon economy and climate change (Ryszawska, 2016). In addition, sustainable finance should encourage investment in companies that focus on economic, social, and environmental issues, and by channeling private investment towards climate change mitigation, an economy that uses resources efficiently and equitably, and projects that contribute to the

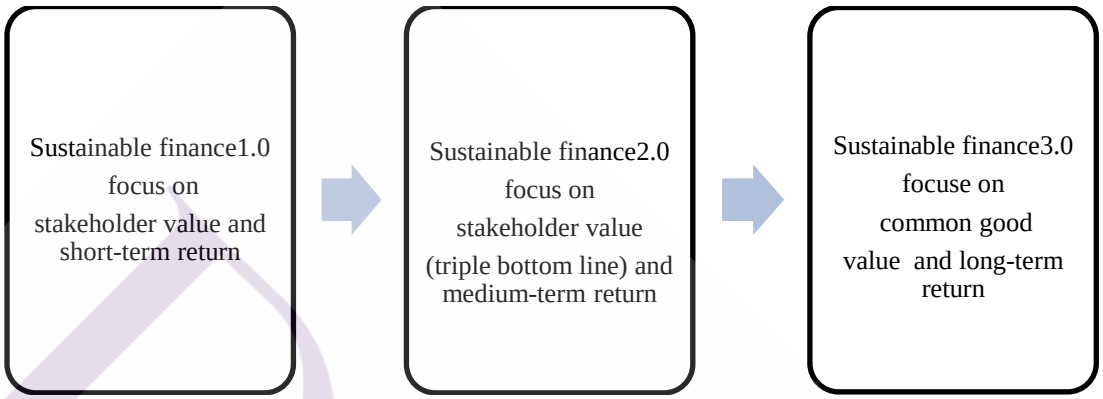
recovery of the boom in the midst of the impact of the COVID-19 pandemic(European Union, 2021). Maximising profit has been the main objective of corporations and investors for many years; hence, the European Commission recently announced a plan for sustainable finance based on the findings of a High-Level Expert Group (HLEG). This plan involved reorientating capital flows toward sustainable projects in order to change the investment culture and behaviour of all market participants (HLEG, 2018).

Schoenmaker (2018) observes that sustainable finance can be achieved in three stages, the first of which involves financial institutions avoiding the inclusion of so-called "sinful" companies in their portfolios, focusing on stakeholders' interests and regarding their impact on society and the environment as being more important than their financial value. In the second stage, financial institutions must take negative social and environmental externalities into account in their decision-making, in addition to increasing their stakeholders' benefits, this can also indirectly benefit society and the environment. Companies must care about their total value, which is the sum of their financial value and social and environmental impacts. Then, in the final stage, financial institutions must only invest in companies and projects that are related to sustainable development, encourage financial institutions and market participants to invest in long-term projects, actively choose investment projects that have a good environmental and social and impact. Sustainable finance should be focused on common good. Financial value should be deemed to be less important than the social and environmental impact. As shown in Figure 2, most studies report that businesses engaged in ESG investment show positive results, and the impact of ESG on corporate financial performance seems to be positive and stable (Friede et al.,

2015) because these businesses can apparently recover from crises faster (Ortiz-de-Mandojana & Bansal, 2016).

Figure 2.1

The three stages of our Sustainable Finance (SF)



Note. The three stages of Sustainable Finance. From "Principles of sustainable finance," by D. Schoenmaker and W. Schramade, 2018, *Principles of Sustainable Finance*, p. 20 (https://www.researchgate.net/profile/Dirk-schoenmaker/publication/330359025_Principles_of_Sustainable_Finance/links/5c3c3d1992851c22a3736593/Principles-of-Sustainable-Finance.pdf).

Since there is currently no common consensus in terms of a definition or concept of sustainable finance, international organisations tend to create their own grounded on its basic contents (IFC, 2017). The prevalence of vague definitions in the current field of sustainable finance has long been noted and, in the early days, ESG investment was described using loose terminology and confused concepts (Sparkes, 2001). Migliorelli (2021, p. 2) defines sustainable finance as "finance that supports a sector or activity that helps to achieve or improve at least one relevant sustainability dimension", and it can also be defined as caring about the triple bottom line, considering employees, customers, suppliers, the environment and society as a whole,

and creating long-term value for shareholders (Hauptmann, 2017). The European Union (EU) identifies sustainable finance to be the process of taking environmental, social and governance(ESG) considerations into account in investment decisions in the financial department, leading to longer-term investments in sustainable economic initiatives and projects(EU, 2021). Therefore, this study is based on the EU's definition of sustainable finance to conduct the relevant research.

Thailand's economic philosophy encourages prioritizing long-term sustainable development over short-term gains and has a long history of fiscal prudence, but relying on current fiscal buffers to finance foreseeable spending pressures is insufficient and unsustainable (Bogiatzis et al., 2018). In Thailand, where the economy is now actively moving towards sustainability. 'Thailand 4.0' is a policy-driven effort to build a sustainable Thai society by using a 20-year strategic plan to set incentives for knowledgeable and competent investors, marketers, and researchers to invest (Puncreobutr, 2017). Accordingly, ESG is one of goals for Thailand approach to sustainable development.

2.2 Environmental, Social and Governance (ESG)

2.2.1 Definition ofESG

The main concept of investors that has become more widely used in recent decades is that they are not only seeking a good rate of return on their investment, but they are also concerned about companies' contribution to environmental sustainability and the welfare of the community; in other words, the level at which sustainability is about supplying the needs of the present without damaging the resources of the future. (Brundtland et al., 1987). However, when large organisations tryintend to obtain value and maximise profit, they may use their dominance to reduce the benefits to society

(Santos, 2012). Therefore, investors and society demand that organisations be accountable to all their stakeholders (Adhikariparajuli et al., 2020) and they are expected to fulfil their corporate social responsibility by solving social and environmental problems to obtain social recognition (Dahan & Senol, 2012).

According to Carroll (1999), the conceptual framework of CSR consists of a combination of economic, legal, ethical and philanthropic responsibilities, and each industry has since developed criteria to assess the operations of companies to determine the extent to which they consider economic, social and environmental responsibilities in the exercise of corporate governance.Investments in such companies are known as socially responsible investments (SRI), it is a strategy used by investors who seek not only financial returns, but also social as well as environmental benefits. (Hirst, 2017). Socially responsible investors typically encourage good business practices, friendly working conditions, equal employment opportunities, fair wages and a focus on product safety. (Jackson, 2004), and avoid investing in so-called "sin industries", which include tobacco, liquor and gambling (Logue, 2009). The significance of investors' role in ESG criteria grows due to this diffusion of SRI and leads to sustainable development and a more sustainable economy (Escrig-Olmedo et al., 2013; Widyawati, 2019; Gutsche & Zwergel, 2020). The Forum for Sustainable and Responsible Investment (SIF) regards SRI in a broad sense as an investment process that includes the incorporation of ESG criteria into investment decisions in order to generate long-term positive social impact with competitive financial returns (SIF, 2010).The inclusion of ESG criteria in the SRI policy is partly evidence of more responsible investment decisions and sustainable finance, plus more sustainable development(Crifo et al., 2019).

The report entitled “Who Cares Wins” by the UN Global Compact Initiative in 2004 defined ESG as a regroup of the three main ethical financial pillars: environmental, social and governance (Compact, 2004). Practitioners, institutions and organisations in the finance industry were encouraged to prioritise ESG principles to ensure long-term asset viability (IFC, 2004). Morgan Stanley Capital International (MSCI) defines ESG investment (also known as sustainable investment and mission-related investment or screening) as the consideration of ESG factors alongside financial factors in the process of making an investment decision (MSCI, 2021). The CFA Institute has been promoting the consideration of ESG factors in the financial decision-making process and encouraging investors to take ESG data into account to gain a more comprehensive understanding of the subject company(CFA, 2021).

As can be seen from the above discussion, various types of investment practices have been referred to in the academic literature over the years and"environmental, social and governance" (ESG) investment has been given many different names, such as ethical investment, socially-responsible investment, sustainable investment, green investment, etc. (Eccles & Viviers, 2011). The United Nations launched the Principles for Responsible Investment (PRI) in 2006 in order to achieve a global financial system that is sustainable. Responsible investment was defined in the PRI as a strategy and practice to incorporate ESG factors into investment decisions and active ownership. This is the most commonly-used definition of ESG factors by far in various reports in relation to economic, social and environmental impacts.This is also applied to this study.

2.2.2 Theory of ESG

The concept of ESG is similar to that of ethical, corporate social responsibility (CSR) and socially-responsible investment (Armstrong, 2020). Unlike traditional investment, its aims are to ensure that investors receive stable returns over time and that ESG factors are taken into account in the investment decision-making process to reduce investment risk and increase returns. The three central ESG factors according to the PRI are shown in Table2.1.

Table 2.1

Main ESG issues of PRI

Environmental	Social	Governance
➢ Climate change	➢ human rights	➢ bribery and corruption
➢ Resource depletion	➢ modem slavery	➢ executive pay
➢ Waste	➢ child labour	➢ board diversity and structure
➢ Pollution	➢ working conditions	
➢ deforestation	➢ employee relations	➢ political lobbying and donations
		➢ tax strategy

Note. Examples of ESG issues. From "What is responsible investment?" by the Principles for Responsible Investment (PRI). (https://www.unpri.org/an-introduction-to-responsible-investment/what-is-responsible-investment/4780.article). Copyright 2006 by PRI Association.

The PRI claims that many investors consider short-term benefits, while ignoring the impact on the environment and society. Such investment behaviour is irresponsible. Therefore, in order to improve such behaviour and attitudes, the PRI

proposes an initiative based on a framework consisting of six principles for future investment (PRI Association, 2006), as follows:

Principle 1: We will incorporate ESG issues into investment analyses and decision-making processes.

Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.

Principle 3: We will seek the appropriate disclosure of ESG issues by the entities in which we invest.

Principle 4: We will promote the acceptance and implementation of the Principles in the investment industry.

Principle 5: We will work together to enhance our effectiveness in implementing the Principles.

Principle 6: We will each report our activities and progress toward implementing the Principles.

All the signatories of the PRI are committed to incorporating ESG issues into investment analyses and decision-making processes. Market participants' increasing scrutiny of ESG, a regulatory push for improved disclosure, and momentum generated by investors' commitment to the U.N.'s PRI have all contributed to the growth of ESG investment (Takeaways, 2019).

The previous studyshows that ESG of sustainability performance have impacts with corporate governance is the best predictor of medium to long-term equity returns and has a greater positive social impact on financial performance(De&Clayman, 2010). Taliento et al. (2019) conducted an original study on the financial importance of ESG information for junior companies listed in major European markets,finding social, environmental and governance responsibility appear to be important as a

competitive factor of the modern firm. Some academics found that high ESG scores were associated with high competitive advantage using 3,966 company-year observations of 661 companies listed on Bursa Malaysia from 2012-2017 (Mohammad & Wasiuzzaman, 2021). In additional, higher ESG transparency advances firm value (Yu et al., 2018). Alsayegh et al. (2020) positively analyzed the impact of ESG disclosure on corporate sustainability performance among Asian companies from 2005 to 2017 and found that ESG disclosure to all stakeholders can improve corporate sustainability performance creating a competitive advantage.So, the growth of socially responsible financial markets and the fact that investors are demanding more and more information has therefore led to research on sustainability and ESG being considered important. ESG theory suggests that for long-term stable growth, companies should integrate environmental, social and corporate governance into their development philosophy (Wang& Zhang,2020). The following three factors are explained below.

2.2.3 EnvironmentalFactors

All investment decisions depend on natural resources and related ecosystems (PRI Academy, 2021). Since climate change is causing the continued depletion of natural resources, investors must factor sustainability issues into their investment choices (IPE, 2009). Some of the chief areas to consider are climate, resource depletion, waste, pollution and deforestation. The Paris Agreement, a legally binding international treaty on climate change, was agreed upon by world leaders at the 21st Conference of the Parties (COP 21) in Paris, France, in 2015(OECD, 2020), which included a global framework to limit global warming to less than 2 ℃ and efforts to limit it to 1.5 ℃. to avoid the dangers of climate change.However, the average global

temperatures in 2020 indicated that it was hottest decade ever recorded on the planet (OECD, 2020). Hence, there is an urgent need for more countries and multilateral institutions to make significant financial pledges to control climate change.

2.2.4 SocialFactors

Social components include the management of the company's relationship with its employees, customers and suppliers. Some of the key areas are labor rights, underage workers, working conditions and employee relations, and other issues related to an equal working environment. Many companies are just beginning to realise that they have social civic responsibilities for the development of society (PRI Academy, 2021). If people from key groups feel that they are not being treated fairly or adequately, they may eventually opt out of the company's stakeholder system, and this result may also pose a threat to the survival of the company(Clarkson,1995). For example, 15,000 nurses took part in strikes across Northern Ireland demanding higher wages and more staff and nurses are also considering leaving the profession due to pressure caused by staffing shortages (On Labor, 2019). Furthermore, the media outcry over the disaster in Bangladesh when a sewing factory collapsed, killing more than a thousand workers, put pressure on the fashion industry (Ruth, 2018, September 14).

2.2.5 GovernanceFactors

Governance includes areas of investigation into the authority and responsibility of the company's management. Some of the key areas are the role of the board, bribery and corruption, executive remuneration, shareholders' rights, tax policy and corporate ethics.The success or failure of corporate governance has become one of the most important factors investors consider in today's complex global situation (PRI

Academy, 2021). Employees of Wells Fargo, the fourth largest bank in the United States, opened millions of savings and checking accounts in the names of actual customers without their knowledge or consent, eventually settling criminal and civil suits brought in connection with its fake account scandal with a fine of $3 billion(NBC, 2020). Facebook has again been caught on the back foot due to its poor data privacy practices and many headlines have eroded its reputation, perhaps irreparably (BBC, 2018). It is important to understand governance risks and opportunities in the decision-making process. Poor governance often leads to scandals that damage the corporate reputation.

2.2.6 ESG in Thailand

ESG is rapidly developing as a result of the United Nations 2030 Global Sustainable Development Goals (SDGs) agenda (United Nations General Assembly, 2015, p. 1) and the Paris Agreement in 2015 (Horowitz, 2016). In this context, the SDG landscape in Thailand has been established and has been incorporated into the 20-year national strategy (Sethakul & Utakrit, 2019). The Stock Exchange of Thailand (SET) has therefore adopted voluntary non-financial disclosure, Environmental, Social, and Governance (ESG), in 2015 to support stakeholder needs and corporate sustainability (Submitter et al., 2020). On accelerating sustainable development, in August 2021 the Sustainable Finance Initiative for Thailand was launched by Working Group on Sustainable Finance, which is comprised of the Office of Fiscal Policy, the Securities and Exchange Commission and the Bank of Thailand, which sets the direction and framework for enabling the financial sector to take ESG issues seriously in every decision making process and for sustainable finance (SET, 2021).

2.2.7 ESG in Higher Education

To nurture the growth and development of postgraduate and junior academics working in sustainable finance and investment, the Global Alliance for Sustainable Finance and Investment (GRASFI) was formed in 2017 by global research universities to align education systems with financial sustainability. In order to integrate research on sustainable development in financial economics and new technologies with the fields of education and innovation, the Stockholm Environment Institute and the Stockholm School of Economics have established the Stockholm Sustainable Finance Centre (SSFC) to integrate research from leading universities related to economics and financial markets. The Impact and Sustainable Finance Faculty Consortium (ISFFC) is a community of educators, who share and learn knowledge from and with each other in the realm of the impact of investment and sustainable finance, and many universities and colleges have also paid attention to related teaching research.

For example, Oxford University has established a Sustainable Finance Programme to take the lead in researching stranded assets and space finance, and its work includes many key areas of sustainable finance (Oxford Sustainable Finance Programme, 2021). Columbia University, Harvard University, and some universities of PRME members have successively offered courses related to sustainable finance so that students can develop the necessary knowledge and skills of sustainability and ESG issues. Jamil et al., (2019) learned about Islamic Accounting and Finance education sustainability from online surveys by graduates and demonstrated the importance of incorporating sustainability into the syllabus of Malaysian colleges. Other sustainability studies included data collected through three finance courses in

an undergraduate business administration programme at a private university in Brazil.The results showed that students have improved their knowledge of sustainable finance after their studies, but were sceptical about the practical application of the knowledge in financial work(Brunstein et al., 2019).

The charter of the US-based Chartered Financial Analyst (CFA) Institute is considered the highest standard in the field of investment analysis, and the CFA programme is a postgraduate professional certification programme offered by international investment professionals and financial industry organisations(Investopedia, 2021). As of April 2021, there were more than 170,000 CFA cardholders worldwide in 164 countries and regions, more than 257 U.S. universities were members of the University Affiliation Programme of the CFA Institute and more than 583 universities participated globally. The CFA Society United Kingdom (CFA UK) is part of the global network of member associations and is a professional membership organisation that promotes financial education and establishes the highest standards of ethics in the financial profession and represents 11,000 investment professionals in the UK (CFA UK, 2021). CFA UK makes the Certificate in ESG Investing and ESG courses available globally. The ESG Investment Certificate was developed in consultation with leading companies with the support of the PRI Investor Initiative and the ESG curriculum is extensive and covers all key elements of ESG investment. Mburayi and Wall (2018) suggested that accounting and finance programmes are lacking behind other developments in business colleges and that more study and further development is needed to incorporate sustainability into finance education.

