



Online course design and its effectiveness in the post-covid-19 era in higher education: Empirical evidence from China

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Abstract. The post-covid-19 era has instigated new opportunities and challenges to the construction of online courses and digital learning. Under such context, this paper takes the course “Crisis Management” (CM) as an example and attempts to innovate the online teaching content, mainly including: deeply combining the case teaching method, analyzing the ongoing enterprise crisis, formulating a dynamic teaching calendar, emphasizing the role of “people”, paying attention to process assessment, etc. Through the above course innovative design, while realizing the teaching objectives, it aims to explore ideas for further cultivating students into business administration talents with family and country feelings, crisis awareness and mastering CM methods. Questionnaire data from 192 Chinese university students showed that students’ level of crisis leadership was significantly improved at the end of the semester than their baseline levels at the beginning of the semester after adopting the online course content design; also, students’ level of crisis leadership significantly and positively predicted their academic performance and organizational citizenship behavior for the environment.

Keywords: enterprise crisis management; online teaching; case teaching; digital learning

1 Introduction

Management studies how various organizations operate efficiently. It emerges from the practice, develops out of it and in turn guides management practice activities. A crisis is an unexpected event that poses a threat to the achievement of an organization’s fundamental objectives and requires the organization to make critical decisions and respond urgently in a very short period of time. As an elective course for undergraduate students in the Business Administration major, the course of Crisis Management (CM)

aims to equip students with the basic theories and ideas of CM. In fact, CM is not “advanced thinking” in management, but rather a concept that managers need to uphold at all times in their organizational design, daily operations and employee relations.

Over the past three years, the pandemic has tested not only the ability of the public sector to respond to this health crisis, but also the ability of companies to cope with unexpected emergencies. Up to now, although social production and life have returned to the basic pattern before the epidemic, the impact of the “long covid” cannot be ignored [1]. In the critical period of domestic economic growth slowdown, industrial structure upgrading and adjustment, how should enterprises overcome this difficult time, to successfully resume work and production, “back on the road”, and even to turn “crisis” into “opportunity”, these are the questions we tried to explore and answer in the process of studying CM [2] together with students.

Overall, the post-covid-19 era has generated new opportunities and challenges to the construction of online courses and digital learning. Taking the core course CM of Business Administration as an example, this paper aims to explore an innovative model of course content design. Furthermore, based on the analysis of questionnaire data collected from 192 Chinese university students, this paper explores and verifies the effect of this new course design on students’ academic performance and personal level of crisis leadership (CL) improvement.

2 Innovative teaching mode of online courses

Combining the new forms and features of online teaching, the course CM has redesigned its content with the backdrop of the pandemic. As the course progresses, it leads students to analyze real-life problems and encourages them to perceive the voices of the government, enterprises, and society from multiple perspectives.

Under the context of post-pandemic era, analyze the ongoing crisis. The pandemic is a major crisis event, which not only tests the ability of the government and public sectors to respond to this public health crisis, but also tests the ability of enterprises to respond to emergencies. Thus, studying knowledge in CM and combining it with the practical experiences of classmates can deepen the understanding of establishing crisis thinking, mastering CM and response methods, and strengthening the importance of crisis prevention and control. In learning process, students will not only understand the different impacts on various industries at a macro level, but also track in real-time the crisis events happening in large, medium, and small-sized enterprises, and explore how large enterprises deal with systemic risks brought by crises, how small and medium-sized enterprises or start-ups face the risk of closure, what measures responsible entrepreneurs are taking, and what recommendations management scholars have proposed.

Take into account the characteristics of digital learning, provide course materials that can effectively support online courses. Students are provided with both PPT and audio resources, covering the following main topics: (1) Courseware content that complements the main points of the textbook. Online learning is difficult to obtain the paper version of the textbook. In order to help students to master the core knowledge and achieve a clear understanding of the content of each chapter, PPT that combine the key

points of knowledge in the textbook are provided for students to learn and understand. Also, reflection questions are presented after each lesson. For the mastery of certain part of knowledge, the corresponding audio will mainly introduce the knowledge framework and knowledge system, and provide a careful explanation of what needs to be mastered in focus.

