Application of an Environmental, Social and Governance (ESG) Course to Enhance the Knowledge of Sustainable Finance of International Chinese College Students in Thailand

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The aim of this study was to build an ESG course for integration into a Financial Statement Analysis course to develop the knowledge of sustainable finance of international Chinese college students in Thailand. The study was based on a quasi-experimental design and a total of 108 international Chinese students majoring in finance in Thailand participated in the research. 58 of them were assigned to the experimental group, and the remaining 50 to the control group. The intervention of the ESG course was applied to the experimental group for a 45-hour' period over 6 weeks, while the control group received traditional teaching in the same period of the class schedule. At the same time, an ESG learning assessment was applied to a pre-test and post-test and the data was subjected to a statistical analysis. The results of a one-way ANCOVA showed that the performance of the experimental group on the ESG learning assessment was better than that of the control group.

Keywords: ESG course, finance education, sustainable finance, international Chinese college students

INTRODUCTION

A number of economic crises have been caused in recent years by mismanagement in the financial industry, which has led to financial sustainability becoming the key concept of public management (Afonso & Jalles, 2015). At the same time, financial crises have generated much reflection and several debates about the underlying assumptions of the main traditional financial theories. The concept of corporate governance

based on profit maximisation needed to change; therefore, companies began to consider the impact of their actions on society and the environment, leading to the concept of corporate social responsibility (Barber et al., 2014). The Principles for Responsible Investment (PRI) were introduced in 2006 by the United Nations in order to achieve a sustainable global financial system. 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. Alsayegh et al. (2020) conducted an empirical analysis to examine the impact of ESG information disclosure on the corporate sustainability performance of Asian companies from 2005 to 2017 and found that the disclosure of ESG information to all stakeholders was an important factor for creating a competitive advantage to enhance corporations' sustainability performance. Therefore, these companies had shifted their mode of operation from conventional shareholder-orientated management to sustainable business that takes account of all stakeholders (Freeman & McVea, 2001) and is focused on the reduction of externalities and the maximisation of social value based on ESG (Xie et al., 2019).

This trend also affected university education and challenged the finance education content of business schools. According to the United Nations Global Compact, any change in business toward corporate social responsibility (CSR) and sustainability must involve institutions acting as drivers of business behaviour, especially academia (Cetindamar, 2007). It was emphasised 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). As a result, to avoid future financial crises, it is important for business education to be improved with the adoption of sustainability in the accounting and finance course (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 recognising the need to change the attitudes and values of long-term financial security in financial education. In fact, it could be said that the teaching of financial sustainability has largely been ignored until now (William Swierczek & Jousse, 2014). It may be that the development of a framework to integrate sustainability in finance education has been hampered by the lack of related research; therefore, more and more academic institutions of higher education are dedicated to filling this gap with sustainable finance education. Hence, the purpose of this study is to integrate ESG into the course, examine the learning of undergraduate financial students using an educational intervention, and propose a model of an ESG course to develop international college Chinese students' knowledge of sustainability in the field of finance.

Thailand 4.0 is a policy-driven effort to build a sustainable Thai society using a 20-year strategic plan to incentivise knowledgeable and competent investors, marketers, and researchers to invest (Puncreobutr, 2017). It also proposes a new approach to education, but educational renewal remains a challenge. Most lecturers teaching in higher education institutions are trained to use traditional methods, and it is essential that they change their mindset and teaching methods to teach students to adapt to new environments and challenges (Buasuwan, 2018). Economic and trade relations between China and Thailand have become closer with the implementation of the "One Belt, One Road" initiative and China is now the largest trading partner, the major source of imports, and an important export market for Thailand (Liu & Xue, 2020). Meanwhile, Thailand is also one of the popular countries in Southeast Asia for international college students, and China is the biggest outbound nation. The population of Chinese students in Thailand has substantially increased over the past several years, and it is estimated to continue to grow (Chen et al., 2020). As a result, Chinese international students studying in Thailand through the ESG course will be able to contribute to the sustainable financial sector of both countries.

THEORY

About 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 Table 1.

Taliento et al. (2019) conducted an original study of the financial importance of ESG information for junior companies listed in major European markets and found that social, environmental and governance responsibility appear to be important competitive factors of modern firms. Some academics have found that high ESG scores are associated with a highly competitive advantage based on the use of 3,966 company-year observations of 661 companies listed on the Bursa Malaysia from 2012 to 2017 (Mohammad & Wasiuzzaman, 2021). The ESG theory suggests that companies need to integrate environmental, social and corporate governance into their development philosophy in order to achieve long-term stability (Wang & Zhang, 2020).

TABLE 1
MAIN ESG ISSUSE 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	political lobbying and donations
deforestation	employee relations	tax strategy

Note. Examples of ESG issues. From "What is responsible investment?" by the Principles for Responsible Investment (PRI).