2.2.8 The importance of ESG to Chinese international students in Thailand's higher education

To meet the needs of environmentally sustainable economic development and knowledge-based economies, an increasing number of countries are aware of the importance of global talent (Cai et al., 2019). Global talent is defined as international students or young researchers studying for a degree in other countries (Mok & Chan, 2020). As international students have socio-cultural and business-related knowledge and networks to their home and host countries, they can be an important link of trust between different countries and a participant in transnational creative ecosystems (Li, 2020).

The economic and trade relations between China and Thailand have become even closer since the implementation of the "One Belt, One Road" Initiative, with China now being Thailand's most influential trading partner, a main import source and an essential export market for Thailand(Liu & Xue, 2020). As a result, Chinese international students studying in Thailand through the integrated ESG curriculum will be able to become global talents for both China and Thailand after graduation, contributing to the sustainable financial aspects of both countries.

2.3. Learning Outcome of ESG

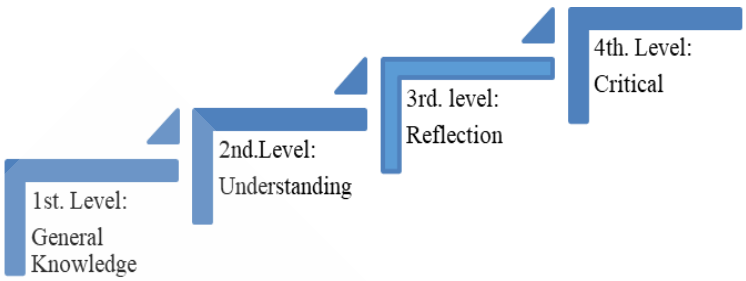
It is evident that the demand for businesses' sustainability practices and education will increase as the concept of sustainability becomes increasingly important; therefore, business colleges should integrate the ESG dimensions of sustainability education into their curricula (Rezaee & Homayoun, 2014). Studies of the importance of ethics, CSR and sustainability have also shown a trend toward developing sustainability-related courses (Christensen et al., 2007). As far as many of

today's students are concerned, in addition to traditional financial analyses, ESG factors have become a very important trend in the current financial market (Ascioglu & Maloney, 2019).

This trend of sustainability has spread from the business world to the educational world, and as a result, it has become increasingly important to integrate the learning objectives of the ESG into the goal setting of overall finance education. Higher education institutes wish to provide graduates with a good sense of citizenship, ethics and critical thinking (Calder & Dautremont-Smith, 2009). Lodhia (2010) proposes that, in addition to having a theoretical understanding of sustainability, students should apply the course content to real-world contexts. Mburayi and Wall (2018) suggest that learning outcomes can be assessed in terms of sustainable outcomes based on the knowledge, values, and beliefs of students. Brunstein et al (2019) propose that learning objectives be divided into four levels, as shown in Figure 2.2, and in terms of change incorporating sustainability, financial actions must accommodate the new regulations and procedures and think about how to redistribute the interests of shareholders with the resulting social and environmental targets.

Figure 2.2

Levels of critical reflection



Note. The four stages of learning to develop critical thinking. From "Sustainability in finance teaching: evaluating levels of reflection and transformative learning," by J. Brunstein, M. F. Sambiase, R. B. Kerr, C. Brunnquelland L. C. J. Perera,2019, *Social Responsibility Journal*., *16*(2), 179-197 (https://doi.org/10.1108/SRJ-07-2018-0164). Copyright 2019 by Emerald Publishing Limited

Belinga and Morsing (2020) interviewed 52 teachers from 39 universities in 2019 and 2020 and proposed the three kinds of lectures have different learning objectives; therefore, instructors should think about integrating the various types of lectures in the curriculum according to the different learning objectives. As can be seen in Table2.2, there are three types of lectures (survey lectures, technical lectures, and holistic lectures) that have individual learning objectives and challenges depending on the delivery style.

Survey lectures are mainly for beginners, since they introduce the first definitions and examples of sustainable finance in core courses. Their primary goals are to raise students' awareness and spark their interest. Technical lectures have three aspects, one of which is to emphasize the impact of sustainability issues on finance, so that students can try to adapt to ESG issues after mastering financial techniques. The second is materiality, which fosters a second type of technical class, which exposes

students to issues of measurement in sustainability, as well as companies' CSR or corporate sustainability reporting and the mastering ESG metrics. The third lecture focuses on financial instruments, during which students are taught how to apply relevant financial instruments to solve appropriate sustainability issues. The overall lectures focus on the conceptualisation of approaches and sustainability in other disciplines, and encourage students to develop relevant learning outcomes and enhance their knowledge of sustainable financial tools and interdisciplinary know-how.Education is an important tool to promote sustainability in people's minds (Wright & Horst, 2013). The main goal of this type class is not to search for the right answers; instead, students are required to adopt the framing of other disciplines' problematisation and think critically about the concept of sustainable finance.

These three types of lectures provide students with the basic concepts and learning skills to enable them to demonstrate critical views and the ability to apply sustainable financial concepts. This approach teaches them the concept of sustainable finance on a step by step basic which is similar to the level of critical reflection to learning of Brunstein et al. (2019), who believe that for change to include sustainability, financial operations must accommodate new regulations and processes and consider how to redesign the interests of shareholders on the grounds of engendering social and environmental goals.

Table 2.2

Learning goals and challenges per lecture type

Lecture Type	Description	Learning goals	Learning challenges
Survey	Introduce sustainable finance definitions, issues and strategies	Raise awareness	Spark future curiosity
Technical	**Financial techniques** Adapt financial analysis and calculus to sustainability	Learn the mechanics of materiality in finance	Cope with complexity and uncertainty
	Sustainability metrics Introduce and apply measurement techniques for sustainability	Learn the mechanics of measuring sustainability	
	Financial instruments Match sustainability issues withfinancial tools (e.g. asset classes)	Learn the mechanics of designing financial instruments and financial deals to solve sustainability issues	
Holistic	Interdisciplinary approach to sustainable finance	Learn different skilletsStir critical thinking	Adapt to different problematizations and framings

Note. Learning goals and challenges per lecture type. From "Teaching Sustainable Fin ance," by R. Belinga and M. Morsing, 2020. (https://www.hhs.se/contentassets/0442e 753dd9e45f6b3e0aa79c24b1126/teaching- sustainable-finance-2020_misum_rachelle-belinga_final2.pdf.). Copyright 2020 by the Stockholm School of Economics.

The participants in this research are junior students engaged in financial courses in the department of finance and accounting in Thailand. They already have finance-related knowledge, but they must also have critical thinking skills in sustainable finance in order to become the new generation of finance professionals. Therefore, three types of lectures are referred to in the synthesis of the above scholars' research (Belinga & Morsing, 2020) to set the learning goals. Students must be trained from the initial concept of sustainable finance to have the ability to apply the learning content andaccording to the learning goals of the lectures, the next step is to further design the learning outcomes of the programme to help finance students meet the needs and

public expectations of the workplace (Akimov et al., 2014). Therefore, the research refers to the learning outcomes of the ESG certificate course of the CFA Society United Kingdom (UK), which fulfils the thirteen learning outcomes (LO) of ESG, as shown in Table 2.3 below.

Table 2.3

Learning outcomes (LO) of ESG

The student will be able to:	
LO.1	Understand the context of the different methods of responsible investment, with particular consideration of ESG issues.
LO.2	Understand the underlying issues that constitute the factors within each ESG area.
LO.3	Understand the broader context of sustainability and global initiatives.
LO.4	Understand the relevance, size, scope, key drivers and challenges, and risks and opportunities of the ESG market.
LO.5	Understand environmental factors, systemic relationships, material impacts, mega trends and approaches to environmental analyses at country, sector, and company levels.
LO.6	Understand social factors, systemic relationships, material impacts and approaches to social analyses at country, sector and company levels.
LO.7	Understand governance factors, key characteristics, main models and material impacts.
LO.8	Understand engagement in stewardship.
LO.9	Understand ESG analysis, valuation and integration.
LO.10	Analyze the effect of ESG factors on industry, companies' performance and security valuation across a range of asset classes.
LO.11	Understand of ESG integrated portfolio construction and management.
LO.12	Apply a range of approaches to ESG analysis and integration across a range of asset classes.
LO.13	Understand of investment mandates, portfolio analytics and client reporting.

Note. The tables show the learning objectives of ESG. From "Certificate in ESG Investing V.2 Tested 1 October 2020." (https://www.cfauk.org/-

/media/files/pdf/pdf/1-study-with-us/esg/esg-syllabus-v22.pdf). Copyright 2020 by the CFA Society United Kingdom

The United Kingdom (UK) has made the greatest contribution to sustainable finance research at the international level and has issued the largest number of related publications (Purnomo et al., 2021). In this context, the UK's CFA Society has played an essential role in promoting the development of sustainable finance education.The CFA UK Certificate in ESG Investment is a level 4 qualification, which is the first of its kind in the UK to provide financial professionals that they have the knowledge and skills required to incorporate ESG factors into their investments, the difficulty of this qualification is equal to the first year of undergraduate degree study.At moment, the CFA Institute owned, administered and issued ESG investment certificates worldwide(CFA Society UK, 2021). The CFA Institute is a global association of investment professionals (Feeney, 2020). Recently, there has been a growing trend of collaboration between universities and the CFA Institute around the world. Partnerships have been established between universities and professional organizations in order to offer finance courses relevant to practitioners, which are expected to help students achieve better graduate employment and career outcomes (Akimov et al., 2014). The CFA programme has been adopted by universities including the University of Chicago, Harvard University, and Yale University, with others currently in the process of adoption (Terry & Vibhakar, 2006). Therefore, this study applies the CFA Institute's ESG Investment Certificate curriculum to train Chinese students in Thailand towardsglobal talents in the field of finance.

In summary, there are three types of lectures with different teaching objectives in order to develop students' concept of sustainable finance, from the knowledge of basic

ESG to understanding the content and then enable them to connect what they have learned to their personal experience, and finally to generate critical thinking and create new ideas. Hence, these thirteen learning outcomes are applied to in the experiment of this study. The instructional implementation of thirteen learning objectives is described in detail below.

LO.1: The concept of sustainability and related teaching is driven by the wider context(Sidiropoulos, 2014). Students acquire a broad understanding of sustainable finance by learning the basic terminology. The instructor explains the evolution of ethical and responsible investment to further elaborate the development of sustainable finance and help students to understand the current trends.

LO.2: The components of ESG are identified based on the PRI document(UN PRI, 2018). Students are provided with an understanding of the issues related to ESG factors and the importance of responsible investment.

LO.3: The future sustainability of the financial industry is critical and students must learn to change their financial mindset from the previous one of maximising the shareholders' wealth and the pursuit of short-term profit to one of long-term value for the company (Schoenmaker & Schramade, 2019). They must also begin to focus on sustainability issues and UN global initiatives.

LO.4: The trends in the ESG market are discussed. According to an analysis by Bloomberg Professional Services (2021), ESG assets have risen from an original US$22.8 trillion to US$30.6 trillion between 2016 and 2018 and are estimated to exceed US$53 trillion in 2025.

Also as market participants respond to ESG information, ESG markets help to reallocate resources to economic activities that reduce social inequities and generate

fewer environmental externalities (Scatigna et al., 2021). It is therefore important for students to know the importance of ESG markets and the factors that drive ESG with a view to gaining an appreciation of the role of investors and risk management in ESG issues.

LO.5: The current climate change is caused primarily by anthropogenic greenhouse gases, a phenomenon that can disrupt a company's production systems and supply chains, which may act its financial results (Jinga, 2021). enable students to understand the importance of current environmental factors, the content of the Paris climate agreement, and international carbon emission standards, students learn how to consider environmental factors in investment analysis from different perspectives.

LO.6: ESG disclosure and social sustainability offer several benefits, such as increased competitiveness, reduced financial risk, and improved corporate reputation and consumer trust (Bosse et al., 2009). Students can research and discuss cases, consider the impact of social factors on firms and discuss appropriate solutions.

LO.7: Corporate governance is about the creation, operation, and compensation of the board of directors, how to manage risk, and deal with shareholders' rights. Aggarwal (2013) suggests that a company's governance rating has a significant positive impact on financial performance. Students learn the importance of governance, the proper allocation of executive compensation, and the avoidance of bribery and corruption from a case study.

LO.8: A high level of shareholder engagement holds great promise for moving corporate management towards more responsible, long-term value creation (Katelouzou, 2019). Students are taught that investor engagement and stewardship

help to guide companies to look beyond revenue to relevant ESG issues and to understand current consumer feedback based on relevant investment forums.

LO.9: “ The orientation toward long-term responsible investing should be important for all kinds of rational investors and requires a detailed and profound understanding of how to integrate ESG criteria into investment processes in order to harvest the full potential of value-enhancing ESG factors.” (Friede et al., 2015, p.227). The purpose and objectives of incorporating ESG into the investment process of a company, the impact on a company's asset portfolio, and reports will enable students to understand how current international rating agencies evaluate companies’ performance of ESG.

LO.10: Asset managers are beginning to integrate ESG into their strategies, from screening-based exclusions to full integration into the security selection and portfolio construction process (Melas et al., 2017).Students will understand how portfolio managers use internal and external ESG research and analysis to make investment decisions and select targets through screening. They will learn about different screening methods and their benefits and limitations with a presentation.

LO.11: Asset managers believe that incorporating ESG factors into the investment process can provide better hedge against long-term risks and risks with high impact but low incidence(Briand et al., 2011). Different types of integrated ESG investments are assessed in terms of their main objectives, factors to consider and risks, and students are able to analyse the risks involved in different ESG investments.

LO.12: " The structure of an ESG portfolio depends on the investor’s goals"(Branch et al., 2019, p.2). Students learn how ESG is embedded in portfolios to

generate investment returns, and how to select ESG investment strategies. In small groups, they examine how different industries incorporate ESG into their portfolios.

LO.13: Different groups of investors may focus on very similar issues but hold very different views on a company's best policies (Alford, 2019). The type of ESG investment strategy selected is influenced by the different types of clients and objectives. Therefore, client objectives and strategic objectives are aligned and students simulate the provision of investment analysis to the client based on different industry categories in a final report.

2.4. Development of ESG Course in Finance Education

Finance professionals who are aware of the implications of sustainable finance always consider ESG. Therefore, academic finance has an important role to encourage and promote sustainable financial practices (Lagoarde-Segot & Paranque, 2017). It is important to include sustainability in the curriculum (Milne, 2001); therefore, business schools should try to incorporate sustainability in the undergraduate curriculum because the ability to design a sustainable business model can increase business efficiency and reduce costs (Persons, 2012). Nevertheless, despite the contribution of more financial research to refine the finance education system (As Diaz-Rainey et al., 2017), sustainable finance has not been notably incorporated in the curriculum compared with other sustainability-related concepts in business schools (Jun & Moon, 2021). In fact, it could be said that the teaching of financial sustainability has largely been ignored (William Swierczek & Jousse, 2014). The development of a framework to integrate sustainability in finance education may be affected by the lack of related research; hence, a growing number of higher education academic institutions are committed to sustainable finance education to fill this gap. Although the EU

understands the importance of financial education to sustainable finance, its financial education system still needs further development (Kaneko, 2020).

The demand for sustainability education is growing and individuals, companies, governments, and NGOs are increasingly involved in the pursuit of sustainable development goals and corporate objectives related to ESG (National Academies of Sciences, Engineering, and Medicine, 2020). The University's educational culture should encourage students to learn through experimentation and critical thinking from multiple perspectives and to pursue sustainable education and careers (Ramakrishna, 2021). Rezaee and Homayoun (2014) suggest that business schools and accounting programmes should incorporate the ESG dimensions of sustainability performance education into their curricula and group them into an integrated set of modules based on their relative importance or subject coverage into accounting and business programmes.

In order to develop and issue industry-specific accounting standards for use by US listed companies and their investors, the Sustainability Accounting Standards Board (SASB) was created in 2010 by financial professionals, accountants and sustainability academicsSASB provides a framework for reviewing corporate social responsibility and sustainability prompted by the ESG function. Haskin and Burke (2016) incorporate SASB's sustainability reporting information covering CSR and sustainability impact accounting for US financial reporting into the finance accounting curriculum.

Oldford et al. (2021) explored the current status and problems of incorporating ESG pedagogy in undergraduate finance courses in business schools and rapid integration of ESG pedagogy using Student Managed Investment Funds (SMIFs) to

meet industry demand for ESG skills and enhance student employability.In short, the teaching of finance must support businesses to embrace the economic, environmental and social factors of their operations and the impact on the businesses themselves and society(Sachs, 2015).

Since the launch of the UN PRI in 2006, sustainability has been gaining traction in the financial sector, with many financial institutions joining in. As a result, sustainability in the financial sector is gaining momentum. Many financial investment institutions are beginning to incorporate ESG issues into their investment decisions(Van Duuren et al., 2016). This study uses the ESG principles of the PRI to develop the curriculum. The pedagogical objectives are based on the three lecture types designed by Belinga and Morsing (2020), which set out shallow to deep learning objectives that ultimately stimulate critical thinking in finance students.The CFA Society UK ESG Investment Certificate syllabus is used as a reference for learning outcomes, as the course content and materials for the certificate have been developed by financial professionals and practitionersand are accredited by the PRI, and the content is equivalent to the undergraduate level.In terms of assessment, feedback from group or individual reports and unit response questions are used to observe changes in students' thinking about sustainable finance and the corresponding learning outcomes are examined through ESG learning assessments.The incorporation of sustainability into educational practice has made a significant contribution through case studies (Caiado et al, 2017), and so activities such as the Gigaton Project at Walmart, Samsung's sustainability programme and Apple's ESG policy are used to illustrate the current state of ESG implementation through case studies of well-known companies so that students can understand how companies are actively promoting it today.

