



# Education for Sustainable Development in the Context of COVID-19: Case Study of a Higher Education Institution in China

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**Abstract.** With COVID-19 continuously afflicting people all over the world, economic, environmental, as well as societal crises arise. Among all the possible solutions, Education for Sustainable Development (ESD) might be the most fundamental to deal with these crises and achieve sustainability in different fields. It aims to empower learners with knowledge, skills, values and attitudes to address growing sustainability challenges. Integrating ESD into current higher educational system might help to produce better decision-makers and more responsible change agents, and then help cope with unexpected situations like COVID-19. The study aims to explore more effective ways to integrate ESD into all process of teaching and learning in China's higher education institutions, through case study of Chongqing Finance and Economics College (CFEC), China. A total of 153 undergraduates from finance, economics, business, and computer science programme were involved in this study. In addition, six teachers and ten students are interviewed privately online or offline. Focusing on ESD principles, taking all processes of education, and incorporating the current challenges mainly COVID-19 as part of the teaching content or scenario of students' activities, the educators might develop a localized model of ESD.

**Keywords:** Education for sustainable development · COVID-19 · Scenario-thinking

## 1 Introduction

Since the introduction to the concept of sustainable development in 1970s, all people worldwide have been exploring solutions to the problems that hinder the healthy development of environment, society, and people themselves. Education for Sustainable

Development (ESD), then, came into being. It is a kind of education launched and promoted by UNESCO (2018), which “empowers learners with knowledge, skills, values and attitudes to take informed decisions and make responsible actions for the sustainability of environmental integrity, economic viability, and just society for present and future generations while respecting cultural diversity”.

However, with the appearance of COVID-19, the world of education was suddenly stuck in chaos, all educators and students were forced to transform their mode of teaching and learning. How to carry out ESD, while catering for the health and safety of students, seem to become a huge problem. Even so, integrating ESD into current higher educational system might produce better decision-makers and more responsible change agents, and then help cope with unexpected situations like COVID-19. Therefore, the researchers aim at exploring effective ways to integrate ESD into study programs of higher education institutions, through case study of Chongqing Finance and Economics College (CFEC), China.

## 2 Literature Review

### 2.1 Education for Sustainable Development and Its Development

#### 2.1.1 ESD in the World

The concept of Education for Sustainable Development (ESD) has been constantly changing and gradually evolved with the understanding of sustainable development.

The idea of ESD most probably had started since the first intergovernmental conference on environmental education in Tbilisi, Georgia, in 1977 (UNESCO, 2000; as cited in Svanström et al., 2008), goals for education that address environmental and sustainability challenges being documented (Svanström et al., 2008). From 1980s to 1990s of 20th century, UNESCO shifted the focus from environmental education to the education for sustainability of nature, society and economy (Kan & Xu, 2020). The United Nations announced the period of 2005–2014 to be the Decade of Education for Sustainable Development (DESD). The goal is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning (UNESCO, 2005), and encourage changes in behavior in order to create a more sustainable future with environmental integrity, economic viability, and a just society (Svanström et al., 2008).

In 2015, United Nations (2015) stipulated Sustainable Development Goal 4 (SDG 4) in *The 2030 Agenda for Sustainable Development*. SDG4 shows that education in today’s world should not only focus on transmitting the concept of sustainable development but “ensure that all learners acquire the knowledge and skills needed to promote sustainable development” (United Nations, 2015; UNESCO, 2016). Later, UNESCO elaborated Education for Sustainable Development (ESD) as a kind of education which “empowers learners with knowledge, skills, values and attitudes to take informed decisions and make responsible actions for the sustainability of environmental integrity, economic viability, and just society for present and future generations while respecting cultural diversity” (UNESCO, 2022a). In May 2022, at the 3rd World Higher Education Conference, UNESCO called for a transformation of current higher education system, and stipulated the three new missions of higher education in the face of increasing global challenges such as COVID-19:

“to produce knowledge through research and innovation by adopting inter- and trans-disciplinary approaches; to educate well-rounded professionals who are also fully-fledged citizens able to cooperatively address complex issues; and to act with a sense of social responsibility, locally and globally” (UNESCO, 2022b).

In the document, UNESCO emphasized the learning outcomes of students that HEIs should focus on, namely, research and innovation, inter- and trans-disciplinary perspectives and knowledge, collaboration, problem-solving ability, and social responsibility.