Sustainable Finance

It is evident that sustainable development is essential to integrate the economy, natural resources and human well-being, both now and in the future, and it is equally evident that the behaviour of companies and investors can play a leading role in tackling climate change and sustaining the global economy. This is because participants in the financial market are able to influence the corporate behaviour of management and individuals (Cosma et al., 2020), and the role of finance is fundamental to sustainable development due to its focus on profit maximisation and changes in shareholders' wealth, and its concern with environmental issues, a low-carbon economy and climate change (Ryszawska, 2016). The European Union (EU) defines sustainable finance as a process of considering environmental, social and governance (ESG) factors in making investment decisions in the financial sector, which leads to an increase in long-term investment in sustainable economic activities and projects (European Commission, 2022).

Learning Objectives of ESG Course

The learning objective of this ESG course was to develop the students' concept of sustainable finance, from the knowledge of basic ESG to understanding the content, and then to enable them to connect what they had learned to their personal experience so that finally, they could think critically and generate new ideas. The CFA UK Level 4 Certificate in ESG Investment is a qualification, which is the first of its kind in the UK, to provide financial professionals with the knowledge and skills they need to integrate ESG factors into an investment. Therefore, this research referred to the learning objectives of the ESG certificate course, which includes the thirteen learning objectives of ESG, as shown in Table 2 below.

TABLE 2
ESG LEARNING OBJECTIVES (LO)

Students will be able to:	
LO.1	Understand the context of different approaches to responsible Investment and specifically consider ESG factors.
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 in 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	Analyse the effect of ESG factors on industry, companies' performance and security valuation across a range of asset classes.
LO.11	Understand the construction and management of an ESG-integrated portfolio.
LO.12	Apply a range of approaches to an ESG analysis and integration across a range of asset classes.
LO.13	Understand investment mandates, portfolio analytics and client reporting.

METHODOLOGY

Course Design

The aim of this research was to integrate ESG content into the financial course for international Chinese college students in Thailand**.** The ESG principles of the PRI were used to develop the course, and the CFA Society UK ESG Investment Certificate syllabus was used as a reference for the course design, from basic ESG concepts to their impact on future markets, so that the students could understand the important role ESG will play in future investment analyses and could think critically about sustainability**.** Springett **(**2005**)** argues that the best way to introduce the concept of sustainability in the business world is to debate different perspectives in order to stimulate students' knowledge, whereas Caiado et al **(**2017**)** propose that the incorporation of sustainability into educational practice has made a significant contribution through case studies**.** Therefore, two types of teaching activities were included in this course**.** Feedback from group or individual reports and unit response questions were used to observe changes in the students' thinking about sustainable finance, and the corresponding learning outcomes were examined with an ESG learning assessment**.**

After the initial design of the course, it needed relatively objective information, opinions and insights from experts and scholars in the related fields to complete it**.** Developing or reviewing a course may involve input from academic colleagues, agency representatives, and industry advisory committees, which usually amounts to around five people **(**Sitlington & Coetzer, 2015**).** The expert panel in this study was formed by

two faculty members from the same university with at least two years of undergraduate financial education experience, and three external faculty members with a doctoral degree and at least five years of financial education experience. Hence, the ESG course was complete after the revision based on the experts' comments and feedback, as shown in Table 3. Teaching materials from the PRI and handouts were provided by financial institutions. The current status of ESG implementation was illustrated based on case studies of the activities of well-known companies, such as the Gigaton Project at Walmart, Samsung's sustainability programme and Apple's ESG policy, so that the students would understand companies' active promotion of ESG today. 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 would understand the importance of ESG from a corporate perspective. Furthermore, he discussed the employment question of Thai labourers in the wake of Covid-19 with the students.

TABLE 3
ESG COURSE

Teaching topics	Content	Activities
Unit 1 Relationship between financial statement and ESG	• Introducing the basic concepts of a traditional company's financial statement analysis • What is ESG (environmental, social and governance) and how does it complement a traditional financial analysis? • Socially-Responsible Investment (SRI) and Principles for Responsible Investment (PRI)	• Didactic teaching • questions and answers • Group discussion
Unit 2 Analyse the company's financial status and ESG factors	• Four analytical methods of financial statements • Identify important ESG factors • Impact of ESG issues on investment behaviour and sustainable development	• Didactic teaching • Case study • Questions and answers
Unit 3 Company evaluation and environmental factors	• Company evaluation • Systemic relationships and activities between business and the ecosystem • How the corporate and investment industry can benefit from opportunities related to environmental issues	• Didactic teaching • Questions and answers • Group discussion
Unit 4 Company operations and social factors	• Operating activity rate • 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 answers
Unit 5 Financial statement standards and governance factors	• Basic assumptions and quality of accounting information in financial statements • Corporate governance related to reporting and transparency • Financial integrity, capital allocation and business ethics	• Didactic teaching • Case study • Questions and answers
Unit 6 Asset Management and ESG Engagement	• Liquidity ratios (Cash coverage ratio, Current ratio, Quick ratio, Liquidity index) • Purpose of investor engagement and stewardship	• Didactic teaching • Invited guest speakers