Springett (2005) suggests that the best approach to bringing in the concept of sustainability in business is to debate different perspectives as a way to engage students' learning. During the course, the manager of ASUS Thailand was invited to explain to the students the changes that multinational companies need to make in the face of the sustainability trend, so that they could understand the importance of ESG from a corporate perspective.

2.5. Summary

Sustainable finance, ESG definitions, theories, learning goals, and the current state of development of ESG in finance education have been introduced in this chapter. Belinga and Morsing (2020) propose that there are three types of lectures for sustainable finance education, namely, survey, technical and holistic lectures, with learning goals that take students from a basic understanding, application, and ultimately to sustainable critical thinking based on the integration of 13 learning outcomes from ESG in finance courses to achieve the learning goals of sustainable finance. The current development of ESG in finance education is also illustrated by other scholars' research. Therefore, this study was designed to integrate ESG learning outcomes in a financial statement analysis course for teaching experiments to foster the knowledge of sustainable finance of international Chinese college students in Thailand.

CHAPTER 3

METHODOLOGY

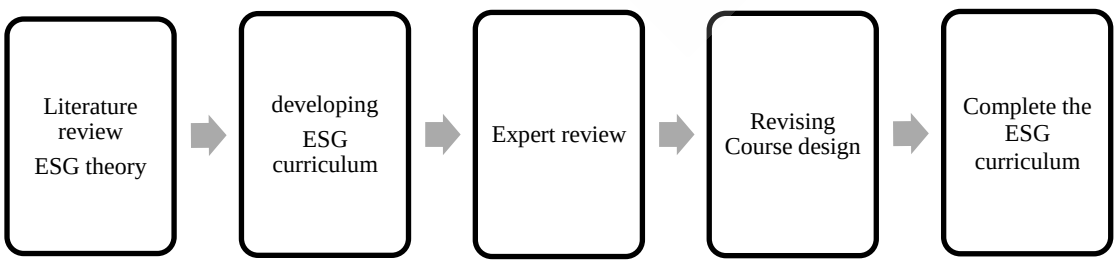
In Chapter 2, this study reviews the relevant sustainability-related literature to define ESG, sustainable finance and to explore the current state of higher education.This chapter first establishes the conceptual framework and the curriculum design process for this study, followed by a description of the student's background and the arrangement and content of each curriculum unit, pretest scales, experiments, pre-tests and post-tests, and finally, the data analysis methods.

3.1 Research Framework

Before the framework was established for this study, it was essential to complete the curriculum plan. The ESG theory of sustainable finance was first identified on the basis of the literature.The financial statement analysis course was integrated with the CFA UK Certificate syllabus and reviewed by five experts with experience in teaching finance. After the researcher received feedback from the five experts, the course content was revised and the finalized ESG curriculum was completed as shown in Figure 3.1.

Figure 3.1

ESG curriculum development

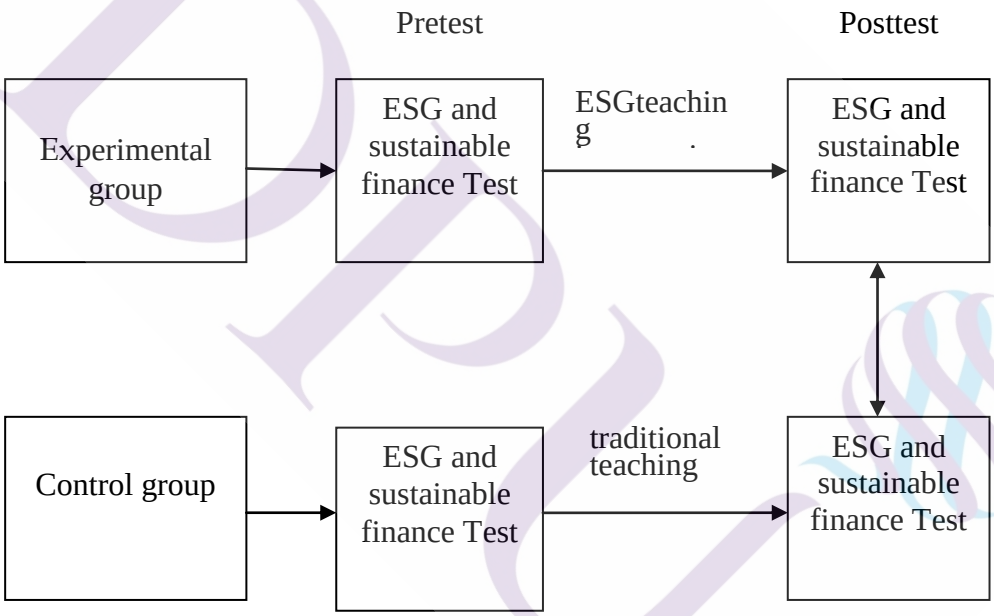


Note. This figure presents the development of ESG curriculum. Copyingright 2022 by this research.

After the ESG curriculum wascompleted, the next step was to determine the effectiveness of the ESG curriculum in developing sustainable finance for the students. The experimental group received learning interventions from the ESG curriculum while the control group was taught in a traditional manner. The following is the conceptual framework for the experimental study, as shown in Figure 3.2.

Figure 3.2

The framework of this research



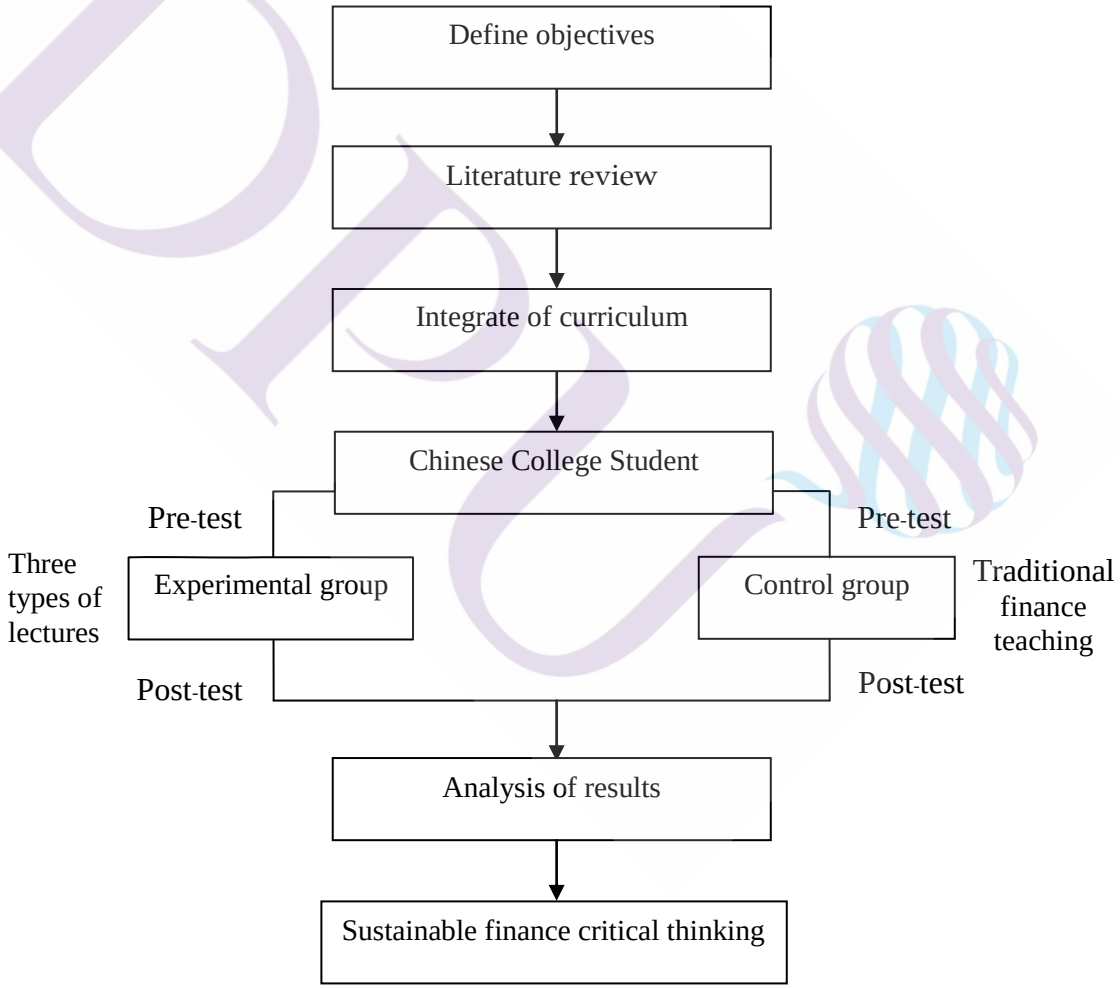
*Note.*This figure presrnts the framework of this research.

3.2 Research procedure

This part of the study or dissertation includes all research-related processes to be undertaken to achieve the objectives of the study and to offer some possible solutions to the problem. It provides a detailed description and complete information on the preparation of ESG curriculum arrangement and experiment implementation. The experimental arrangement for the study is shown in Figure 3.3

First, define the explanations and connections between sustainable finance and ESG, then use relevant literature to explore current global sustainable development issues, business investment, and education conditions, and then integrate ESG learning outcomes set by representative institutions into the curriculum and import ESG concept through relevant course activities, and finally analyze students' learning outcomes.

Figure 3.3
Research procedure



*Note.*This figure presents the research process.

3.3 Building ESG in Course of Finance

3.3.1 Pedagogy

Due to covid-19, this course is conducted in an online format. Total of 15 lessons, one lesson was 3 hours and divided into ten units. An active learning approach is used to guide students through the course, covering questions and answer, lectures, group discussion, homework assignments, and a case study. The course consists of ten learning assessments, including four group presentations, four individual homework assignments, and two group assignments. The first half of each unit is devoted to the analysis of financial statements, and the second half is devoted to ESG content related to the first half. This approach allows students to understand that in addition to financial statement figures, external ESG factors can be taken into account when analyzing earnings. To stimulate more learning outcomes in subsequent units, this study used online discussions and more group or individual homework requiring students to feedback on what they've learned from lectures and case studies. Students' learning experiences must develop the leadership capacity to be able to understand and address complex sustainability problems, ask critical questions, understand diverse perspectives, and find solutions (Burns, 2011).

3.3.2 How Student Learning Activity

Springett (2005) aims to broaden students' knowledge through a reflective, critical and other social action approach about their interest in sustainability. Gusc and van Veen-Dirks (2017) suggest the use of active learning through coursework to integrate sustainability, as sustainability learning is different from traditional learning strategies in accounting. Through discussions, case studies guest speakers, and written reports, the pedagogy enables students critically participate in sustainability at a

practical level and widen their view of the concept (Galindo-Manrique et al. 2020). An active learning approach was used in this study. First, students were grouped together and later discussed ESG-related topics presented in the course in class and reported their opinions orally. A question-and-answer format was also used in the classroom to allow students to present their views. In addition, company representatives were invited to give presentations on how ESG is practiced in their companies so that students could understand the importance of ESG in the current environment.

3.3.3 Assessment

In order to track the learning status of students in each course, students are required to submit their homework on the content of the teaching after the unit course. Knowing the notions and opinions of students will also help to revise the textbooks in the future. The final report also allows students to explain the company's financial status and ESG-related indicators in the form of an oral report to evaluate whether the company is worth investing in, and can evaluate whether students use ESG tools and related knowledge is reasonable and correct.

This course did not have a traditional final written exam; aspects of assessment were dependent on class participation and final oral presentation. The class participation was a case study; students were given real cases and answer a number of questions. They discuss stakeholder perspectives and reporting strategies that could have been undertaken and assess the effect abut ESG issues. About the final oral presentation, the group's presentations were for 20 minutes and they must evaluate the company's financial status based on the information in the financial statements, and added ESG analysis to assess the company's capital value. Finally, students were required to submit the final report on how they felt about sustainable finance.

According to the learning outcomes of design-related learning evaluations. This study applies the ESG investment sample papers of the CFA UK Level 4 Certificate (CFA UK, 2020) and filters questions related to the content of this teaching experiment as pre-test and post-test to investigate the effect of students' ESG learning before and after class. Observe students' ESG learning effects from the results of the pre-and post-test.

3.3.4 Course Design

The goal of this program of study is to provide finance education oriented toward finance sustainable so that students can interact with financial professionals or support their own sustainable careers. In this regard, faculty should consider integrating different lecture types in their courses, from survey lecture to advanced sustainability indicators lecture, so that students have comprehensive training and skill set in sustainable finance (Belinga & Morsing, 2020). Another common integration strategy is institutional sustainability certificate courses. These courses are geared towards sustainability professionals and finance professionals and are more attractive and less costly than modifying the core curriculum (Belinga & Morsing, 2020). The course is therefore designed from the ground up, from basic ESG concepts to how they will impact future markets, so that students understand the important role ESG will play in future investment analysis and can think critically about sustainability, the ESG course is designed to integrate the learning outcomes of the ESG curriculum of the CFA Society UK, a leading investment certificate institution, to achieve the three lectures objectives of the course.The ESG course syllabus was reviewed by five experts. Hence, the ESG course has been completed after the revision based on the experts' comments and feedback as shown in Table 3.1.

Table 3. 1

The ESG curriculum

Teaching topics	content	Activities	LO
Unit 1 The relationship between financial statement and ESG	● Introducing the basic concepts of the traditionalcompany's financial statement analysis ● What is ESG (environmental, social and governance) and how does ESG complement traditional financial analysis ● Socially Responsible Investment (SRI) and Principles for Responsible Investment (PRI)	● didactic teaching ● questions and answer ● group discussion	● LO.1 ● LO.2 ● LO.3
Unit2 Analyse the company's financial status and ESG factors	● Four analysis methods of financial statements ● Identify important ESG factors ● The impact of ESG issues on investment behaviour and sustainable development	● didactic teaching ● case study ● questions and answer	● LO.4
Unit3 Company evaluation and environmental factors	● Company evaluation ● The systemic relationships and activities between business and ecosystem ● How corporate and the investment industry can benefit from opportunities of environmental issues	● didactic teaching ● questions and answer ● group discussion	● LO.5
Unit4 Company operations and social factors	● Operating activity rate ● The systemic relationships and activities between business activities and social issues ● Assess the material impact of social issues on potential investment opportunities	● didactic teaching ● case study ● questions and answer	● LO.6
Unit5 Financial statement standardsand governance factors	● Basic assumptions and the quality of accounting information in the financial statements ● Corporate governance related reporting and transparency ● Financial integrity, capital allocation and business ethics	● didactic teaching ● case study ● questions and answer	● LO.7

Teaching topics	content	Activities	LO
Unit6 Asset Management and ESG Engagement	● Liquidity ratios (Cash coverage ratio, Current ratio, Quick ratio, Liquidity index) ● The purpose of investor engagement and stewardship ● Distinguish different types of range of asset classes	● didactic teaching ● invited guest speakers ● questions and answer	● LO.8
Unit7 Financial forecasting and ESG analysis integration	● Surplus forecast and sales plan ● Explain the aims and objectives of integrating ESG into a firm's investment process ● How ESG factors may affect security valuation across a range of asset classes	● didactic teaching ● questions and answer ● group discussion	● LO.9
Unit8 ESG Integrated Portfolio Construction & Management	● Asset management ability ● Introducing the different types of ESG screening ● The main indices and benchmarking approaches applicable to sustainable and ESG investing ● Evaluate different types of ESG investment, investment considerations and risks	● didactic teaching ● questions and answer ● group discussion	● LO.10 ● LO.11
Unit9 ESG Integrated Portfolio Construction & Management	● Profitability ratios ● How ESG screens can be embedded within investment portfolio to generate investment returns ● Defining the sustainable investment strategy ● The different client types and their objectives which influence the type of ESG investing strategy	● didactic teaching ● questions and answer ● group discussion	● LO.12 ● LO.13
Unit10 Finalpresentation	● Analyze financial statements ● Incorporate ESG factors into financial statement analysis ● Views on ESG issues and sustainable finance	● group discussion ● grouppresentation	● LO.11 ● LO.12 ● LO.13

*Note.*This table presents the ESG curriculum**.** Copyright 2022 by the author.

3.3.5 Expert Review

After the initial design of the course, the course needs relatively objective information, opinions, and insights from experts and scholars in related fields to make the course more complete. Therefore, when developing or reviewing a course, the consultation process may involve input from academic colleagues, institutional representatives and industry advisory committees, usually around five people(Sitlington & Coetzer, 2015). For this study, an expert panel was formed by two faculty members from the same university with at least two years of undergraduate financial education experience and three external faculty member with a doctoral degree with at least five years of financial education experience.Table 3.2 indicates the profiles of experts. For the evaluation process and analysis, the study conducted the first round of consultation through email and communication software distribution. Based on the results of the first round of consultation, a number of changes and additions have been made to the course.After the second round of consultation, the experts agreed on the course arrangement.