At present, the concept of ESD is more comprehensive and ambitious. It has been extended from ecological and environmental education to that of people connected to the economy, society, and culture (Wang, 2015). It not only emphasizes the accessibility of education, the quality of education, but the importance of assessing learning outcomes; it not only pays attention to the important role of students, but that of teachers, and stressed the importance of teachers’ training (United Nations, 2015; UNESCO, 2016; Naidoo, 2020).

However, there are no uniform standards or guidelines for ESD implementation. Since different country has different cultural, economic and educational background, their understanding and implementation of ESD may vary. Looking for the right ways to carry out ESD is a tough task for each country and school.

### 2.1.2 ESD in China

As early as 1994, China recognized sustainable development as a national development strategy. ESD was listed as one of major strategies in the *National Plan for Medium and Long-Term Education Reform and Development* (2010) (Wang, 2015).

While the UN sees the importance of ESD for the sustainability of environment, society, economy and human beings as a whole, the Chinese government and educators (Pan, 1999; Shi, 2010; Wang, 2015) also noticed that the core of ESD is to cultivate people’s sustainability and sustainable development values. People with sustainability can constantly develop themselves in the whole life, and cater for the need of society, and help solve the problems occur in environment and society.

In accordance with Agenda 2030 launched by the UN, Foreign Ministry of China (2016) issued *China’s National Plan on Implementation of the 2030 Agenda for Sustainable Development*, which advocates “deepening education reforms, improving the quality of education and strengthening students’ sense of social responsibility, creativity, and practical ability as a priority in national education”. The goals for higher education in China, then, include the cultivation of virtuous people with capability of life-long learning, and development of skills like problem-solving, critical thinking, creative thinking and those related to communication and collaboration (Shi, 2010; Wang et al., 2020; Zhou et al., 2020).

In addition to that, China has created a series of new concept of higher education reforms from 2017 to 2018, like the construction of “Four New Disciplines” — new humanities, new engineering, new medical science, and new agriculture, encouraging interdisciplinary studies, creation, and application of knowledge in real life (Ma, 2020). By the way, President Xi emphasized the development of good virtues in college students in 2016. Hence next year, China’s Ministry of Education (2017, as cited in Wang,

2020) officially announced to conduct ideological and political education in all higher education institutions (HEIs). Since then, China has launched the widespread reform of ideological and political education, embedding it in every courses of higher education. It is aimed to cultivate well-rounded professionals and socialist successors, by developing students' good virtues, correct values and views towards the world and different cultures, together with their life, work, family and country (Wang, 2020). In that case, student' sustainabilities in life, work and study are also promoted.

Based on the learning outcomes stipulated by UNESCO and China's different documents, students in China should be trained mainly in these aspects: first, psychological well-being, like virtues that China and the UN advocated, which involve patriotism, integrity, kindness, and social responsibility; second, ability and skills to learn and solve problems, such as transdisciplinary perspectives, autonomous learning, critical thinking, creative thinking, systemic thinking and problem-solving; third, interpersonal social skills like leadership and collaboration. Therefore, to enable students become change agents and help create a better world in the future, HEIs must incorporate sustainability training in every way of education.

## 2.2 Scenario Thinking

“Scenario thinking is a structured and rigorous approach that allows for the investigation of the key ‘what ifs’ that inevitably come with any complex and long term planning study” (Makim et al., 2008). It is primarily a management tool, using scenarios to stimulate innovative solutions for a possible future context (Sarpong et al., 2011). It has been used in other management areas for many years, but rarely applied to educational system (Kohl et al., 2021).

As Lindgren and Bandhold (2003) summarized, scenario thinking is based upon seven principles, which are also seven fundamental perspectives. These principles include “get yourself a toolbox”, handle your brain with care”, think in dramas, futures, uncertainties, systems, and think about strategic moves.

The first principle means thinking can be improved by techniques, methods, and tools. The second principle infers that we should respect hidden principles of human brain for survival and success since it has evolved for billions of years. The third, thinking in drama, means everyone in the world are just like living in a drama, each depends on and influences all others. Thinking in futures, the essence of scenario thinking, means putting the future first. Starting with what might happen, and plan for what to do from the imagined future. Thinking in or managing uncertainty is the main task of any managerial process. Thinking in systems means thinking from the outside in, thinking in levels and inter-connections, independence and dependencies (Lindgren & Bandhold, 2003). The last one refers to the link from scenario to strategy through strategic moves. Strategy involves intentions, interventions, actions and strategic moves from the drama perspective (Lindgren & Bandhold, 2003).