	• Distinguish different types of ranges of asset classes	• Questions and answers
Unit 7 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 answers • Group discussion
Unit 8 ESG Integrated Portfolio Construction & Management	• Asset management ability • Introducing different types of ESG screening • Main indices and benchmarking approaches applicable to sustainable and ESG investment • Evaluate different types of ESG investment, investment considerations and risks	• Didactic teaching • Questions and answers • Group discussion
Unit 9 ESG Integrated Portfolio Construction & Management	• Profitability ratios • How ESG screens can be embedded within an investment portfolio to generate investment returns • Defining a sustainable investment strategy • Different client types and their objectives which influence the type of ESG investment strategy	• Didactic teaching • Questions and answers • Group discussion
Unit 10 Final presentation	• Analyse financial statements • Incorporate ESG factors into financial statement analysis • Views on ESG issues and sustainable finance	• Group discussion • Group presentation

Note. This table presents the ESG course.

The ESG course was conducted in an online format due to Covid-19. It involved a total of 15 lessons divided into ten units, with one lesson lasting 3 hours. An active learning approach was used to guide the students through the course based on the use of questions and answers, lectures, group discussions, homework assignments, and a case study. The course consisted of ten learning assessments, including four group presentations, four individual homework assignments, and two group assignments. The first half of each unit was devoted to the analysis of financial statements, and the second half to the ESG content related to the first half. This approach allowed the students to understand that external ESG factors can be taken into account when analysing earnings in addition to financial statement figures.

Participants

The participants in this research were junior students engaged in financial courses in the department of finance and accounting in Thailand. They already have finance-related knowledge, but have not attended sustainable finance-related courses. The experiment was conducted at a private university in Bangkok, Thailand, for international Chinese college students majoring in finance and accounting, and the course was focused on a financial report analysis. A total of 108 students from two classes participated in the research and their average age was between 19 and 21. 58 of them were assigned to the research intervention of the ESG course as the experimental class (EC) and the remaining 50 were allocated to the control class (CC). They learned professional knowledge of finance and traditional ESG teaching in the current learning process. There were 39 males and 19 females in the EC and 34 boys and 16 girls in the CC.

Intervention

The Financial Statement Analysis course involved integrating the ESG intervention for EC students into 15 three-hour sessions. In addition to the traditional financial statement analysis, the ESG component was added to the course content. Based on the concept of a hierarchy of critical reflection proposed by

Brunstein et al. (2019), the students moved from learning basic ESG knowledge to understanding and reflection to generating critical thinking, supported by three types of lectures, namely survey, technical, and holistic (Brunstein et al., 2019) and active learning skills including 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 they are currently implementing ESG in their companies, so that the 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, an active control group was used to examine the progress with the aim of parallel variance motivation, expectations and placebo effects, (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-centred and it also consisted of 15 lessons of 3 hours each. The instructional content was related to a financial statement analysis and traditional ESG teaching.

Measurement

An ESG learning assessment was used for a pre-test and post-test in this study. The questions were selected from the ESG investment sample paper of the CFA UK Certificate. The items were translated into Chinese, so that the participants would fully understand them. Based on the back-translation approach of Brislin (1970), the test questions were translated using Google translate and then the English and Chinese versions were submitted to the experts for a review, and two senior students checked the grammar and semantics before a pilot study was conducted. According to the experts' final opinion and the results of the pilot study, the ESG learning assessment had 62 questions and the full mark was 62. Then, an item objective congruence (IOC) was used to test the consistency of the questions with the learning objectives of the study. Expert Judgment is a pragmatic approach to evaluating the content validity (Rovinelli & Hambleton, 1977), which involved asking five experts to rate the alignment of the 62 test questions with the 13 learning outcomes. Finally, all the questions were matched to the appropriate learning objectives.

The pre-test was administered on the 18th and 19th October before the experiment. It was implemented online and lasted for 60 minutes. The post-test was administered on the 5th December after the intervention. In order to ensure the experimental validity and minimise the degree of inequality between the groups. Hence, it was possible to control the learning objectives, teaching materials, teaching methods, teaching activities, teaching times, and assessment methods of both two groups. To avoid the results of the pre-test affecting the results of the post-test, the EC and CC were conducted simultaneously in the post-test, and the sequence of the post-test questions was rearranged to avoid the pre-test affecting the experimental results.