Table 3.2

Backgrounds of experts

Expert ID	Title	Departments and Institutes	Year of experience
Expert 1	Instructor	Finance and Accounting	2
Expert 2	Instructor	Finance and Accounting	2
Expert 3	Instructor	Business Administration (Degree Program of Finance)	7
Expert 4	Assistant Professor	Insurance and Finance	Over 10
Expert 5	Associate professor	Insurance and Finance	Over 10

3.4.7 Content Validity

Content validation, also known as expert confirmation, is carried out by a team of professionals or experts in the relevant field (Muslihah, 2017). In this study, the content validity ratio (CVR) proposed by Lawshe (1975) was used to measure the consensus among experts and using the quantitative method of the Likert 3 scale, which is '1' appropriate, '2' modified appropriately, '3' inappropriately. The CVR values were analysed using Microsoft Excel software and the answers '1' and '2' were considered relevant, while the answer '3' was not. The formula used is:

$$CVR = \frac{Ne}{N/2} - 1 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

'Ne' denotes the number of experts who gave relevant answers 1 and 2, 'N' denotes the total number of experts. According to Lawshe's criteria, five experts need to have a CVR of 0.99 for content validity in order to be retained (Lawshe, 1975). The results indicate that each of the experts in this study answered 1 and 2, resulting in a CVR of 1.00 (all accepted) as shown in Table 3.3

Table 3. 3

CVR calculation result for each indicator

Unit	Expert Selection			CVR	Result
	Appropriate	Modified appropriately	Inappropriately		
1	0	5	0	1.00	Accepted
2	4	1	0	1.00	Accepted
3	4	1	0	1.00	Accepted
4	2	3	0	1.00	Accepted
5	3	2	0	1.00	Accepted
6	3	2	0	1.00	Accepted
7	4	1	0	1.00	Accepted
8	2	3	0	1.00	Accepted
9	2	3	0	1.00	Accepted
10	3	2	0	1.00	Accepted

3.4 Experiment

The design of quasi-experiment with non-equivalent control groups was employed to this research. The intervention was designed to develop the concept of finance sustainable for international Chinese students studying at a private university in Bangkok, Thailand. This section details the experimental design, from intervention and measurement to analysis data.

3.4.1 Research Site

Thailand is one of the ten ASEAN countries located in the centre of the South East.In recent years, Thai higher education has undergone reforms, pursued excellence, increased the proportion of young people in higher education, and promoted Thailand 4.0 since 2017, which also proposes a new approach to education, but reforming its education is still a challenge. Therefore, for Thai Higher Education 4.0, a change in mindset and reform of teaching practices are very important. (Buasuwan, 2018). This study was conducted at a private university near Bangkok, the capital of Thailand where there are many international students, Cambodian, Japanese, Laotian, Myanmarese, Thai, and Vietnamese students, and so on, but most of whom are from China (Chen, 2018). The university has a dedicated China International College with four bachelor's degree programs (International Business, Finance and Accounting, Tourism Management, and Art and Design), with approximately 250 students currently enrolled in the Finance and Accounting programeach academic year. In total, there are about 580 Chinese international students in this program.

3.4.2 Participants

The experiment was conducted at a private university in Bangkok, Thailand, for students majoring in finance and accounting, and the experiment course was on

financial report analysis. There were two classes of students participating and the average age is between 19 and 21 years old, 58 of these students were assigned to the research intervention of ESG curriculum as the experimental class (EC). And the rest 50 were allocated to the control class (CC), they have learned professional knowledge in finance, but have not arranged ESG curriculum in the current learning process. There are 39 males and 19 females in the EC and 34 boys and 16 girls in the CC. In overall, the ratio of gender is 2.08:1, including 73 male and 35 female students.

3.4.3 Role of Researcher

The role of the researcher in this study was that of a teacher-researcher. The teacher-researcher allows the researcher to investigate the students' and their own assumptions about these roles (Maclean & Mohr, 1999). As a teacher, their power traditionally derives from their status as an adult, their preparation for their status as a teacher, and the ethics of their professional responsibilities. The teacher-researcher role makes it possible to conduct this empirical research more effectively. They direct the research in the classroom, but their research position allows them to investigate what they are evaluating while examining their hypotheses from the perspective of an informed practitioner as a researcher, and these power resources do not shift.

3.4.4 Intervention

The Financial Statement Analysis course integrates the ESG intervention for EC students in 15 three-hour sessions. In addition to the traditional financial statement analysis, the ESG component is added to the course content. Using the concept of a hierarchy of critical reflection as proposed by Brunstein et al. (2019), students move from basic ESG knowledge, understanding, and reflection to generating critical thinking reflections. These are supported through the three types of lectures including

survey, technical, holistic (Brunstein et al., 2019) and active learning skills such as question and answer, group discussions, group reports, and case-based learning and expression (Galindo-Manrique et al., 2020). In addition, business managers were invited to explain how ESG is currently being implemented in their companies so that students could understand how it works in practice. In contrast, the control class did not receive any intervention instructions. In terms of equivalent time scales and teaching content to the CC with the aim of parallel variance motivation, expectations and placebo effects to examine progress, the study used an active control group (Chen & Chang, 2021; Chen et al., 2020; Chen et al., 2017; Zhang et al., 2019). The teaching style of the control class was lecture-based and teacher-centered. Control classes also consisted of 15 lessons of 3 hours each. The instructional content was related to financial statement analysis, while the control class did not include ESG content.

3.4.5 Internal and External Validity

This experiment controlled the teachers' education, teaching experience, and teaching time that might interfere with the experimental effect so that EC and CC were equivalent (Childress, 1996). However, due to the online teaching method, the starting behaviors of the two groups were inevitably different from each other because they were not all equal. In order to ensure the experimental effect and to avoid external confounding variables from interfering with the experimental results and to minimize the degree of inequality between the groups, the control variables in this study were as shown in Table 3.4.In this study, the contents of the pre-test and post-test were the same. To avoid the situation that the memory of the pre-test interfered with the results of the post-test, the EC and CC were conducted simultaneously in the

post-test, and the order of the post-test questions was rearranged to avoid the affected by the pre-test to the experimental results.

The Internal validity refers to whether the research is designed, implemented and analysed in a way that provides the right results for the research questions (Andrade,2018). Accordingly, this study is to control target group, leaning objectives, teaching materials,teaching methods,teaching activities, teaching times, and assessment methods.

The external validity examines whether the results of a study can be extrapolated to other similar contexts or other target populations (Findley et al., 2021). Thus, this study will help other international Chinese students majoring in finance in Thailand to enhance the concept of sustainable finance.

Table 3.4

Comparison of two groups

Item	CC	EC
Leaning objectives	To develop students' knowledge and skills of financial statement analysis	To develop students' knowledge and skills of financial statement analysis with ESG approach to sustainability
Teaching materials	Handouts from the lecturer	Handouts from the lecturer
Teaching methods	Lecture-based	Lecture-based and active learning
Teaching activities	Presentation	Questions and answers Case study Special guest Presentation
Teachers	Researcher	Researcher
Evaluations	ESG learning assessment	ESG learning assessment
Lessons	15	15
Total hours	45	45

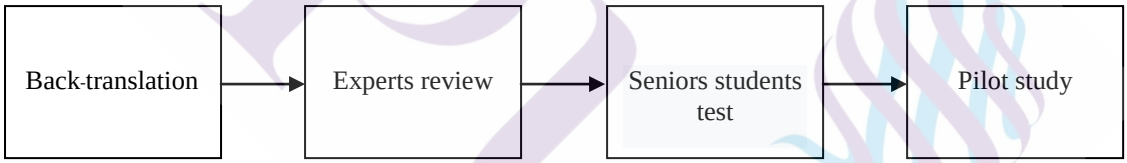
Note. This table presents a comparison of the two groups in courses.

3.4.6 Measurement

In this study, ESG learning assessment was used for pre-test and post-test. The questions were selected from the ESG investment sample paper of the CFA UK Certificate with a total of 100 questions, and 80 questions related to the content of the teaching units were selected. According to the back-translation approach proposed by Brislin (1970), the translation of the test questions was carried out by Google translate and then the English and Chinese versions were provided for the expert's review, and two senior students carried out grammar and semantic checks, followed by a pilot study, as shown in Figure 3.4. Based on the final expert's opinion and the results of the pilot study, the ESG learning assessment was 62 questions.

Figure 3.4

ESG learning assessment review process



Note.This figure presents ESG learning assessment review process.

3.4.6.1 Pre-test and Post-test

To examine ESG learning outcomes related to financial sustainability among international Chinese students in Thailand, this study applied ESG investment sample papers of CFA UK Level 4 Certificate to pre-tests and post-tests. The ESG learning outcomes were tested for the experimental and control groups in the first week of the course. The pre-test was administered on October 18 and 19, 2021, respectively. The test was administered online and lasted 60 minutes. In the control group, ESG-related

topics were not included in the teaching process, which was conducted in the traditional teaching method. The post-test was administered on December 5, 2021. At the end of the course, both the experimental group and the control group were given a post-test to observe the change in ESG learning outcomes between the two groups on the pre and post-tests.

3.4.6.2 Analytical method

This study includes a description of the quantitative procedures. It obtained a quantitative analysis of students' performance on the ESG learning assessment pre-test and post-test. The inferential statistics used in this study were based on a 95% confidence level and the display level is .05. Statistical analysis software SPSS was used for data analysis of the pre-test and post-test data. An independent samples t-test for homogeneity between the two groups was carried out to analyze the data before the educational intervention, and then a paired sample t-test was used to compare the results of the pre-test and post-test groups. Finally, the two groups were checked for significant differences by one-way analysis of covariance (ANCOVA).

3.5 Pilot Study

The pilot study was used to measure the appropriateness of ESG learning assessment questions as a pre and post-test to examine the effectiveness of ESG learning. As the CFA Institute's program is designed to value the knowledge and skills acquired by students (Akimov et al., 2014), holding a CFA certificate means being recognized as an expert in the field of finance (Terry & Vibhakar, 2006). The ESG learning assessment questions in this study were therefore selected from a sample ESG investment paper for the CFA UK Level 4 Certificate have validity and the pretestresults were analyzed by student problem (SP) chart analysis. A total of 34

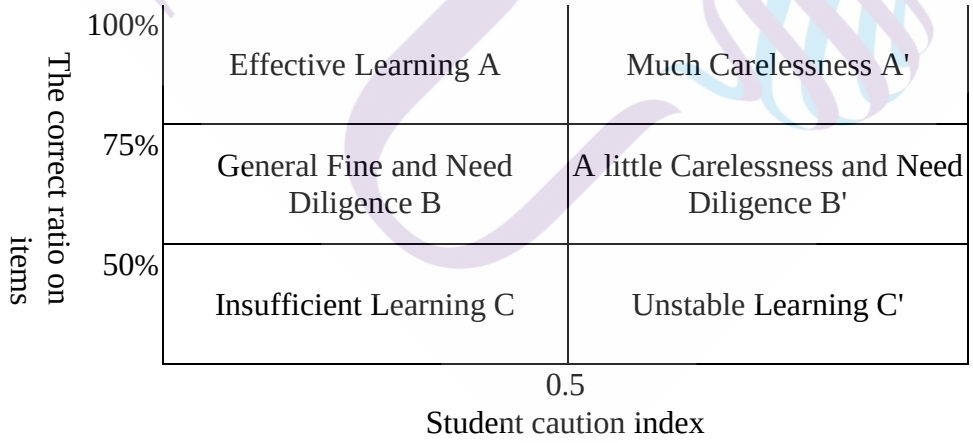
participants took the pilot study, which was administered online to graduating finance and accounting students.

3.5.1 Student-Problem (S-P) Chart Analysis

The SP was created by Japanese scholar Takahiro Sato in the 1970s. It is an assessment method that graphically represents the response pattern of students employing graphical analysis; its purpose is to obtain the diagnostic data of each student and the diagnostic information of the test analysis for subsequent remedial teaching or learning guidance measures (Yu, 2016). The S-P analysis classifies students into six learning styles, namely A, A', B, B', C, and C'. This is shown in Figure 3.5, these six learning styles represent different types of meaning(Chen et al., 2005).

Figure 3.5

Meaning of Six Classification for Students



*Note.*Meaning of Six Classification for Students. From "The Designand Implementation of a Diagnostic Test SystemBased on the Enhanced S-P Model," by D. J. Chen, A. F. Lai, and I. C. Liu, 2005, *Journal of Information Science and Engineering.*,*21*(5), pp.1007-1030(https://ir.nctu.edu.tw/bitstream/11536/13332/1/000232240100012.pdf).Copyright 2005 by the Science and Engineering Publishing Limited

A: These students perform well in examinations, have high levels of academic achievement, and have a high level of stability.

A': These students have almost good performance in the examination but gave incorrect answers due to carelessness.

B: These students have generally good stability but are not working hard enough.

B': These students have an average grasp of the concepts but sometimes make mistakes due to carelessness.

C: These students are poor learners with a low level of attainment and have not had a good foundation of learning and background knowledge in the past.

C': These students have a low level of stability and proficiency and give casual answers and guess blindly

Based on the results of pilot study conducted by 34 graduating senior international Chinese college students in Thailand. There were 2 students in Area B', 4 in Area C and 28 in Area C'. The correct answer rate and the caution index for student(CS) are shown in Table 3.5.This indicates that the majority of students do not have the basic concepts and knowledge of ESG, which means that ESG intervention in finance education is necessary.

Table 3.5

Student assessment results of the pilot study

Student	Total of correct	correct Ratio (%)	CS	Type	Student	Total of correct	correct Ratio (%)	CS	Type
1	17	21.25	0.67*	C'	18	23	28.75	0.80**	C'
2	25	31.25	0.45	C	19	22	27.5	0.69*	C'
3	21	26.25	0.98**	C'	20	34	42.5	0.62*	C'
4	28	35	0.83**	C'	21	24	30	0.59*	C'
5	24	30	0.54*	C'	22	22	27.5	0.56*	C'
6	19	3.75	0.35	C	23	23	28.75	0.61*	C'
7	19	23.75	0.63*	C'	24	22	27.5	0.56*	C'
8	25	1.25	0.52*	C'	25	19	23.75	0.55*	C'
9	27	33.75	0.32	C	26	28	35	0.70*	C'
10	26	32.5	0.67*	C'	27	30	37.5	0.58*	C'
11	23	28.75	0.82**	C'	28	28	35	0.58*	C'
12	19	23.75	0.52*	C'	29	21	26.25	0.85**	C'
13	19	23.75	0.91**	C'	30	25	31.25	0.75*	C'
14	20	25	0.42	C	31	19	23.75	0.66*	C'
15	42	52.5	0.52*	B'	32	15	18.75 '	0.72*	C'
16	41	51.25	0.89**	B'	33	21	26.25	0.85**	C'
17	20	25	0.82**	C'	34	20	25	0.74*	C'

Note. * CS > 0.5, ** CS > 0.75.The caution index for student(CS) greater than 0.5 indicates an abnormal answer, while a score of less than 0.5 indicates a normal answer.

3.5.2 Disparity Coefficient

The disparity coefficient is usually between 0 and 1 in common practical exam situations. A disparity coefficient that is either too large or too small is inappropriate, and most often 0.5 is used as the base criterion. According to Takahiro Sato (Sato, 1980) found that when the coefficient of variation is greater than 0.5, it means that the overall. The reason for this is that students may have misunderstood certain concepts or it may be due to the fact that the students are not able to understand the answer.

When the coefficient of variation is too small, especially when it is less than 0.4, it may be due to the fact that the questions are too simple, too difficult, or tend to be polarized. The results of the coefficient of variation are shown in Table 3.6

Table 3.6

The result of disparity coefficient

Test	Variance	Standard Deviation(SD)	Internal Consistency	Disparity Coefficient(DC)
Pilot Study	35.83	5.99	0.56	0.83*

*Note.** DC > 0.5

The disparity coefficient of 0.83 is greater than 0.5 in this study, which means that students may have misunderstood some concepts or could not understand the answers. This highlights the fact that ESG or sustainability concepts have not been effectively communicated to students in the previous traditional financial education curriculum.