Considering the seven principles, especially thinking in futures, uncertainties and systems, scenario thinking is totally align with the purposes of ESD, that is, help students master systemic thinking, interdisciplinary knowledge, become changing agents, and be prepared with knowledge and ability for the sustainability of the nature, society and human themselves.

Scenarios can be used to explore general areas of risk and opportunity. The ultimate purpose of the scenarios is to help make better and more resilient strategic decisions (Wilson, 2000:24). Scenario development is built on the analysis of the driving forces of change, that is, trends and uncertainties. Trend means something already exists now, while uncertainties relate to unknown future (Makim et al., 2008). The world today is full of uncertainties, and COVID-19 is just one of the examples. To integrate principles and methods of scenario thinking into ESD can be a good way to achieve the goals of ESD, and then help students be better decision-makers and change agents when faced with future uncertainties.

### **3 Problem Statement**

#### **3.1 The Insufficient Implementation of ESD**

Having been advocated for decades in the world, ESD is not fully implemented in many regions and schools, educators and students do not associated it with daily teaching and learning either (García-González et al., 2020). There are objectives related to ESD in most schools, such as cultivating students' autonomous learning ability, life-long learning ability, transdisciplinary perspectives, critical thinking and creative thinking, and even global perspective, but when it comes to assessment, it is another thing. Many evaluation systems do not reflect the learning objectives, only focusing on knowledge students have learnt. Therefore, few observable achievements are shown.

At the same time, many teachers are used to traditional way of teaching, and pouring out what they learn from past. Reading slides might be the most common way of teaching (Li, 2022). They have not got into a habit of learning new knowledge and technology themselves, not to mention transmitting new knowledge and expanding student's horizon in class.

#### **3.2 The Challenges Brought by COVID-19**

The breakout of Covid-19 forced all schools to quickly respond and take actions in order to ensure that teaching and learning can go on smoothly. Chinese government asked all schools to shut down and conduct online classes since the beginning of the semester in February 2020. The complete different way of teaching pose great challenges to both school management, staff and students. As teachers and students are the major parties involved in teaching and learning, what they face are largest obstacles.

#### **3.3 The Shift of Focus in Education**

For the whole spring, students study at home and all their work are largely dependent on their automous learning abilities and persistence, which are becoming the major focuses of teaching during the pandemic. For those who can not control themselves, they might spend the whole day on bed, leaving computer and cellphones aside. Or they might be doing something else, while teachers are waiting for their response. Teachers have to assign a lot of homeworks or projects to ensure that students are learning something,

which make both teachers and students feel tired and exhausted. Therefore, imparting the ways of self-learning and developing autonomous learning abilities and persistence, might be more important than other objective in the special period.

### **3.4 Transformation of Teaching Methods**

When all or some students and teachers are kept in quarantine, the teachers have to conduct online classes, or blended teaching. Both teachers and students have to learn technologies about online class. During the lasting period of pandemic, CFEC has provided many online platforms, like Rainclassroom developed by Tsinghua University, Ding Talk by Alibaba Group, and Tecent Meeting by Tecent Group. However, too many online platforms pose another problem. Either teachers or students have to spend a lot of time learning to use and getting familiar with different online platforms, in case that one of them does not work in the middle of class.

COVID-19 poses challenges as well as opportunities to educators to learn to conduct ESD in ever-changing world. Enabling students learn to cope with uncertainties is actually one of the major purposes of ESD. How to conduct ESD effectively in uncertain world is what the researchers mostly concern about.

## **4 Research Methodology**

This research is a case study of Chongqing Finance and Economics College (CFEC), China, consisting of a literature study and empirical study.

Firstly, an analysis is conducted on different documents of education compiled by Teaching Affairs Department in CFEC from the time prior to the COVID-19 outbreak until now. The documents range from the construction of programs and curriculum, the operation and monitoring of teaching, to the enhancement and evaluation of teaching quality. The counter measures of CFEC to cope with challenges brought by COVID-19, specifically in revising program learning objectives, reconstructing curriculum, textbook compilation, teachers' training, supervision and technical support, are examined and sorted out.

In addition, behaviors of 153 students in finance degrees, economics degrees, business degrees, and computer science degrees are observed in and after online classes, among which ten of the students, and 6 teachers are interviewed privately online or offline. The observed students consist of 65 males and 88 females, while the interviewed students include 6 males and 4 females, from the above mentioned degrees respectively. The interviewed teachers are made up of 4 females and 2 males, from English Department, Math Department, School of Computer Science, and School of Public Management.