Track real-time cases of enterprises combating the epidemic, develop a dynamic teaching calendar, and analyze from multiple perspectives. The teaching content for each week revolves around two parts: “Traditional lecture content” and “Case Analysis and Extracurricular Extended Reading”. While mastering the basics of the subject, another part of the learning effort will be focused mainly on thinking and discussing real CM issues during the weekly study sessions. The outbreak of the covid-19 has had a profound impact on all aspects of social life, and has brought crisis issues of survival and development for all types of enterprises. Therefore, tracking macroeconomic trends, understanding various types of crises, and helping students to form their self-awareness and judgment of real-life issues while mastering knowledge, are activities of great learning significance and practical value. The students are provided with extended reading materials outside of class, including case studies, industry reports, etc. The audio will mainly introduce the case synopsis, analysis framework, and ask questions for reflection. These two parts are effectively compared through the teaching activity calendar, as shown in Table 1.

Emphasize the role of 'people' in CM and integrate it with human resource management. “When force majeure strikes, the key to overcoming and crossing it lies in people”. Employees’ initiatives can play the key role to the survival of enterprise during crisis. Such opinion is constantly emphasized and reiterated by management scholars and entrepreneurs in this special period. Meanwhile, after the resumption of production in February 2020, many enterprises have adopted new human resource management strategies such as online office, remote office, which have all provided a guarantee for consolidating the results of the “anti-epidemic” and resuming production smoothly. Therefore, in the actual CM process, the prominent role of people should be further emphasized. This course is designed to guide students to master the core knowledge of CM, and explore relevant issues in the field of CM from micro perspectives such as human resource management and organizational behavior.

Focus on the whole-process evaluation before, during, and after the class. Due to the inevitable lack of one-on-one Q&A sessions in online learning, it is also difficult for students to maintain discussions and communication with their peers. Therefore, before each class, post class reflection questions are set up in the discussion area for students to leave messages and discuss. Regular review and reply to students' discussions are conducted two days before class, on class day, and three days after class. The course emulation system is updated according to the characteristics of the online course, focusing on the process assessment, and assigning homework and reflection questions after each class, with the usual grades accounting for a total of 50% of the overall score. The post-class assignments are closely focused on what students thought, felt and learned during the epidemic, guiding them to think about relevant issues from different perspectives, combining different contents of CM and using scientific analysis tools to

help them establish a good mindset and develop a correct cognitive framework to understand and respond to the ongoing crisis.

Table 1. Teaching activity calendar

Week	Traditional Textbook knowledge	Case Analysis and Extracurricular Extended Reading
1	Course introduction (introduction to course-related content, arrangement, requirements and assessment; traditional culture and CM)	Chinese management scholars and their perspectives on enterprise management during/after the pandemic
2	A Framework for analyzing enterprise CM during the pandemic	CL: the story of the midnight Edifier [3]
3	Crisis overview (concepts and definitions of crisis, characteristics, processes, types, periods: enterprise life cycle)	Reflections on the construction of CM system during the pandemic based on different functions
4	Overview (concept and definition, characteristics, principles, process, practice and theory of CM)	Stories of self-help and mutual aid by companies under the impact of the epidemic (1): 240 hours of life and death struggle for Banu Hotpot ¹
5	Crisis prevention (prevention, management planning: preparation, crisis early warning: monitoring, assessment, forecasting, crisis pre-control: avoidance, prevention)	Stories of self-help and mutual aid by companies under the impact of the epidemic (2): The story of Xiao Bu Dao Jia's rapid online launch ²
6	CM and response (CM principles, methods, measures)	Stories of self-help and mutual aid by companies under the impact of the epidemic (3): The "retail miracle" and "suspension and salary reduction" of Miniso ³
7	Crisis Recovery	The current situation, challenges, and reference strategies of human resource management in enterprises under the impact of the pandemic [4]
8	Communication in CM	Role models of crisis communication under the impact of the pandemic: communication stories of chairman of Original Chicken ⁴

Integrate theoretical knowledge, case studies, and first-hand perspectives from guest interviews. The course will include interviews with people from companies, government departments and universities to help students understand the daily CM in these different sectors and industries, and what special measures are taken during an epidemic. We hope to provide students with a first-hand view of CM in the field.

Expand the three-dimensional thinking based on the traditional content of rise CM. This course design aims to expand students' thinking about CM: firstly, to make good use of enterprise risk hedging tools. Secondly, not only to turn "crisis" into "opportunity", but also to see enterprise responsibility in the crisis. Thirdly, to focus on individual emotional management in the crisis, making good use of methods such as cognitive change and mindfulness exercises [5], to adjust individuals' negative physical

¹ <https://baijiahao.baidu.com/s?id=1657889775836649252&wfr=spider&for=pc>.