3.5.3 Item Analysis

After collecting the pilot study and then analyzing the items, including Item difficulty and discrimination analysis. The difficulty analysis is based on the difficulty level of the test questions, with larger value indicates a less difficult question and a smaller value indicates a more difficult question. Discrimination analysis (Di) in the questions to distinguish the degree of high ability and low ability, Di value is generally bounded between 1 and -1, the larger of value mean the higher discriminatory power of the question, the smaller of value means the lower discriminatory power of the question. The results of the item analysis are shown in Table 3.7

Table 3.7

Item analysis

Items	Pass rate	Difficulty index	Di	Remark
1	61.765	0.5455	0.1818	Accepted
2	35.294	0.3182	0.0909	Accepted
3	32.353	0.2727	0.0000*	Accepted
4	61.765	0.5909	0.0909	Accepted
5	52.941	0.5909	0.2727	Accepted
6	29.412	0.2727	0.3636	Accepted
7	32.353	0.2727	0.1818	Accepted
8	38.235	0.4091	0.0909	Accepted
9	32.353	0.3636	0.5455	Accepted
10	26.471	0.2273	0.0909	Accepted
11	41.176	0.4545	0.3636	Accepted
12	41.176	0.4545	0.1818	Accepted
13	26.471	0.1818	0.0000*	False
14	8.824	0.0000	0.0000*	False
15	47.059	0.6818	-0.0909*	False
16	20.588	0.2727	0.5455	False
17	14.706	0.1364	-0.0909*	False
18	11.765	0.1364	0.0909	Accepted
19	47.059	0.4091	-0.0909*	False
20	20.588	0.2273	0.0909	Accepted
21	8.824	0.0909	0.1818	Accepted
22	38.235	0.4091	-0.0909*	Accepted
23	20.588	0.2273	0.4545	Accepted
24	17.647	0.2273	0.4545	Accepted
25	35.294	0.5000	0.6364	Accepted
26	32.353	0.3182	-0.0909*	False
27	38.235	0.3636	0.0000*	Accepted
28	20.588	0.1818	0.1818	Accepted
29	41.176	0.4545	0.5455	Accepted
30	52.941	0.6818	0.4545	Accepted
31	20.588	0.2727	-0.1818*	Accepted
32	44.118	0.3636	-0.1818*	False
33	26.471	0.2727	-0.1818*	False
34	20.588	0.2727	0.3636	Accepted
35	14.706	0.1364	0.0909	Accepted
36	14.706	0.0909	0.0000*	False
37	29.412	0.2727	0.1818	Accepted
38	29.412	0.2727	0.0000*	False
39	14.706	0.1364	0.0909	Accepted
40	26.471	0.2727	0.3636	Accepted
41	29.412	0.2273	0.2727	Accepted
42	50.000	0.5909	0.4545	Accepted

Items	Pass rate	Difficulty index	Di	Remark
43	23.529	0.2273	-0.0909*	False
44	38.235	0.3182	0.0909	Accepted
45	32.353	0.3636	0.1818	Accepted
46	14.706	0.0909	0.0000*	False
47	44.118	0.4545	0.3636	Accepted
48	35.294	0.3182	0.0909	Accepted
49	14.706	0.2273	0.4545	Accepted
50	41.176	0.4091	-0.0909*	Accepted
51	14.706	0.1364	0.0909	Accepted
52	52.941	0.5455	0.3636	Accepted
53	29.412	0.3182	0.2727	Accepted
54	26.471	0.2727	0.0000*	Accepted
55	23.529	0.2727	0.1818	Accepted
56	26.471	0.2273	0.0909	Accepted
57	35.294	0.4091	0.2727	Accepted
58	23.529	0.2273	0.2727	Accepted
59	17.647	0.1364	-0.0909*	False
60	50.000	0.5909	0.2727	Accepted
61	38.235	0.4091	-0.0909*	Accepted
62	26.471	0.3182	-0.0909*	Accepted
63	35.294	0.3636	0.0000*	Accepted
64	26.471	0.3182	-0.0909*	False
65	41.176	0.4091	-0.0909*	Accepted
66	26.471	0.2273	0.2727	Accepted
67	17.647	0.1818	0.1818	Accepted
68	20.588	0.2727	0.0000*	Accepted
69	35.294	0.4091	0.0909	Accepted
70	23.529	0.1818	0.0000*	Accepted
71	20.588	0.2273	0.2727	Accepted
72	26.471	0.2727	0.3636	Accepted
73	14.706	0.0909	0.1818	Accepted
74	14.706	0.0909	0.0000*	False
75	20.588	0.2273	-0.2727*	False
76	26.471	0.4091	0.2727	Accepted
77	58.824	0.6364	0.5455	Accepted
78	17.647	0.1818	0.3636	Accepted
79	14.706	0.1818	0.1818	False
80	26.471	0.1364	-0.0909*	Accepted

Note.*Di≥0

Since the students who participated in the pilot study have not undergone teaching experiments, they are prone to lack of discrimination when they do not understand the teaching materials. Among the 80 questions, there were 29 questions

(3,13,14,15,17,19,22,26,27,31,32,33,36,38,43,46,50,54,59,61,62,63,64,65,68,70,74,75 ,80) in which the degree of discrimination was less than or equal to zero. Thirteen questions of these questions (3,22,31,50,54, 59,61,62,63,65,68,70,80) are relevant to the teaching content and are therefore retained, while question 16 and the deleted questions (13,14,15) are deleted as a group and question 79 is deleted after expert advice. Therefore, this study decided to delete 18 questions after referring to the opinions of the expert group, item analysis, and lesson plans. Finally, the ESG learning assessment contains62 questions, which is applied to the main study.

3.5.3 Item ObjectiveConsistency

In order to test the consistency of the questions with the learning outcomes, item objective congruence (IOC) was used in this study.The Expert Judgment is the pragmatic approach to evaluating the content validity (Rovinelli & Hambleton, 1977). Based on this technique, five experts were asked to rate the alignment of the 62 test questions with the 13 learning outcomes. Each expert reviewed in each item, the experts were asked to determine the content validity score form1(this item really measured the attribute), 0 (not sure), or -1 (this item does not measure the attribute) with each goal. Berk (1984) used Rovinelli and Hambleton's equation to determine whether items and objectives were congruent. The equation is given below.

$$I_{ik} = \frac{(N-1)\sum_{j=1}^{n} X_{ijk-} \sum_{=1}^{Ni} \sum_{i=1}^{n} X_{ijk} + \sum_{i=1}^{n} X_{ijk}}{2(N-1)n} \ldots\ldots\ldots\ldots (2)$$

I_{ik}= The index of item-objective congruence for item k on objective i

N = The number of objective

n = The number of experts

$X_{ijk=}$ The rating of item k as a measure of objective i by experts j

Five experts mapped the questions to the learning outcomes based on the syllabus provided by CFA UK. The results are shown in Table 3.8

Table 3.8

Test Item and Objective Matching

Objectives	Items
LO.1	2,6,38,39
LO.2	5,12,13,20
LO.3	1,23,49,62
LO.4	31,41,54
LO.5	7,9,16,17,19,34,44,45,61
LO.6	18,21,28,33,43
LO.7	15,26,42,46,53,60
LO.8	3,10,40,48
LO.9	11,25,29,32,37,58
LO.10	4,8,27,35
LO.11	22,36,55
LO.12	24,30,50,52,56
LO.13	14,47,51,57,59

Note. This table presents the results of matching the questions with the learning outcomes.

An index score of 1 shows that all experts agree that these items access the objectives. Turner and Carlson (2003) claim that a five expert score a general acceptable value is a minimum of 0.75 if four of the five experts classified an item as hypothesized by the developer. Brown (2005) mentions that if the IOC is between 0.5 and 1.00, then the item is acceptable, but if IOC is below 0.5, then the item is not suitable and must be removed or reviewed. The IOC results are shown in Table 3.9.

Table 3.9

The result of IOC calculationg

Item	Objectives (Learning outcomes)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Q2	1.00												
Q6	0.88												
Q38	1.00												
Q29	0.88												
Q5		0.88											
Q12		0.88											
Q13		0.88											
Q20		0.78											
Q1			1.00										
Q23			1.00										
Q49			0.88										
Q62			0.88										
Q31				0.76									
Q41				1.00									
Q54				1.00									
Q7					1.00								
Q9					1.00								
Q16					1.00								
Q17					1.00								
Q19					1.00								
Q34					1.00								
Q44					1.00								
Q45					1.00								
Q61					1.00								
Q18						1.00							
Q21						1.00							
Q28						1.00							
Q33						1.00							
Q43						1.00							
Q15							1.00						
Q26							1.00						
Q42							1.00						
Q46							1.00						
Q53							1.00						
Q60							1.00						
Q3								0.88					
Q10								1.00					
Q40								1.00					
Q48								1.00					
Q11									1.00				

Item	Objectives (Learning outcomes)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Q25									1.00				
Q29									1.00				
Q32									1.00				
Q37									0.76				
Q58									1.00				
Q4										0.88			
Q8										1.00			
Q27										1.00			
Q35										0.88			
Q22											0.88		
Q36											0.88		
Q55											0.88		
Q24												1.00	
Q30												1.00	
Q50												1.00	
Q52												1.00	
Q56												1.00	
Q14													0.78
Q47													0.78
Q51													0.88
Q57													1.00
Q59													1.00

The results showed that 43 items resulted in an index value of 1, 14 items got 0.88, 3 were 0.78, and 2 items got 0.76. The index value of all the itmes was higher than 0.5 indicating acceptable.

CHAPTER 4

RESULTSOFTHESTUDY

Chapter 3 describes the methodology used to obtain data from research intervention of ESG course and learning assessment for quantitative analysis and presents the results in accordance with the aims of the study. In this work, the experimental group was trained on the ESG curriculum over 15 lessons, and a comparison of the pre-test and post-test was conducted between the experimental and control groups.In order to obtain further results, this study used an independent sample t-test, paired sample t-test, and one-way ANOVA to statistically analyze the data. Then, the learning outcomes and main findings were discussed.

4.1 Independent Sample T-test for ESG Curriculum on the Pre-test

4.1.1Descriptive Analysis

Two classes with a total of 108 students participated in this study. There were 58 of these students were assigned to the experimental class (EC) and the 50 were allocated to the control class (CC) as shown in Table 4.1.

Table 4.1

Descriptive analysis of the participants

Classes	Gender	*n*	Valid percentage
EC (n=58)	Male	39	67.25%
	Female	19	32.75%
CC (n=50)	Male	34	68%
	Female	16	32%

There were 39 male students and 19 females in the EC, and 34 males and 16 females in the CC.

According to the results of the descriptive analysis. The means of the two groups in the pre-test were the EC (*M* =32.53) and CC (*M* =24.80). And then, the means of the experimental group in the post-test was the EC (*M* =32.53), whereas the result of the mean of the control group in the post-test displayed the CC (*M* =24.80), andTable 4.2 shows that the experimental group had significantly higher item means in the post-test than the control group.This result further indicates that ESG curriculum had a significant effect on the experimental class.

Table 4.2

Descriptive analysis of two groups

Groups	*M*	*SD*	*n*
EC	32.52	3.983	58
CC	24.80	5.151	50
Overall	28.94	5.962	108

4.1.2The independent sample t-tests for the ESG curriculum pre-testing

Independent samples t-tests were applied to compare the means of two unrelated groups on the same continuous, dependent variable. To determine whether significant differences existed between the experimental and control groups in the pre-testing of the ESG curriculum, independent sample t-tests were used for data analysis, as shown in Tables 4.3.

Table 4.3

Summary of the independent sample t-tests for the ESG curriculum pre-testing

Classes	Tests	Mean	*SD*	*t*	*p*	Cohen's *d*
EC(n=58)	Pre-test	19.38	5.467	-.421	.675	.081
CC(n=50)	Pre-test	19.82	5.375			

Table 4.3 shows the results of the independent sample t-tests for the ESG sessions.

The mean of the pre-test results for the EC was 19.38 with an SD of 5.467, while the mean of the CC was 19.82 with an SD of 5.375.And there was no significant difference between the two groups,$t = -.421$, $p > 0.05$, Cohen's d=0.081.This result indicates that no significant difference existed between the pre-intervention experimental and control groups prior to the use of the ESG curriculum, thus meeting the requirement for homogeneity in the pre-test.

4.1.3The independent sample t-tests for the ESG curriculum post-testing

.Based on the results of the two groups of pre-tests, the next step was to analyse the post-tests by the independent sample t-testsThe results are presented in Table 4.4

Table 4.4

Summary of the independent sample t-tests for the ESG curriculum post-test

Groups	Tests	Mean	*SD*	*t*	*p*	Cohen's *d*
EC (n=58)	Post-test	32.52	3.983	8.606	.000	-1.693
CC (n=50)	Post-test	24.80	5.151			

Table 4.4 shows the results of the independent sample t-tests for the ESG curriculum post-test. The mean of the EC was 32.52, and the CC was 24.80,t=8.769, p<0.05, Cohen's d= -1.69. This indicates that the performance of the EC was better than the CC. This result can also be confirmed by the independent sample t-tests for post-test of ESG learning outcomes. The results are presented in Table 4.5

Table 4.5

Summary of the independent sample t-tests for post-test of ESG learning outcomes

Source	Group	Mean	*SD*	*t*	*p*	Cohen's *d*
LO.1	EC	2.36	.742	8.409	.000	-1.63
	CC	1.08	.829			
LO.2	EC	1.64	.742	-.817	.416	0.156
	CC	1.78	1.055			
LO.3	EC	2.91	.431	6.323	.000	-1.27
	CC	1.96	.989			
LO.4	EC	1.19	1.017	-.374	.709	0.07
	CC	1.26	.922			
LO.5	EC	4.67	.962	2.650	.010	-0.529
	CC	3.96	1.678			
LO.6	EC	2.88	.839	3.739	.000	-0.742
	CC	2.12	1.206			
LO.7	EC	2.88	1.077	6.121	.000	-1.183
	CC	1.60	1.088			
LO.8	EC	2.29	.973	3.788	.000	-0.725
	CC	1.60	.926			
LO.9	EC	3.45	1.111	5.957	.000	-1.155
	CC	2.14	1.161			
LO.10	EC	2.28	.696	3.030	.003	-0.601
	CC	1.80	.904			
LO.11	EC	1.72	.768	.948	.345	-0.178
	CC	1.58	.810			
LO.12	EC	1.40	.699	-.247	.806	0.044
	CC	1.44	1.110			
LO.13	EC	2.84	1.023	5.360	.000	-1.025
	CC	1.82	.962			

Table 4.5 shows a significant difference in post-test of ESG learning outcomes in LO.1, LO.3, LO.5, LO.6, LO.7,LO.8, LO.9,LO.10,and LO.13 ($p< 0.05$) but no significance for LO.2, LO.4, LO.11, and LO.12 ($p> 0.05$). This result indicates that 9 learning outcomes were significantly better than the control group, but 4 learning outcomes were not significant. Therefore, the EC's overall performance on ESG learning outcomes was better than the CC.

4.2Paired-sample T-test of two Groups

In order to better analyse whether there were statistically significant differences in the use of ESG learning assessments between the experimental and control groups before and after the ESG curriculum intervention, a paired sample t-test was used.It also known as the dependent sample test is one of the widely used statistical tools to analyze the difference of two paired samples, or the other words to test whether two paired samples are come from the populations which have the same characteristics or not (Suliyanto, 2014). A paired-sample t-test was performed to thoroughly analyse whether statistically significant differences existed in the use of ESG learning assessments between the experimental and control groups before and after the ESG curriculum intervention.

4.2.1 Paired-sample t-test for ESGLearning Assessment

Regarding the concepts of sustainable finance of international Chinese college students majoring in finance in Thailand, a paired-sample t-test was applied to examine the ESG learning assessment competence in the experimental group and the control group.The data are presented in Table 4.6.

Table 4.6

Results of the pre-test and post-test on the ESG learning assessment score to groups

Groups	Tests	*n*	Mean	*SD*	*t*	*p*	Cohen's *d*
EC	Pre-test	58	19.38	5.467	16.964	.000	2.747
	Post-test		32.52	3.983			
CC	Pre-test	50	19.82	5.375	6.521	.000	0.946
	Post-test		24.80	5.151			

Table 4.6 shows that both groups achievedsignificant progress ($p < 0.05$) in theoverall scores for ESG learning assessment, indicating that the students' results in the pre-test and post-test differedsignificantly. The results of the post-test were higher than those of the pre-test, but the experimental group obtained better results than the control group

4.2.2 Paired-Sample T-testof theExperimental Group for Learning Outcomes

The previous results showed that the mean of the ESG learning assessment in the experimental group was significantly higher than that of the control group in the post-test. Therefore, the 13 learning outcomes of the ESG curriculum were analysed for the experimental group. The ESG learning assessment questions were assigned to learning outcomes on the basis of the IOC results and paired-sample t-tests were conducted to compare the pre-test and post-test scores of the 13 learning outcomes in the experimental group. Table 4.7 shows the mean scores (*M*), number of participants per group (*n*), standard deviation (*SD*), *t*-values and *p*-values.