The observation was mainly on the students' performance in class and their assignments and projects finished after class. The interview was focused on their feelings towards school and achievement they believed they had made after breakout of COVID-19. The conclusion is drawn after the researchers analyzed the documents of CFEC, and the recorded interview with teachers and students.

## 5 Research Finding and Discussion

### 5.1 What CFEC Has Achieved

From the program learning objectives, curriculum, textbook compilation, teachers' training, supervision and technical support, CFEC has done much to ensure the smooth operation of teaching and learning in the context of COVID-19. At the same time, it took measures to cater to the all-round development of students, which reflects the concept of ESD in China.

First, revise the current program learning objectives, and reconstruct curriculum, based on the needs of society and the change of environment. The changes show that CFEC. Lay a great emphasis on the transdisciplinary education, the internalization of good virtues and correct values, and integration of knowledge and abilities needed in work and society. Good virtues, autonomous learning ability, and creativity are listed as important parts of program learning objectives. Since October 2019, CFEC has launched a series of optional courses to expand students' horizons and cultivate their autonomous learning abilities. The courses include Chinese traditional culture, such as *Appreciation of Ancient Chinese Coins*, *Chinese Tea Culture*, *Introduction to Confucianism*, and *Chinese Traditional Poems*, different arts like music and dance, as well as the courses related to their future career and psychological well-being, like career planning, and mental health counselling. Some of the courses are learned by students themselves online, some others are conducted offline. All courses are aimed to help students become better and happy persons, and be well-prepared for their future career and life (Teaching Affairs Department of CFEC, 2019).

Second, promote "internet plus education" project and teaching contest. Massive Open Online Courses (MOOCs), Small Private Online Courses (SPOCs), and Micro-course Online Videos (MOVs) are inspired and widely used. These projects are complementing to traditional education, providing things that the teachers may not be able to have time to cover in actual classes. In fact, when COVID-19 spread across China, these projects helped teachers and students a lot in teaching and learning. Teachers could utilize MOOCs and MOVs to assist their teaching, and those who had learnt about making MOVs could quickly adapt to the online teaching. At the same time, CFEC inspires teachers to participate in Creative Teaching Contest organized by Chongqing Municipal Commission of Education each year, in order to stimulate teachers' creativity and help them better integrate research and teaching. The participants, through informal conversations, expressed a sense of fulfillment after joining the contests.

### 5.2 What CFEC Needs to Improve and What Measures to Take

#### 5.2.1 Real-Time Feedback

Provide real-time feedback to teachers and students, or respond to the feedback from students and teachers in time and handle the situation appropriately. The order and smooth operation of teaching is often stressed most in CFEC. At the beginning and in the middle of each semester, the school leaders and management would check classroom teaching through monitors or online platforms, to ensure attendance of all students, the proper behaviors of teachers and the management of class (Teaching Affairs Department

of CFEC, 2019). Top-down management is clearly shown in the work, while bottom-up approach is neglected. The feedback from teaching supervisors, teachers or students about teaching quality or teaching facilities is not always dealt with immediately, and seldom reported on the school website or concluded in the meeting with teachers and students.

### 5.2.2 Evaluation and Quality Standard System

Evaluation systems need to be transformed and quality standard system be constructed. Teaching content and quality, together with learners' ability and performance are not adequately evaluated and supervised. Some of the standards in the assessment of teaching by students are not align with program learning objectives, syllabus, teaching content and the feature of each course.

Even though the sustainability of students like critical thinking, creative thinking, collaboration and problem-solving are regarded as major objectives in different programs, there is not a standard for teachers to evaluate students' performance. All the evaluation is dependent on teachers' experience and knowledge of these abilities. When it comes to assessing students performance in school online systems, there are still conventional standards like "attending lectures on time", "dressing up properly", and "participating actively in class activities" etc. There are no evaluation of their expression of ideas, which reflect their thinking and communication skills, or their autonomous learning. As online classes become new normal after COVID-19 broke out, students may not see teachers face to face, and teachers neither. In that case, attending classes or fully participating in class activities cannot be assessed correctly, collaboration and communication cannot be operated as smoothly as in offline classes. Therefore, the evaluation of students come in different forms, like through project-based learning. The focus can be shifted to autonomous learning and problem-solving ability, and new elements like technological competence can be added.