² <https://baijiahao.baidu.com/s?id=1659883174653944021&wfr=spider&for=pc>

³ <https://weibo.com/ttarticle/p/show?id=2309404486083713827098>

⁴ <https://baijiahao.baidu.com/s?id=1663502259777547897&wfr=spider&for=pc>

and mental reactions after a crisis event, to keep an open mind to the negative effects of the epidemic, and to deal with their negative feelings rationally.

2.1 Research questions

Covid-19 pandemic has brought new challenges to all aspects of social life, and opened up a new situation for establishing and strengthening the objectives of teaching of ideology and politics. Teaching CM in this context, on the basis of improving students' mastery of professional knowledge, we constantly enhance students' patriotism and social responsibility, and establishing students' awareness of crisis in their own growth and social development in their daily lives. Combining the background of the post-covid-19 era and the innovative design ideas of the online course CM, this study aims to explore the following questions.

Firstly, this paper believes that through the course learning, students will properly handle the latest situation of social and economic life in the post-epidemic era. Facing the dual tests of life and study, they will take the concept and methods of CM as a learning opportunity, continuously cultivate their own character and willpower to persevere in the face of setbacks and difficulties, rise to challenges, and establish a sense of responsibility to undertake important tasks without shifting blame or avoiding responsibility. Therefore, this study proposes the research question (RQ) 1:

RQ 1: What impact will the innovative design of the online course CM have on students' level of CL?

Secondly, through course learning, students will become more concerned about the latest developments and basic conditions of the global economic, social, and cultural landscape. They will establish the concept of a Community of Common Destiny and be able to think about and analyze their own "small problems" in a global context. This will help them establish a stronger sense of social responsibility, environmental awareness, etc. Therefore, this study proposes:

RQ 2: In the context performing innovative design of the online course CM, what impact will students' level of CL have on their level of organizational citizenship behavior for the environment (OCBE)?

Finally, in order to analyze problems in a scientific and rational manner, the learning process should combine the advantages of technology and resources of online learning, teach more about the use and application of online tools and provide students with more systematic training in scientific methodology. This study proposes:

RQ 3: In the context performing innovative design of the online course CM, what impact will students' level of CL have on their academic performance?

3 Method

3.1 Participants and Procedure

In order to alleviate common method variance [6], we tested the RQs through multi-time data collection (Time point 1, Time point 2, and Time point 3; T1, T2 and T3).

We selected a class of CM from a university located in Beijing, China as our participants. At the beginning of the semester (T1), students were asked to fill out their CL level and demographic information through a survey questionnaire. Eight weeks later, in the middle and later stages of the semester (T2), students were asked to evaluate their CL level again and their level of organizational citizenship behavior for the environment through survey. At the end of the semester (T3), the researchers matched the students' two-wave questionnaire answers with their final grades. In order to eliminate their concerns about filling in the answers, before conducting the survey, we promised that the survey would be anonymous throughout the survey, and the survey results are only for scientific research use. There is no right or wrong answer, and students can voluntarily choose to participate or not. Also, their participation will not affect their final grades. When filling in the questionnaire, the researcher asked the students to provide a series of complex personal passwords as their unique ID. At T2, the student filled in their own personal password again. Students' answers to the two questionnaires and their final grade were matched through their unique ID and their student ID.

There was a total of 230 students enrolled in the course. At T1, 224 valid questionnaires were collected. At T2, 213 valid questionnaires were collected (with an effective response rate of 91.2%). After dropping incomplete responses and matching surveys and final score, we obtained a final sample of 192 students.

3.2 Measures

Since that the surveys were in Chinese, we followed the translation and back-translation procedures to translate the items [7]. All items were assessed on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Crisis leadership. At T1 and T2, students were asked to rate their perceived efficacy to assess information and make decisions in a crisis using the nine-item C-LEAD scale developed by Hadley and colleagues (2011). A sample item included "I can modify my regular work activities instantly to respond to an urgent need." The reliability was .86 for T1, and was .90 for T2.

Organizational citizenship behavior for the environment. At T2, students were asked to rate their frequency of OCBE using the ten-item scale developed by Boiral and Paillé [8]. A sample item included "I suggest new practices that could improve the environmental performance of my university." The reliability was .94.

Academic performance. Students' academic performance was the average of daily performance (50%) and final exam score (50%). The final exam score was evaluated by the instructor according to the objective mark in the final exam at T3, of which the full score was 100 points.