Table 4.7

Summary of the paired-sample t-tests on the experimental group for learning outcomes

Item	Tests	*n*	Mean	*SD*	*t*	*p*	Cohen's *d*
O.1	Pre-test	58	1.05	.759	9.245	.000	1.745
	Post-test	58	2.36	.742			
LO.2	Pre-test	58	1.34	.983	1.720	.091	0.344
	Post-test	58	1.64	.742			
LO.3	Pre-test	58	1.52	.922	11.148	.000	1.931
	Post-test	58	2.91	.431			
LO.4	Pre-test	58	.91	.864	1.488	.142	0.297
	Post-test	58	1.19	1.017			
LO.5	Pre-test	58	2.81	1.594	7.443	.000	1.413
	Post-test	58	4.67	.962			
LO.6	Pre-test	58	1.69	1.217	6.437	.000	1.139
	Post-test	58	2.88	.839			
LO.7	Pre-test	58	1.64	1.071	6.294	.000	1.155
	Post-test	58	2.88	1.077			
LO.8	Pre-test	58	1.48	.863	4.685	.000	0.881
	Post-test	58	2.29	.973			
LO.9	Pre-test	58	1.50	1.047	10.190	.000	1.807
	Post-test	58	3.45	1.111			
LO.10	Pre-test	58	1.34	1.052	6.321	.000	1.054
	Post-test	58	2.28	.696			
LO.11	Pre-test	58	1.21	.767	3.542	.001	0.767
	Post-test	58	1.72	.768			

Item	Tests	*n*	Mean	*SD*	*t*	*p*	Cohen's *d*
LO.12	Pre-test	58	1.10	1.003	1.738	.088	0.347
	Post-test	58	1.40	.699			
LO.13	Pre-test	58	1.78	.773	6.717	.000	1.169
	Post-test	58	2.84	1.023			

Table 4.7 shows a significant improvement in the experimental group interms of LO.1, LO.3, LO.5, LO.6, LO.7, LO.8, LO.9, LO.10, LO.11, and LO.13 ($p< 0.05$), but the improvement was not significant for LO.2, LO.4, and LO.12 ($p>0.05$). In addition, the result of the means of the experimental group inthe post-test was LO.1 (M =2.36), LO.2 (M =1.64), LO.3 (M =2.91), LO.4 (M =1.19), LO.5 (M =4.67), LO.6 (M =2.88), LO.7 (M =2.88), LO.8 (M =2.29), LO.9 (M =3.45), LO.10 (M =2.28), LO.11 (M =1.72), LO.12 (M =1.40) and LO.13 (M =2.84). The result of the mean of the experimental group in the pre-test wasLO.1 (M =1.05), LO.2 (M =1.34), LO.3 (M =1.52), LO.4 (M =.91), LO.5 (M = 2.81), LO.6 (M = 1.69), LO.7 (M = 1.64), LO.8 (M =1.48), LO.9 (M = 1.50), LO.10 (M =1.34), LO.11 (M =1.21), LO.12 (M = 1.10) and LO.13 (M = 1.78). This result shows thatthe mean of each learning outcome in the experimental group in thepost-test was significantly higher than that inthe pre-test. Moreover, the ESG curriculum had a significant effect on the experimental group.

4.2.3 Paired-sample t-testof theControl Group for Learning Outcomes

Paired-sample t-tests were also performed on the control groupdue to the significant difference between the pre-test and post-test results of the control group.The result is presented in Table 4.8.

Table 4.8

Summary of the paired-sample t-tests on the control group for learning outcomes

Item	Tests	*n*	Mean	*SD*	*t*	*p*	Cohen's *d*
LO.1	Pre-test	50	1.02	.820	-.425	.673	0.073
	Post-test	50	1.08	.829			
LO.2	Pre-test	50	1.26	.853	-2.736	.009	0.542
	Post-test	50	1.78	1.055			
LO.3	Pre-test	50	1.44	1.072	-2.676	.010	0.504
	Post-test	50	1.96	.989			
LO.4	Pre-test	50	1.02	.769	-1.661	.103	0.283
	Post-test	50	1.26	.922			
LO.5	Pre-test	50	3.32	1.544	-2.493	.016	0.397
	Post-test	50	3.96	1.678			
LO.6	Pre-test	50	1.48	1.129	-3.084	.003	0.548
	Post-test	50	2.12	1.206			
LO.7	Pre-test	50	1.60	1.069	.000	1.000	0.000
	Post-test	50	1.60	1.088			
LO.8	Pre-test	50	1.44	.812	-1.135	.262	0.184
	Post-test	50	1.60	.926			
LO.9	Pre-test	50	1.86	1.414	-1.358	.181	0.216
	Post-test	50	2.14	1.161			
LO.10	Pre-test	50	1.52	1.074	-1.494	.142	0.282
	Post-test	50	1.80	.904			
LO.11	Pre-test	50	1.18	.896	-2.746	.008	0.468
	Post-test	50	1.58	.810			
LO.12	Pre-test	50	1.26	.777	-1.119	.269	0.188
	Post-test	50	1.44	1.110			
LO.13	Pre-test	50	1.42	.928	-2.186	.034	0.423
	Post-test	50	1.82	.962			

Table 4.8 shows a significant difference in the control group inLO.2, LO.3, LO.5, LO.6, LO.11, and LO.13 ($p< 0.05$), but not in LO.1, LO.4, LO.7,LO.8,LO.9,LO.10,

and LO.12 ($p > 0.05$).However, the result of the experimental group presents better significant performance in 10 learning outcomes than those 6 in the control group. In overall, the EC showed better learning outcome than the CC.

4.3 ANCOVA of ESG Learning Assessment in thetwo Groups

One-way analysis of covariance (ANCOVA) that was applied to explore whether the ESG learning assessments in the experimental and control groups reached significant levels in the post-test. The pre-test of the ESG learning assessments was used as the control variable for the two pre-test groups. ANCOVA was conducted based on ESG learning assessment as the dependent variable in the post-test and the group as the univariate.

4.3.1 ANCOVA analysis about ESG learning assessment of two groups

Prior to conducting the one-way ANCOVA, the within-group regression coefficients were checked for homogeneity assumptions on the basis of the assumptions of the ANCOVA analysis. Therefore, aregression coefficient homogeneity test was carried out, and the results for the intra-group and pre-test were (F=3.182, p=0.077>0.05), which is consistent with the basic assumption of intra-group regression coefficient homogeneity. The results of the covariate analysis for ESG curriculum, that is, the difference between the experimental and control groupsin thepost-test after excluding the effect of the pre-test, are shown in Table 4.9.

Table 4.9

Summary of One-way ANCOVA of ESG learning assessment

	ESG learning assessment				
Source	*SS*	*df*	*MS*	*F*	*p*
Pre-test	292.909	1	292.909	16.089	.000
Groups	1652.880	1	1652.880	90.790	.000
Error	1911.574	105	18.205		
Total	94284.000	108			

Table 4.9 presentsthe results of the one-way ANCOVA for ESG learning assessment. With regard tothe homogeneity of the regression coefficients in the initial test group, no significant difference was found between the experimental and control groups. The pre-test result was (F=3.182,p=0.077>0.05), indicating that the effect of the two groups on the post-test was not significant after controlling for the pre-test. The final analysis of the covariates related to ESG learning assessment indicated that the experimental group performed significantly better than the control group inthe post-test.For the adjusted means of two groups were shown in table 4.10.

Table 4.10

Adjusted means of two groups

Groups	Adj.*M*	*SD*	*n*
EC	32.580	.560	58
CC	24.727	.604	50

Table 4.10 shows the adjusted means of the two group inthe post-test. The adjusted mean inthe post-test for the experimental group was (M=32.580), andthe adjusted mean inthe post-test for the control group was (M=24.727). The adjusted mean of ESG

learning assessment inthe post-test was significantly higher for the experimental group than for the control group.Accordingly, the performance of the EC showed better than the CC.

4.3.2 ANCOVA of ESG Learning Outcomes

To understand the changes in ESG learning outcomes between the pre-test and post-test and determine whether differences existed between the experimental and control groups, aregression coefficient homogeneity test was conducted before ANCOVA analysis ofESG learning outcomes. Asummary of the testing of the homogeneity of ESG learning outcomes is presented in Table 4.11.

Table 4.11

Test for the homogeneity of ESG learning outcomes

Source	Source	*SS*	*df*	*MS*	*t*	*p*
LO1	Covariate	1.516	1	1.516	2.518	.116
	Error	62.628	104	.602		
LO2	Covariate	.264	1	.264	.321	.572
	Error	85.545	104	.823		
LO3	Covariate	.024	1	.024	.044	.835
	Error	57.610	104	.554		
LO4	Covariate	3.944	1	3.944	4.255	.042
	Error	96.400	104	.927		
LO5	Covariate	12.008	1	12.008	7.263	.008
	Error	171.938	104	1.653		
LO6	Covariate	.885	1	.885	.853	.358
	Error	107.842	104	1.037		

Source	Source	*SS*	*df*	*MS*	*t*	*p*
LO7	Covariate	.736	1	.736	.625	.431
	Error	122.337	104	1.176		
LO8	Covariate	3.307	1	3.307	3.783	.054
	Error	90.914	104	.874		
LO9	Covariate	1.681	1	1.681	1.381	.243
	Error	126.619	104	1.217		
LO10	Covariate	.101	1	.101	.160	.690
	Error	65.682	104	.632		
LO11	Covariate	1.616	1	1.616	2.657	.106
	Error	63.252	104	.608		
LO12	Covariate	5.378	1	5.378	6.828	.010
	Error	81.911	104	.788		
LO13	Covariate	.121	1	.121	.121	.728
	Error	104.072	104	1.001		

Table 4.11 shows the result of the test onthe homogeneity of the ESG learning outcomes of the two groups. The results were as follows: LO.1 (F=2.518, p =0.116>0.05), LO.2 (F=.321, p=0.572>0.05), LO.3 (F=.044, p=0.835>0.05), LO.4 (F=4.255, p=0.042<0.05), LO.5 (F=7.263, p = 0.008<0.05), LO.6 (F=.853, p=0.358>0.05),LO.7 (F=.625,p=0.431>0.05),LO.8 (F=3.783, p=0.054>0.05),LO.9 (F=1.381, p=0.243>0.05), LO.10 (F=.160, p=0.690>0.05),LO.11 (F=2.657, p=0.106>0.05),LO.12 (F=6.828,p=0.010<0.05) and LO.13 (F=.121,p=0.728>0.05). The data analysis shown above indicates that except for LO.4, LO.5, and LO.12, the two groups wereequally affected by the covariance (pre-test), which is consistent with

the basic assumption of homogeneity of intra-group regression coefficients. Therefore, LO.4, LO.5, and LO.12 are not discussed here,but acovariance analysis wasconducted for the remaining learning outcomes.

The next step was to conduct one-way ANCOVA on the learning outcomes to determine statistically significant differences between the experimental and control groups inthe post-test of the control pre-test. Table 4.12 shows the results of the ANCOVA of learning outcomes.

Table 4.12

Summary of one-way ANCOVA of ESG learning outcomes

Source	Source	*SS*	*df*	*MS*	*F*	*p*
	Covariate	.932	1	.932	1.526	.219
LO.1	Group	43.859	1	43.859	71.794	.000
	Error	64.144	105	.611		
	Covariate	.168	1	.168	.205	.652
LO.2	Group	.513	1	.513	.628	.430
	Error	85.809	105	.817		
	Covariate	.855	1	.855	1.558	.215
LO.3	Group	24.035	1	24.035	43.788	.000
	Error	57.634	105	.549		
	Covariate	2.709	1	2.709	2.616	.109
LO.6	Group	14.228	1	14.228	13.740	.000
	Error	108.726	105	1.035		
	Covariate	1.083	1	1.083	.924	.339
LO.7	Group	43.687	1	43.687	37.272	.000
	Error	123.072	105	1.172		

Source	Source	*SS*	*df*	*MS*	*F*	*p*
	Covariate	1.797	1	1.797	2.002	.160
LO.8	Group	12.646	1	12.646	14.092	.000
	Error	94.221	105	.897		
	Covariate	8.065	1	8.065	6.600	.012
LO.9	Group	50.704	1	50.704	41.496	.000
	Error	128.300	105	1.222	41.496	
	Covariate	1.803	1	1.803	2.878	.093
LO.10	Group	6.597	1	6.597	10.530	.002
	Error	65.783	105	.627		
	Covariate	.898	1	.898	1.453	.231
LO.11	Group	.535	1	.535	.866	.354
	Error	64.868	105	.618		
	Covariate	.790	1	.790	.796	.374
LO.13	Group	25.123	1	25.123	25.318	.000
	Error	104.193	105	.992		

The results of the covariate analysis also indicated that with the exception of LO.2 and LO11, the two post-test groups had a significant effect on performance in the other learning outcomes, namely,LO.1 [F (1,105) = 71.794,p < 0.01], LO.2 [F (1,105) =.628, p > 0.01], LO.3 [F (1,105) =43.788, p< 0.01], LO.6 [F(1,105) = 13.740, p<0.01], LO.7 [F(1,105) = 37.272, p<0.01], LO.8 [F(1,105) = 14.092, p<0.01], LO.9 [F(1,105) = 41.496,p<0.01],LO.10 [F(1,105) = 10.530,p<0.01],LO.11 [F(1,105) = .866, p>0.01] and LO.13 [F(1,105) = 25.318, p<0.01], indicating that the score for the experimental group'spost-test of ESG learning outcomes

(LO.1,LO.3,LO.6,LO.7,LO.8,LO.9,LO.10, and LO.13) was significantly higher thanthat for the control group. Table 4.13 shows the mean of the ESG learning outcomes in thepost-test.

Table 4.13

Mean of ESG learning outcomes

Group	LO.1	LO.2	LO.3	LO.6	LO.7	LO.8	LO.9	LO.10	LO.11	LO.12
EG	2.36	1.64	2.91	2.88	2.88	2.29	3.45	2.28	1.72	2.84
CG	1.08	1.78	1.96	2.12	1.60	1.60	2.14	1.80	1.58	1.82

Table 4.13 shows the mean of the ESG learning outcomes in thepost-test. The result of the means of the experimental group inthe post-test was LO.1 (*M* = 2.36), LO.2 (*M* = 1.64), LO.3 (*M* = 2.91), LO.6 (*M* = 2.88), LO.7 (*M* = 2.88), LO.8 (*M* = 2.29), LO.9 (*M* = 3.45), LO.10 (*M* = 2.28), LO.11 (*M* = 1.72) and LO.13 (*M* = 2.84), andthe result of the mean of the control group inthe post-test displayed LO.1 (*M* = 1.08), LO.2 (*M* = v 1.78), LO.3 (*M* =1.96), LO.6 (*M* =2.12), LO.7 (*M* =1.60), LO.8 (*M* =1.60), LO.9 (*M* =v 2.14), LO.10 (*M* =1.80), LO.11 (*M* =1.58) and LO.13 (*M* =1.82). The mean of each item in the experimental group in thepost-test was significantly higher than that inthe control group.

4.4 Summary

This study examined the use of ESG curriculum interventions to enhance the concept of sustainable finance of international Chinese college students majoring in finance in Thailand. Meaningful and valuable findings were obtained through quantitative research. Data analysis showed that the ESG curriculum is more effective

than traditional teaching in improving the learning outcomes of sustainable finance. In terms of learning outcomes, LO.2 and LO.11 showed that the ESG curriculum isnot significantly more effective than traditional teaching, but LO.1 (*Understand the context of different approaches to Responsible Investment and specifically consider ESG factors*)., LO.3 (*Understand the broader context of sustainability and global initiatives*), LO6 (*Understand social factors, systemic relationships, material impacts and approaches to social analyses at country, sector and company levels*), LO.7 (*Understand governance factors, key characteristics, main models and material impacts*), LO.8 (*Understand engagement in stewardship*), LO.9 (*Understand ESG analysis, valuation and integration*), LO.10 (*Analyze the effect of ESG factors on industry, companies' performance and security valuation across a range of asset classes*) and LO.13 (*Understand of investment mandates, portfolio analytics and client reporting*)hadhigher post-test scores than pre-test scores. The results of the survey revealedthat international Chinese university students majoring infinance in Thailand have received 45 hours of ESG curriculum. They have an improved concept of sustainable finance.

CHAPTER 5

DISCUSSION

A quasi-experimental design was used in this study to integrate ESG into the curriculum in order to effectively enhance the concept of sustainable finance of international Chinese college students majoring in finance in Thailand. This chapter discusses the research objectives and issues in Chapter 1 in light of the findings and compares them with the findings of previous related literature. Some suggestions are also made for application to the teaching of sustainable finance in the future.

5.1 Discussion of the learning outcomes of sustainability in the context of ESG in the programme of finance in higher education

The first question was what are the learning outcomes of sustainable finance in the context of ESG in the programme of finance in higher education? Schoenmake and Schramade (2018) point out that sustainable finance is focused on how finance interacts with the economy, society and the environment. Finance education has also shifted from traditional profit-maximising teaching content to the current promotion of Sustainable Finance 3.0, which seeks to invest and operate in the medium- to- long term based on a mindset of sustainable finance. However, the topic of ESG in the financial sector is still in the development stage (Murray, 2020). Traditional teaching has limited coverage of ESG topics and is slow to adapt to the sector, but the need for ESG skills in the sector can be met by non-traditional teaching (Oldford et al., 2021). Therefore, diversifying and integrating existing courses is an effective way to enhance students' concept of financial sustainability.

Calling for more finance courses to be sustainable, Mburayi and Wall (2018) evaluated the effectiveness of various approaches with a view to cultivating leaders for the finance industry. This study was based on the content of executive education and certificates in sustainable finance, which is a common strategy in financial sustainability education because it is less costly than modifying the core curriculum and it was originally designed for financial professionals. In their research, Belinga and Morsing (2020) suggest basing a sustainability certificate course on what we would like students to be able to do, what they could do in the workplace, what they should learn about sustainable finance, and what skills they should learn that will help them in the workplace. The participants in this study were senior Chinese graduate students majoring in finance in Thailand, who will become future professionals in the finance field. The CFA's ESG Investment Certificate programme is designed for practitioners working in financial investment, learning how to analyse and integrate important ESG factors into their work. Therefore, the 13 learning outcomes planned for the course will expand the students' ESG knowledge and simultaneously enhance their employability. In order to change the individualistic and opportunistic mindset of financial practitioners, more emphasis should now be placed on sustainable finance education (Oner, 2019).

5.2 Discussion of how to integrate ESG in the curriculum of the financial programme for international Chinese college students of finance in Thailand

It is evident that the demand for businesses' sustainability practices and education will increase as the concept of sustainability becomes increasingly important; therefore, business colleges should integrate the ESG dimensions of sustainability education into their curricula without further delay (Rezaee &

Homayoun, 2014). In addition to traditional financial analyses, ESG factors have become a very important trend in the current financial market, which will affect many of today's students (Ascioglu & Maloney, 2019).