On the other hand, teachers should learn ESD and trained about constructive alignment (Biggs, 1999), and in turn, students should be informed of what they should learn and achieve at the beginning of each course. They should have a general idea about what ESD is and work hard to achieve sustainability in college. There are objectives stated in syllabus and each unit, but whether students or even teacher understand them is a question. As orally reported in a teaching and research meeting on English course, for example, only 10 to 20% of teachers explain and stress the learning objectives in class and organize teaching and learning activities around these objectives. Staff in Teaching Affairs Department may also need to learn about each course in order to establish the most appropriate quality standard system. Each semester, students need to assess each course. There is one called "cultivating students' global perspective and introducing the frontiers of research to the student" applied to all courses in CFEC, including basic courses like College English. As a basic course, College English is essentially focused on developing students's language competence, knowledge of different cultures, and global and diversified perspectives, but very little on the frontiers of language research. That standard may mislead students into a wrong realization of English course at college.



### 5.2.3 Teaching Content and Way of Learning

Teaching content needs to be enriched. As online classes or blended teaching are widely used in HEIs today, teachers cannot just focus on the professional knowledge and abilities, but upgrade teaching content in the new environment, especially the knowledge and abilities needed in current pandemic and ever-changing world, like live streaming, and scenario thinking.

Practical ability and creativity are often emphasized in higher education. Nevertheless, students interviewed show dissatisfaction and concern about the two. In the first year of college, they are only provided with liberal arts and theoretical courses. Professional courses are arranged in the second and third year. Practice and internship are widely offered in the fourth year. Actually, the way vocational schools have tried in promoting students' practical ability turned out to be applicable in universities, especially application-oriented universities like CFEC, that is, to provide opportunities to work at the end of each semester.

"Learning by doing" initiated by American philosopher and educator John Dewey in 20<sup>th</sup> century has been proved the most efficient way of learning things. It can also be applied to learning professional knowledge and abilities in college. For business degrees, live streaming can be a part of teaching content as well as a way of learning. In the context of COVID-19, taking emergencies as part of teaching content, can also help train students' problem-solving abilities, critical thinking, leadership and collaboration.

### 5.3 Application of Scenario Thinking to ESD in the Context of COVID-19

Scenarios normally deal more with longer term trends and uncertainties, often with a 5- to 10-year time horizon, rather than short-term developments. The true value of scenario planning is that its process both begins and ends with an emphasis on action (Wilson, 2000:25). In the context of COVID-19, there might be several scenarios, namely, open schools with preparations at ready, flexible school online and offline, and schools face long-term restrictions and mobilisation (RISE Research Institutes of Sweden, 2020). The three scenarios has appeared alternately during the past three years. The scenarios can result in new conditions for teaching and schools management. Completely new demands on competences among teachers and other school staff are needed, specifically when transitioning from synchronous online teaching to asynchronous distance teaching. Other demands include how to conduct assessments and examinations, practical subjects, and vocational programs (RISE Research Institutes of Sweden, 2020). Assessment and evaluation can be particularly challenging with distance teaching whereas it can be more challenging to ensure the quality of the education, and conduct ESD and cultivate students' sustainability (RISE Research Institutes of Sweden, 2020).

## 6 Conclusion

In the world today, human beings are good at utilizing nature and transforming the environment, having invented and produced a large variety of machines and equipment to help people in life and work. In their minds, things like economy, technology and

politics often come first, but they neglect the development of themselves. With COVID-19 coming out in January 2020, economic issues arise, regional disputes worsen, and social order of the whole world needs to be reconstructed. At the critical moment, people's values, mental health and morality matter most (Gong, 2021). Change agents that can lead people get out of the trouble are needed more urgently than ever.

ESD is one of the most important ways to produce change agents and cultivate people's ability to handle uncertainties, so that it is more necessary to carry out than in the past (Kohl, 2021). References to the education system's pandemic response in CFEC, China, add practical examples to the discussion. In HEIs like CFEC, learning outcomes or objectives of ESD are incorporated in program learning objectives and curriculum, but not implemented thoroughly in teaching and evaluation. In the context of pandemic, teaching content and methods should be changed. Enabling student learning things is not enough. It is crucial to identify strategies to motivate and equip students with the digital literacy. Evaluation criteria may also need to change accordingly, and more viable way of measurement should be utilized. Scenario thinking can be integrated with ESD, applied both in the management of school, but also in the implementation of ESD, learned by educators and students. Learning about scenario thinking and treating ESD as guiding principles to reorient current education systems could be key to achieve the quality education and thus to strive towards a sustainable future (Kohl, 2021).

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