RESULTS

The pre-test and post-test data was subjected to a statistical analysis, including an independent samples t-test for the homogeneity between the two groups and then a paired sample t-test to compare the results of the pre-test and post-test for each group respectively. Finally, a one-way analysis of covariance (ANCOVA) was used to check whether there were significant differences between the two groups. Firstly, independent sample t-tests were used to analyse the data to determine if any significant differences existed between the EC and CC groups in the pre-testing of the ESG course, as shown in Table 4.

TABLE 4
SUMMARY OF INDEPENDENT SAMPLE T-TESTS FOR ESG COURSE PRE-TESTING

Classes	*Tests*	*Mean*	*SD*	*t*	*p*
EC (n=58)	Pre-test	19.38	5.467	-.421	.675
CC (n=50)	Pre-test	19.82	5.375		

These results show that there was no significant difference between the pre-intervention experimental and control groups in the pre-test prior to the use of the ESG course, which met the requirement of homogeneity.

A paired samples t-test was then used to examine the ability of the students in the EC and CC groups to assess ESG learning based on the concept of sustainable finance of Chinese students studying finance in Thailand. As shown in Table 5, the overall scores for the ESG learning assessment of both groups had substantially improved ($p < 0.05$), indicating that the students' results in the pre-test and post-test differed significantly. 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. The mean of the EC was 32.52, and the CC was 24.80, $p<0.05$, which indicated that the performance of the EC was better than that of the CC.

TABLE 5
RESULTS OF PRE-TEST AND POST-TEST ON ESG LEARNING ASSESSMENT SCORE OF GROUPS

Groups	Tests	*n*	*Mean*	*SD*	*t*	*p*
EC	Pre-test	58	19.38	5.467	16.964	.000
	Post-test		32.52	3.983		
CC	Pre-test	50	19.82	5.375	6.521	.000
	Post-test		24.80	5.151		

Prior to conducting the one-way ANCOVA, the within-group regression coefficients were checked for homogeneity based on the assumptions of the ANCOVA analysis. This involved conducting a regression coefficient homogeneity test, and the results of the intra-group and pre-test were ($F=3.182$, $p=0.077>0.05$), which is coefficient homogeneity. The results of the covariate analysis of the ESG course, namely, the difference between the experimental and control groups in the post-test after excluding the effect of the pre-test, are shown in Table 6. The final analysis of the covariates related to the ESG learning assessment indicated that the EC performed significantly better than the CC in the post-test.

TABLE 6
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			

DISCUSSION

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). This study was focused on determining the ability of an ESG course intervention to enhance the concept of sustainable finance of international Chinese college students majoring in finance in Thailand. The findings showed that the ESG course was more successful in enhancing the students' notion of sustainable finance than traditional teaching methods.

The results of this study are also consistent with those of previous studies. In Canada, when Oldford et al. (2021) found that traditional teaching had limited coverage of ESG topics and was slow to adapt to the industry, but non-traditional teaching could be used to meet the demand for 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 ESG pedagogy to meet industry demand. They found that students were able to acquire ESG skills through experiential learning. Compared to Oldford et al. (2021), ESG was integrated into the finance course in this study in order to develop the students' concept of sustainable finance and generate their critical thinking. This is in line with the claim of Stubbs and Cocklin (2008) that different solutions and business cases can help students to understand sustainability.

Meanwhile, 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. Local Thai business managers were invited to give presentations to help the students in this study to understand the importance of ESG issues in Thai companies, and the course also included an exploration of current labour and environmental issues in Thailand to enhance the students' understanding of the current developmental status of ESG. In addition, during the group discussion session, 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 the related issues, students rethought 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.

CONCLUSION

With the United Nations promotion of sustainability, many businesses are subjected to sustainability-related regulations, but some scholars believe that the concepts of profitability and sustainability conflict, as financial education has previously emphasised the notion of maximising the shareholders' profit, which has affected investors' investment behaviour. Since finance education can be diverse and multifaceted, it is essential for higher education institutions in different regions to find appropriate local themes and teaching methods to promote sustainable finance.

IMPLICATION

This study was based on the integration of the ESG course into a financial statement analysis course, guiding students to consider ESG factors in the process of investment targeting or decision-making. The findings showed that the students achieved better learning outcomes than traditional ESG teaching. Mburayi and Wall (2018) suggest that the accounting and finance curricula lags behind the other developments made in business schools and that more research is needed to integrate sustainability in finance education. The results of this experiment suggest that teachers of finance education should establish their own teaching environment and integrate their teaching subjects with the relevant content of an ESG course 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. Consequently, more successful real examples can be cited to demonstrate the importance of developing sustainable finance thinking to students.

RECOMMENDATION

Data from quantitative research shows that ESG course is more effective than traditional teaching in improving learning outcomes in sustainable finance. Based on the current findings, more finance disciplines could be integrated with relevant sustainable finance concepts in the future. More qualitative or quantitative learning outcomes could be collected to analyze students' critical thinking about sustainability.

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