In order to assess the local situation in Thailand, during the group discussion, the students were asked about their views of dishonourable companies involved in the production of tobacco, alcohol and other related products that ignore their social responsibility in order to make money. Different groups expressed their support and opposition. By discussing these issues, students were able to reconsider how to make a profit, while taking social responsibility into account, and were encouraged to find suitable long-term investment targets from a sustainable finance perspective. In addition, they discussed the social and labour issues related to unemployment and labour protection in Thailand under the Covid-19 epidemic. In order to understand more about companies' operation in practice, the manager of ASUS Thailand was invited to explain how ESG affects the company's operations in the light of current trends, how companies can protect labour rights in Thailand in the face of the epidemic, and the legal restrictions faced by multinational companies in selling their products to EU countries in the face of sustainability. Through this presentation, students gained a better comprehension of the practical application of ESG and how it affects various business and investment sectors.

This is similar to the views of other scholars. For instance, Belinga and Morsing (2020) argue that teachers of sustainable finance could find more ideas or diversify their teaching to consider region-specific sustainability issues to further promote the education of sustainable finance. Previous researchers have drawn similar conclusions through teaching activities. The Monash MBA's Business Case for Sustainability

programme combines cases with guest speakers and group assignments to enable students to think at a practical level and broaden their perspective of sustainability (Stubbs & Cocklin, 2008). In Canada, Oldford et al. (2021) found that non-traditional teaching could be used to meet the demand for financial workers with ESG skills. They explored the current status of environmental, social and governance (ESG) pedagogy in undergraduate finance programmes in business schools and the use of student-managed investment funds (SMIFs) to rapidly integrate an ESG pedagogy to meet the demands of industry. They found that students were able to acquire ESG skills through experiential learning.

In the past, students received financial educations in traditional ways which accentuated the importance of financial theories and financial models for analysis. Meanwhile, a notifiable number of financial institutions trained investment analysts with the same mindset which made it difficult for them to access risks related to ESG issues. The ESG curriculum was not intended to overturn the previous models of financial theories and models but to integrate the content of the current financial analysis course with similar ESG-related concepts. Therefore, in each unit, the first half covered the traditional financial content while the second half did the ESG-related content. The course was arranged to help the students compare the old concept with the new one and understand the reason why they should consider sustainable finance in the investment process. On the other hand, those who had never been introduced sustainable finance could also quickly learn the essential and extended knowledge in the field through the course. For example, it is inevitable to learn how financial institutions and investment companies select investment targets in the current sustainable business environment. Sustainable Finance 3.0 is different from

other sustainable financial training units. The SASB has divided the fundamentals of sustainability accounting into three sections in accordance with sustainable accounting standards while the PRI Academy has a core focus on responsible investment and the identification and implementation of ESG factors in investment decision-making *(*Oulton, 2019*)*. This approach, which directly focuses on the sustainable finance content, can possibly lead the students to view it as an innovative course although it was actually modified from the traditional financial concepts.

5.3 Discussion of whether or not international Chinese college students' outcomes of learning about sustainable finance were enhanced by the ESG intervention compared to those who experienced the traditional teaching of finance

Data from the quantitative research showed that the ESG learning assessment indicated that the EC performed significantly better than the CC in the post-test. This also means that the ESG curriculum was more effective than traditional teaching in improving sustainable finance learning outcomes. This result is in agreement with previous studies. For example, Hoffman (2017) points out the traditional teaching methods may not be suitable in the face of complex market changes about sustainability because traditional lecture teaching cannot make a timely response in the current fast-changing business environment (Oldford et al., 2021). Kalamas et al. (2017) observe that, as sustainability education is diverse and broad, it is best suited to the use of active learning. Georgallis and Bruijn (2022) also suggest that case-based debates can improve the thinking skills of students by enabling them to interact seriously and actively with opposing viewpoints on a particular issue.

With regard to learning outcomes, LO.1, LO.3, LO.6, LO.7, LO.8, LO.9, LO.10, and LO.13 all indicate that the ESG curriculum was significantly more effective than

traditional teaching with the exception of LO.2 and LO.11. The ESG curriculum is focused on Qs & As, case studies, and group discussions as the main teaching activities. Although traditional teaching is still useful in enhancing students' concept of sustainable finance, it is not as effective as the ESG curriculum when students' attitudes and views of sustainable finance can be observed from questions and answer. This does not only simulate real problems and solutions, but it is also essential to have a deep understanding of the character of the problem (Galindo-Manrique et al. 2020). Listening to other students' responses also facilitates new ways of thinking about sustainable finance.

The ESG curriculum includes many real-life cases of companies or ESG-related events that students can discuss individually or in small groups. In this way, students are trained to consider the concept of sustainability first when thinking about finance-related issues in future. Other researchers have also mentioned that the case study approach helps to bridge the gap between theory and practice because students can practise their reasoning and decision-making skills and the discussion enables them to think at a higher level (Georgallis & Bruijn, 2022).As more and more universities in China are making sustainable education changes, higher education needs to do more to realise national sustainable development practice projects (Niu et al., 2010). International Chinese college students can also return to China having graduated based on the ESG curriculum learning, and bring the concept of sustainable finance to their work, thereby contributing to the promotion of sustainable finance in China.

CHAPTER 6

CONCLUSION

The purpose of this chapter is to draw conclusions about the study and then describe the implications of the findings for building an ESG curriculum in finance education to develop the concept of sustainable finance of international Chinese college students in Thailand. This chapter also provides practical applications of the research and a recommendation for future research.

6.1 Conclusion

The current financial crisis has again revealed the limitations of finance teaching in terms of predicting risk, leading to a new concept of the need to integrate two disciplines of finance teaching and sustainable teaching. However, this trend has not been recognised and reflected in finance learning at the undergraduate level (Oulton, 2019). Therefore, the aim of this study is to integrate ESG into the curriculum, examine the learning outcomes of undergraduate finance students through an educational intervention, and propose an ESG curriculum to foster international Chinese university students' financial sustainability. The thirteen learning outcomes (LOs) of the UK's CFA Institute's ESG Certificate Programme are used to examine the learning outcomes in this study.

By the time the United Nations had vigorously promoted sustainable development, this trend had also influenced China's Belt and Road Initiative to move towardsustainable green goals (Yin, 2019). In July 2016, the Ministry of Education of China proposed anEducation Action Plan to enable countries along the Belt and Road to establish a Belt and Road Education community based on the three visions of

"promote closer people-to-people ties", "cultivate supporting talent," and "achieve common development" (Belt and Road Portal, 2017). Among them, “ cultivate supporting talent” is particularly important tothe multi-national development of the Belt and Road, which requires highly-skilledmultinational talents with an international perspective. In addition, although sustainability has led to many businesses being subject to related regulations, some scholars believe that the concepts of profitability and sustainability conflict, since financial education alwaysemphasised the maximisation of the shareholders’ profit, which affects investors’ investment behaviour. A more diversified approach to education is needed to change the traditional financial mindset; therefore, the aim of this study was to integrate an ESG curriculum into financial education to enhance Chinese students' concept of sustainable finance. Students were guided to stimulate their critical thinking about sustainable finance in the learning process based on active learning activities, such as question and answer sessions, case studies of Thailand and discussions.

Since finance education can be diverse and multi-faceted, given the scarcity of related resources, higher education institutions in different regions need to find appropriate local themes, teaching methods or locally-relevant case studies of sustainable events to enhance students' interest in learning to promote sustainable finance. It takes a long time to develop or change a concept; hence, financial education practitioners need to work together to educate future multinational financial talents in a way that suits their own environmenton the road to the implementation of the Belt and Road and the promotion of sustainable finance.

6.2 Implications

Ethics in finance has long been a topic of discussion among financial practitioners and researchers, from the early days of ethical investment redevelopment to CSR and responsible investment to the latest concept of sustainable finance.The definition of financial sustainability by international organisations, such as the United Nations and the European Union, have been collated in this study to discuss the transformation of the long-standing concept of maximising shareholders' profit into a concept that requires consideration of ESG issues in any investment decision-making process.

This study was based on the integration of the ESG curriculum into a financial statement analysis course, guide students to take ESG factors into account when deciding on investment objectives or processes.The findings indicated that the students achieved better learning outcomes with the integration of ESG than with traditional teaching. Mburayi and Wall (2018) argued that more research is needed to integrate sustainability into financial education, as accounting and finance courses are lagging behind other developments in business schools. According to the experimental results in this study, teachers of finance education should establish their own teaching environment and integrate their teaching subjects with the relevant content of an ESG curriculum in order to efficiently promote sustainable finance. It is also worth noting that some of the students had reservations about the effectiveness of sustainable finance in practice as a result of their prior knowledge of finance and accounting. Therefore, students' attention should be drawn to more successful real-life case studies and localised or current hot topics that can stimulate their thinking about the importance of sustainable finance.

This approach can also be extended to finance courses in other business programmes, as sustainability has been included in business programmes for some time now, but business students have only focused on applying sustainability in various fields and overlooked the important role of financial sustainability. As any business practice must be supported by the company's finance department, the integration of ESG into the finance curriculum in this study can also be applied to the finance curriculum for business students.

6.3 Limitation

Many teaching activities such as quizzes and case study discussions that required students' participation were included in the ESG curriculum in orderto explore the different learning outcomes of students between the integrated ESG curriculum and traditional teaching methods. However, the teaching activities had to be conducted onlineduring the Covid-19 epidemic, and students studied at home, which made it difficult for them to avoid outside interference or influence. Farinella (2007) noted that students enrolled in online finance courses performed significantly lower than those enrolled in traditional campus finance courses.Some researchers have also mentioned that traditional face-to-face teacher-student interactions and discussions with others are more effective than online courses (Dumford & Miller, 2018). Although the students were required to focus on the course content and activities during the online teaching process, a few of them were distracted by external factors. Theneed for an online discussion also made it difficult for teachers to observe group members' level of engagement and the classroom atmosphere.

6.4 Recommendation

Data from the quantitative research shows that the ESG curriculum is more effective than traditional teaching in improving sustainable finance learning outcomes. Based on the current findings, future researchers could integrate more finance disciplines with relevant sustainable finance concepts. Interviews or different types of sustainable financial tests or questionnaires could be used and more qualitative or quantitative learning outcomes could be collected to analyse the changes in students' perception of sustainable finance.

As the learning outcomes in this study are based on the UK's CFA Institute's ESG Certificate Programme, it is suggested that future researchers collect and compare the outlines of sustainable finance teaching and learning from other higher education institutions, and use a comparative analysis to compile a set of learning outcomes that are suitable for the sustainable finance education of undergraduate students, which will help to promote and apply sustainable finance courses in other universities in the future.

In terms of the curriculum design, it is suggested that future researchers could use more appropriate or locally-relevant case studies, depending on their own teaching environment or resources, or arrange other types of teaching activities, such as visits to companies with good sustainability performance or visits to actual financial institutions in order to further deepen their learning of sustainable finance.

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Appendix Ⅰ

Authors' Curriculum Vitae

NAME: Hsin-Chang Yu

EDUCATION

- Ph. D. of Education Management in August 2022, Graduate School ofDhurakij Pundit University (Thailand).
- Master of Business Administration in Jan 2010, Graduate School of International Business Administration, Chinese Culture University.

Experience

- 2009-2014 Jinwen University of Science and Technology /Department of Finance / Lecturer
- 2015-2022Dhurakij Pundit University/Chinese International College /Head of Finance and Accounting Program

Appendix Ⅱ

Expert opinion on ESG curriculum

Lesson Plan of ESG integration into financial statements analysis		
Unit 1: The relationship between financial statement and ESG **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.1 Understand of the context for different approaches to Responsible Investment and specifically, consideration of ESG factors. LO.2 Understand of the underlying issues that constitute factors within each of the ESG areas. LO.3 Understand of the broader sustainability context and global initiatives.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	SR,PRI Data and United Nations Environment – Finance Initiative	
Content	● Introducing the basic concepts of the traditionalcompany's financial statement analysis ● What is ESG (environmental, social and governance) and how does ESG complement traditional financial analysis ● Socially Responsible Investment (SRI) and Principles for Responsible Investment (PRI)	
Process	1.Warmp up 2.Input Didactic Teaching -Introducing the financial statements -Introducing theESG and Sustainability -Explaining the content of SRI and PRI 3.Practice- Active learning 3.1 Questions and answer -How do you think about ESG affects financial statements 3.2 group discussion Step1:The students up into groups. Allocate groups of 5. Step2: Group discussion: 1.Give an example to illustrate the "sin industries" by SRI and what is the impact on ESG 2. Is it appropriate for companies implementing ESG to raise funds from evil companies? Step3:Each group oral for five minutes	2.0 hrs 0.5hrs 0.5 hrs 0.5 hrs 1.0 hrs
Assessment	Grouppresentation -Each group should speak and then write their reports on the WeChat -teachmate platform.	

Lesson Plan of ESG integration into financial statements analysis
Unit2: Analyse the company's financial status and ESG factors **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs

LEARNING OUTCOME OF ESG		
The student will able to: LO.4 Understand of the ESG Market: relevance, size scope, key drivers and challenges, and risks and opportunities.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	Case study: WalMart Gigaton Project, Samsung's Sustainability Committee and Apple's ESG Policy	
Content	● Four analysis methods of financial statements ● Identify important ESG factors ● The impact of ESG issues on investment behaviour and sustainable development	
Process	1.Warmp up 2.Input Didactic Teaching -Verticalanalysis, horizontalanalysis, trend analysis and ratio analysis -Introducing the composition of ESG factors - The benefits of considering ESG factors for investment 3.Practice- Active learning 3.1case study1. WalMart Gigaton Project case study2. Samsung's Sustainability Committee case study3. Apple's ESG Policy 3.2 Questions and answer - What ESG issues do you think multinational companies will have to face in the future, please give examples? Step1: Randomly selected 10 students Step2: Ask students to talk about their views Step3:Ask other students if they have a different opinion	2.0 hrs 0.5 hrs 0.5 hrs 0.5 hrs 1.0 hrs
Assessment	Feedback of case study -Each student must submit a reflective essay on the challenges, risks and opportunities of ESG for companies	

Lesson Plan of ESG integration into financial statements analysis		
Unit3: Company evaluation and environmental factors **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.5 Understand of environmental factors, systemic relationships, material impacts, mega trends and approaches to environmental analysis at country, sector, and company levels.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	United Nations Environmental Issues Information Report and PRI data	
Content	● Company evaluation ● The systemic relationships and activities between business and ecosystem ● How corporate and the investment industry can benefit from opportunities of environmental issues	
Process	1.Warmp up 2.Input Didactic Teaching -Introducing the three ratios that are related to the company's stock price(P/E ratio,P/B ratio and P/S ratio) -Introducing thecorrelation between environmental factors and company stock price - How to develop the company in the context of environmental issues 3.Practice- Active learning 3.1Questions and answer - Increasing environmental protection requirements means that companies have to lose money? 3.2 Group discussion Step1: Each group has 30 minutes to discuss the 3.1question. Step2: Each group will send a representative to give an oralpresentation Step3:Ask other groups if they have any different opinion	2.0 hrs 0.5 hrs 0.5 hrs 1.0 hrs 0.5 hrs
Assessment	Group homework - Give an exampleof what is a green enterprise.	