Control variables. Following conventional approach, to further eliminate influence of other related factors, we included students' gender and age as control variables.

3.3 Results

Descriptive Statistics and Preliminary Analyses. Table 2 presents correlations, and reliabilities of the studied variables. As the correlation results show, students' CL (T2) is

positively related to their OCBE (T2) ($r = .43, p < .001$), and their academic performance rated by instructors at T3 ($r = .18, p < .01$). These results provide preliminary evidence for our RQs.

Table 2. Correlations, and Reliabilities of Focal Variables.

Variables	1	2	3	4	5
1. Gender	--				
2. Age	-.25***	--			
3. CL (T1)	-.16*	.16*	.86		
4. CL (T2)	-.15*	.18**	.62***	.90	
5. OCBE (T2)	-.11	.11	.48***	.43***	.94
6. Academic performance (T3)	.36***	-.16*	.11	.18**	-.01

Note. N = 192. Male = 1, Female = 2. Age is measured in year. Cronbach’s alphas are presented in italics along the diagonal. * $p < .05$, ** $p < .01$, *** $p < .001$.

Tests of Research Question. We used SPSS 26 to explore our RQs. All the regressions were conducted controlling for students’ gender and age.

Test for RQ 1. ANOVA test indicates that there is a significant increase in CL (T2) than CL (T1) ($F = 5.92, p < .001$). Thus, as for RQ 1, we conclude that the innovative design of the online course CM will enhance students’ level of CL.

Test for RQ 2. The results of hierarchical regression analysis displayed in Table 3 indicated that CL (T2) is positively related to their OCBE (T2) ($b = .43$, Standard Errors [SE] = .07, $p < .001$). Thus, as for RQ 2, we contend that the innovative design of the online course CM will promote students’ OCBE.

Test for RQ 3. The results of hierarchical regression analysis displayed in Table 3 indicated that CL (T2) is positively related to their academic performance (T3) ($b = 1.49$, SE = .36, $p < .001$). Thus, as for RQ 3, we prove that the innovative design of the online course CM will promote students’ academic performance.

Table 3. Hierarchical Regression Analysis Results

Variables	Dependent variable			
	OCBE (T2)		Academic performance (T3)	
<i>Variable</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Constant	2.79**	1.06	81.55***	6.06
Gender	-.13	.13	3.93	.67
Age	.02	.05	-.39***	.27
CL (T2)	.43***	.07	1.49***	.36
R^2	.19		.20	
<i>Adjusted R²</i>	.18		.19	
<i>F</i>	14.75***		17.53***	

Note. N = 192. Statistics reported are unstandardized regression coefficients (and standard errors). * $p < .05$, ** $p < .01$, *** $p < .001$.

4 Conclusion

This paper aims to explore how to innovate the online course content of the core business management course CM in the post-covid-19 era. Specifically, this paper believes the course design should be a combination of characteristics of CM, pandemic, digital learning and new management trends. Furthermore, in order to rigorously verify students' absorption, identification, and internalization of CL based on their mastery of professional knowledge, as well as their further impact on learning and life, questionnaires were distributed at the beginning, middle, and end of the semester to investigate students' level of CL. The questionnaire research was conducted using a well-established scale developed by Hadley et al. [9] and sent to students through the online questionnaire survey platform, aiming to explore the students' level of CL development in different learning stages and its correlation with academic performance, course performance and other positive life behaviors (such as OCBE) [8]. Based on a questionnaire survey of 192 Chinese university students, we found that after course learning, students' CL level at the end of the semester was significantly higher than their basic level at the beginning of the semester ($F = 5.92, p < .000$); Meanwhile, the improved CL level of students can significantly positively predict their academic performance ($b = 1.49, p < .001$) and OCBE ($b = .43, p < .001$).

Overall, the main content of this course not only includes the traditional knowledge framework of enterprise CM, such as the definition of CM, crisis prevention and early warning, but also hopes that students can fully combine the post-epidemic situation and deeply understand how large, medium, and small enterprises and entrepreneurs respond to this emergency. Through learning the course content and online discussions, students can master the basic knowledge and skills of CM, learn to view, analyze, and solve problems in management practice with a CM perspective, and become modern business management talents with patriotism, crisis awareness, mastery of CM methods, and CL.

Funding

This research was funded by the National Natural Science Foundation of China (No.72202012), and the Humanities and Social Sciences Youth Foundation, Ministry of Education of the People's Republic of China (No. 21YJC630178).

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