Lesson Plan of ESG integration into financial statements analysis		
Unit4: Company operations and social factors **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.6 Understand of social factors, systemic relationships, material impacts and approaches to social analysis at country, sector and company levels.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	Case study: The Bangladesh factory collapsed in 2013, French pension reform strike in 2019 and OECD	
Content	● Operating activity rate ● The systemic relationships and activities between business activities and social issues ● Assess the material impact of social issues on potential investment opportunities	
Process	1.Warmp up 2.Input Didactic Teaching -Operating activity rate (Accounts receivable turnover ratio,Inventory turnover ratio,Fixed asset turnover ratio) -Introducingthe relationship between the company's operational production and social factors - Social factors that must be considered in order to increase investment 3.Practice- Active learning 3.1Case study1. The Bangladesh factory collapsed in 2013 Case study2. French pension reform strike in 2019 Case study3. The impact of the COVID-19 pandemic onjobs and incomes in G20 economies 3.2 Questions and answer - How do countries and companies fulfil their social responsibilities in ESG? Step1: Randomly selected 10 students Step2: Ask students to talk about their views Step3:Ask other students if they have a different opinion	2.0 hrs 0.5 hrs 0.5 hrs 0.5 hrs 1.0 hrs
Assessment	Feedback of case study -Each student must submit a reflective essay about how companies should implement the social aspects of ESG in the covid-19 situation	

Lesson Plan of ESG integration into financial statements analysis		
Unit5: Financial statement standardsand governance factors **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.7 Understand of governance factors, key characteristics, main models and material impacts.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	Case study: Enron scandal, Luckin coffee accounting scandal,Wells Fargo account fraud scandal	
Content	● Basic assumptions and the quality of accounting information in the financial statements ● Corporate governance related reporting and transparency ● Financial integrity, capital allocation and business ethics	
Process	1.Warmp up 2.Input Didactic Teaching -Basic assumptions and the quality of accounting information in the financial statements(Environmental Assumptions,Going-Concern Assumption,Accrual Basis) -Introducingthe corporate information and transparency indicators on corporate governance - Explaining the importance of financial integrity, capital allocation and business ethics 3.Practice- Active learning 3.1Case study1. Enron scandal Case study2. Luckin coffee accounting scandal Case study3. Wells Fargo account fraud scandal 3.2 Questions and answer - What do you think about the finance scandal? Step1: Randomly selected 10 students Step2: Ask students to talk about their views Step3:Ask other students if they have a different opinion	2.0 hrs 0.5 hrs 0.5 hrs 0.5 hrs 1.0 hrs
Assessment	Feedback of case study - Each student must submit a reflective essay about finance scandal of corporate governance	

Lesson Plan of ESG integration into financial statements analysis		
Unit6: Asset Management and ESG Engagement **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.8 Understand of engagement and stewardship		
LESSON STRUCTURE:		
Item	Content	Time
Materials	Speech content teaching materials	
Content	● Liquidity ratios (Cash coverage ratio, Current ratio, Quick ratio, Liquidity index) ● The purpose of investor engagement and stewardship ● Distinguish different types of range of asset classes	
Process	1.Warmp up 2.Input Didactic Teaching -Liquidity ratios (Cash coverage ratio, Current ratio, Quick ratio, Liquidity index) -Responsibilities of the Company's Supervisor - Social factors that must be considered in order to increase investment 3.Practice- Active learning 3.1Invited guest speakers -Topic: How companies can benefit from ESG management 3.2 Questions and answer Step1: Interaction with Speaker Step2: Ask questions about the content of the speech Step3:Express your own opinion	2.0hrs 1.0hrs 0.5 hrs 0.5 hrs 0.5 hrs
Assessment	Feedback fromspeech -Each student writes a feedback about thisspeech	

<table>
<tr><td colspan="3">Lesson Plan of ESG integration into financial statements analysis</td></tr>
<tr><td colspan="3">Unit7: Financial forecasting and ESG analysis integration
Teaching mode: distance learning
Instructor: Hsin-Chang Yu Class time:4.5 hrs</td></tr>
<tr><td colspan="3">LEARNING OUTCOME OF ESG</td></tr>
<tr><td colspan="3">The student will able to:
LO.9 Understand of ESG analysis, valuation and integration.</td></tr>
<tr><td colspan="3">LESSON STRUCTURE:</td></tr>
<tr><td>Item</td><td>Content</td><td>Time</td></tr>
<tr><td>Materials</td><td>PRI teaching materials, ESG tools</td><td></td></tr>
<tr><td>Content</td><td>● Surplus forecast and sales plan
● Explain the aims and objectives of integrating ESG into a firm’s investment process
● how ESG factors may affect security valuation across a range of asset classes</td><td></td></tr>
<tr><td>Process</td><td>1.Warmp up
2.Input
Didactic Teaching
-Surplus forecast and sales plan(EPS, percentage-of-sales method)
-Explaining the ESG into a firm’s investment process
- Describe ESG factors that influence the valuation of securities across a range of asset classes
3.Practice- Active learning
3.1Questions and answer
- How does ESG affect a company's finance performance?
3.2 Group discussion
Step1: Each group has 30 minutes to discuss the 3.1question.
Step2: Each group will send a representative to give an oralpresentation
Step3:Ask other groups if they have any different opinion</td><td>2.0 hrs

0.5 hrs

0.5 hrs
1.0 hrs

0.5 hrs</td></tr>
<tr><td>Assessment</td><td>Group homework
- Example of an ESG credit scoring.</td><td></td></tr>
</table>

<table>
<tr><td colspan="3">Lesson Plan of ESG integration into financial statements analysis</td></tr>
<tr><td colspan="3">Unit8: ESG Integrated Portfolio Construction & Management
Teaching mode: distance learning
Instructor: Hsin-Chang Yu Class time:4.5 hrs</td></tr>
<tr><td colspan="3">LEARNING OUTCOME OF ESG</td></tr>
<tr><td colspan="3">The student will able to:
LO.10 Analyze how ESG factors may affect industry and company performance and security valuation across a range of asset classes.
LO.11 Understand of ESG integrated portfolio construction and management.</td></tr>
<tr><td colspan="3">LESSON STRUCTURE:</td></tr>
<tr><td>Item</td><td>Content</td><td>Time</td></tr>
<tr><td>Materials</td><td>PRI teaching materials, ESG rating information</td><td></td></tr>
<tr><td>Content</td><td>● Asset management ability
● Introducing the different types of ESG screening
● The main indices and benchmarking approaches applicable to sustainable and ESG investing
● Evaluate different types of ESG investment, investment considerations and risks</td><td></td></tr>
<tr><td>Process</td><td>1.Warmp up
2.Input
Didactic Teaching
-Asset management ability(ROA, Asset Turnover, DuPont analysis)
-Introducing the different types of ESG screening
- Introducing the main indices about sustainable and ESG investing
-Explaining the different types of ESG investment, investment considerations and risks
3.Practice- Active learning
3.1Questions and answer
- How do investors evaluate and screen ESG companies?
3.2 Group discussion
Step1: Each group has 30 minutes to discuss the 3.1question.
Step2: Each group will send a representative to give an oralpresentation
Step3:Ask other groups if they have any different opinion</td><td>2.0 hrs

0.5 hrs

0.5 hrs
1.0 hrs

0.5 hrs</td></tr>
<tr><td>Assessment</td><td>Grouppresentation
-Each group should oral and then write their reports on the WeChat -teachmate platform.</td><td></td></tr>
</table>

Lesson Plan of ESG integration into financial statements analysis		
Unit9: ESG Integrated Portfolio Construction & Management **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.12 Apply a range of approaches to ESG analysis and integration across a range of asset classes. LO.13 Understand of investment mandates, portfolio analytics and client reporting.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	PRI teaching materials, International Investment Agency Report	
Content	● Profitability ratios ● How ESG screens can be embedded within investment portfolio to generate investment returns ● Defining the sustainable investment strategy ● The different client types and their objectives which influence the type of ESG investing strategy	
Process	1.Warmp up 2.Input Didactic Teaching -Profitability ratios (Breakeven point, Return on equity, Net profit ratio, ROE) -Explaining theESG screens can be embedded d within investment portfolio - Defining the sustainable investment strategy -Explaining thechoice of ESG investment strategies 3.Practice- Active learning 3.1Questions and answer - How to integrate ESG into investment portfolios? 3.2 Group discussion Step1: Each group has 30 minutes to discuss the 3.1question. Step2: Each group will send a representative to give an oralpresentation Step3:Ask other groups if they have any different opinion	2.0 hrs 0.5 hrs 0.5 hrs 1.0 hrs 0.5 hrs
Assessment	Grouppresentation -Each group should oral and then write their reports on the WeChat -teachmate platform.	

Lesson Plan of ESG integration into financial statements analysis		
Unit10: Finalpresentation **Teaching mode:** distance learning **Instructor:** Hsin-Chang Yu **Class time:**4.5 hrs		
LEARNING OUTCOME OF ESG		
The student will able to: LO.11 Understand of ESG integrated portfolio construction and management. LO.12 Apply a range of approaches to ESG analysis and integration across a range of asset classes. LO.13 Understand of investment mandates, portfolio analytics and client reporting.		
LESSON STRUCTURE:		
Item	Content	Time
Materials	Applying the knowledge of this course	
Content	● Analyze financial statements ● Incorporate ESG factors into financial statement analysis ● Views on ESG issues and sustainable finance	
Process	1.Warmp up 2.Group discussion - Analysing a company's financial statements and considering ESG factors 3. Grouppresentation 3.1Questions and answer - Select a company to analyze financial statements and ESG 3.2 Group discussion Step1: Each group oral for 20 minutes Step2: Describing the financial statement components and evaluating ESG performance Step3:Answer questions from other groups	0.5 hrs 4.0 hrs
Assessment	Grouppresentation -Each group should oral and submit a final report.	

AppendixⅢ

The index of item objective consistency (IOC) form for inspectors

Dear Experts:

This form is the index of item objective consistency form for inspectors. In order to check whether each question of the 62 questions of ESG assessment is consistent with the behavioral goals,please give your expert opinion and use the following assessment criteria:

+1 means Congruent; **0** means questionable; **-1** means Incongruent

Unit 1: The relationship between financial statement and ESG				
LO.1 Understand of the context for different approaches to Responsible Investment and specifically, consideration of ESG factors.				
Question Description	Evaluation			Suggestion (other LO)
	+1	0	-1	
2. Justin runs an equity fund for a large insurance company which has signed on to the UN Global Compact Principles and the Principles for Responsible Investment. His investment strategy will need to: i. avoids companies which do not adhere to Task Force on Climate-related Financial Disclosures guidelines ii. screen the portfolio on environmental issues iii. incorporate ESG issues into the investment process iv. invest in companies which adhere to human rights principles				
6. A private wealth manager uses a data provider to screen out companies involved with tobacco and finds that the process eliminates nearly all consumer companies. As consumer companies are a large percentage of the benchmark index, the manager would prefer not to eliminate the whole sector. What method would be the most precise to reduce the number of companies which are screened out?				
38. What are the three parts of the Triple Bottom Line?				
39. Which of these Investment approaches would be most suitable for an investor who wants to ensure that his/her personal, social and moral views direct the investment decisions?				
LO.2 Understand of the underlying issues that constitute factors within each of the ESG areas.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
5. Which action would be undertaken first by an investor wanting to follow an engagement strategy with a company in a cost-effective way?				
12. What is the result of an analyst failing to correctly model the risks and opportunities associated with ESG?				
13. Sienna reviews a large retailer faced with a sex equality law suit with a potential £4 billion in pay out claims. How should she adjust her financial model?				
20. Two years ago, TTN was subject to a non-governmental organisation (NGO) campaign requesting that it offered contractors working conditions and pay similar to that of employees. TTN agreed to most of the NGO‟s requests. Which social mega trend is mostlikely to affect Lemon's revenues?				
LO.3 Understand of the broader sustainability context and global initiatives.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
1. Research shows that companies with long standing good practice in terms of sustainability?				

23. Lemon publicises on its website and in its annual report that it regularly performs audits across its operations to ensure compliance with the International Labour Organisation (ILO)'s International Labour Standards. Which of the following actions would be a breach of the Standards?				
49. The CFA Institute and CFA UK define ESG integration as the?				
62. What are the three ESG engagement dynamics highlighted by the PRI as creating value?				
Unit 2: Analyse the company's financial status and ESG factors				
LO.4 Understand the relevance, size, scope, key drivers and challenges, and risks and opportunities of the ESG market.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
31. Given that an analyst is able to judge the materiality of an ESG factor, which of the following is true?				
41. The physical impacts of climate change are **most** likely to be identified as a key ESG driver for which form of institutional investor?				
54. Which of these factors will be greater for an investor who is passively exposed to an ESG index than for an investor with actively managed investments?				
Unit 3: Company evaluation and environmental factors				
LO.5 Understand of environmental factors, systemic relationships, material impacts, mega trends and approaches to environmental analysis at country, sector, and company levels.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
7. What is an indirect environmental impact of a paper company cutting trees and transporting them to its production plant?				
9. Which of the following sectors have the greatest risk of increased insurance costs due to physical climate change?				
16. What might explain a downward trend in Country B's water score?				
17. How might Country A improve its score for Climate Resilience in the short to medium-term?				
19. A company which produces bottled water and pledges to use 50% recycled plastics is using:				
34. Justin would like to estimate the carbon footprint of each of the companies. Which of the below should he ignore?				
44. Regulators are discussing a ban on single-use plastic. How might this impact Company A and Company B financially?				
45. Based on known information, which company is expected to have less of a challenge in managing its food supply chain risk?				
61. The transition to a low carbon economy is expected to open up significant investment requirements. What would likely have the most financial risk for investors?				
Unit4: Company operations and social factors				
LO.6 Understand of social factors, systemic relationships, material impacts and approaches to social analysis at country, sector and company levels				
Question Description	Evaluation			Suggestion
	+1	0	-1	
18. What might explain the different trends Country A and Country B are experiencing with regards to demographics?				
21. How is Lemon"s labour rights risk impacted by characteristics that are company-specific?				
28. Which of these ESG issues included in a materiality map would be				

bestdescribed as a Social issue?				
33. Which of the following statements is true regarding transition risk?				
43. What conclusions might be made with regards to Company A‟s working conditions in comparison to Company B's?				
Unit5: Financial statement standardsand governance factors				
LO.7 Understand of governance factors, key characteristics, main models and material impacts.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
15. Daniel provided examples of the rating system applied to two different sovereigns, as detailed below: In order to provide his boss with greater context of the ESG rating for each of the countries, Daniel briefly describes a few characteristics of each. Which of the below are **most** likely part of the description for each company?				
26. Why do most corporate governance codes require audits?				
42. For which of the two companies would an analyst most probably prioritise further analysis to ensure interests between shareholders and company executives are well aligned?				
46. Which **best** describes stewardship of assets over which someone acts as the guardian?				
53. Which of the following ESG index providers specifically considers governance?				
60. What is the best way a company‟s Board can prevent excessive executive remuneration and keep executives accountable to shareholders?				
Unit6: Asset Management and ESG Engagement				
LO.8 Understand of engagement and stewardship.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
3. A Sovereign Wealth Fund selecting an investment manager with an ESG strategy is likely to focus more on the manager's approach to:				
10. ABC Investment Management owns a 2% stake in a large telecom company, which is in the media due to a surge in employee suicides attributed to pressures in the workplace. Mary, a senior analyst at ABC Investment Management, would like to engage with the company on the issue and sees that a quarterly earnings conference call is coming up. What should Mary do **before** the quarterly conference call?				
40. Jane is an equity analyst at AVX Asset Management and covers a large public oil company which she needs to assign an environmental score to. The company says it is addressing carbon emissions, but refuses to disclose exactly what measures it is taking. A logical next step for Jane would be to				
48. Sharon is the Chief Investment Officer of BCM, a boutique asset manager that primarily invests in UK equities. BCM has a small stake in RTC media company which has not been efficient in removing terrorist-related content circulated on its social networking website. Since BCM's resources are limited, Sharon decides to join the Investor Forum, which will allow her to:				
Unit7: Financial forecasting and ESG analysis integration				
LO.9 Understand of ESG analysis, valuation and integration.				
Question Description	Evaluation			Suggestion
	+1	0	-1	

11. Which of the following is **not** generally expected for companies which score well on ESG metrics relative to companies scoring less well?				
25. Which form of risk will not be lowered by the integration of ESG into a firm's investment process?				
29. Scores from an ESG factor scorecard will always be:				
32. Which of the following below **best** describes how Justin should assess the physical risk of the companies under review?				
37. An analyst valuing a company against its peers should make which of the following adjustments to the price-to-earnings ratio (P/E) to integrate strong ESG characteristics?				
58. Which of the following statements is least true?				
LO.10 Analyze how ESG factors may affect industry and company performance and security				
Question Description	Evaluation			Suggestion
	+1	0	-1	
4. Adjusting the Discounted Cash Flow when integrating ESG into traditional financial analysis is:				
8. What impact will a positive ESG rating have on a company's cost of capital?				
27. Which of these ESG service providers does **not** produce company-level ESG ratings?				
35. Natasha completes a review of a large UK based oil company and assigns it an improving ESG score because she is impressed by the steps it is taking to meet the Paris Agreement. Nevertheless, she is concerned about the industry's long-term outlook and potential for stranded assets and increased cost of capital. What action should Natasha reflect in her valuation of the company?				
Unit8: ESG Integrated Portfolio Construction & Management				
LO.11 Understand of ESG integrated portfolio construction and management.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
22. How might a portfolio manager interpret the financial implications of TTN agreeing to offer contractors the same working conditions as employees				
36. A credit portfolio manager is considering buying a Turkish phone company which he believes has strong credit quality as reflected in single-A credit ratings assigned by two credit rating agencies. Simultaneously, the emerging markets team is closely monitoring election results in Turkey which has led to bond market volatility. Why would the portfolio manager decide not to buy the phone company bonds?				
55. What should be the **first** stage of a portfolio management process, which employs ESG integration?				
LO.12 Apply a range of approaches to ESG analysis and integration across a range of asset classes.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
24. Exclusionary screening is historically **most** common in which of these regions?				
30. An ongoing situation for a company which has negative ESG implications is called a:				
50. Which approach to ESG investing would require the **most** intensive use of resources by an investment manager?				

52. Which of the following ESG index providers specifically considers governance?				
56. Which form of portfolio has the most active stewardship by an investment firm?				
Unit9: ESG Integrated Portfolio Construction & Management				
LO.13 Understand of investment mandates, portfolio analytics and client reporting.				
Question Description	Evaluation			Suggestion
	+1	0	-1	
14. How can climate-related scenario analysis be used as an effective tool in portfolio management? i. By pricing climate risk. Ii. By assessing the portfolio's alignment with the Paris Agreement temperature target. Iii. By bottom-up analysis of individual companies in the portfolio. Iv. By producing tandardized data for performance measurement.				
47. Which of the following challenges can auditors face in preventing fraud in company accounts?				
51. Chang Ying runs an equity portfolio using ESG integration techniques which looks at E, S, and G independently. To reduce the downside tail risk of the portfolio whilst preserving the largest investable universe possible she could avoid:				
57. Which of the following would be specified in an ESG investment mandate?				
59. Mario runs an ESG scored portfolio, which has an E score lower than its benchmark. What can he can expect the client to focus more on, when reviewing the performance of the fund?				