

# AVAILABILITY OF CDIO AS A DRIVER OF CREATING SHARED VALUE

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## ABSTRACT

The purpose of this paper is to examine the applicability of CDIO to business education. Particularly, I examine the effectiveness of the CDIO framework in relation to Creating Shared Value (CSV), a concept that has been attracting attention in recent years in corporate management theory. As an example, this paper introduces a Project-Based Learning (PBL) class conducted in 2018. The class emphasizes collaboration with companies and focuses on experiencing actual business. In other words, students execute a real project given by a company. The feature of this class is that it does not end at simply the planning stage, but it moves to the actual executing stage. The class is also conducted with a focused awareness of CSV. The students learn not only to conduct business but also to create social value through business activity. In other words, the significance of this class is not just to experience business, but to find shared value through business activities. Although some challenges remain, it should be considered that the CDIO process can be useful for experiencing CSV through business education.

## KEYWORDS

Creating Shared Value, Project-Based Learning, Business Education, Standards 6, 8, 11, 12

## INTRODUCTION

The purpose of this paper is to examine the applicability of CDIO to business education. Particularly, I examine the effectiveness of the CDIO framework in relation to Creating Shared Value (CSV), a concept that has been attracting attention in recent years in corporate management theory.

According to Crawley et al. (2014), the CDIO framework was developed to reform engineering education in order to enable engineering students to enhance their competencies to become successful engineers. However, CDIO is not limited in application to engineering programs. It can also be applied to most other programs in higher education. Crawley et al. (2014) point out that business education is one of the areas of potential application. In fact, various studies on the application of CDIO to non-engineering fields have included business education.

For example, Bienkowska et al. (2016) introduces several cases of implementing CDIO in management courses in engineering programs, including a thesis writing course. In the thesis writing course, students work with real-life challenges in collaboration with firms and learn about project management. They conclude that CDIO could be useful outside an immediate engineering context, although it is not a typical engineering application. In another example, Tangkijviwat et al. (2018) introduce a case of applying CDIO to the field of mass communication, illustrating how students' performance has been improved. Students learn media planning and production as well as financial management in a class titled Principles of Media Production for Multimedia. The students designed logos, labels, and packaging for a customer's products. The conclusion was that CDIO-based education could enhance the competency of graduates to meet stakeholders' requirements. In addition, there are other cases where CDIO is applied to six non-engineering programs including Business Administration and International Business programs in 3 different schools (Malmqvist et al., 2016) and where CDIO is applied to an entrepreneurship course between an engineering school and a business school jointly (Pasos et al., 2018).

This paper introduces another example of applying CDIO to business education and discusses how CDIO is available for business education by which students learn the importance of CSV through business operations.

First, I will review the concept of CSV, followed by a case study of a Project-Based Learning (PBL) class conducted in 2018. After describing the case, I will discuss the availability of CDIO to business education with a CSV perspective.

## **WHAT IS THE CONCEPT OF CSV?**

Creating Shared Value, or CSV is a framework for creating new markets and corporate value that provides useful suggestions for today's corporate management. It argues that companies should realize the economic value and social value simultaneously through their business activities. In other words, companies should design their business to realize both economic value and social value at the same time as the core strategy.

Although various similar concepts have been discussed before, such as in Kanter (1999) and Porter & Kramer (2002, 2006), the concept of Creating Shared Value is said to have been widely proposed by Porter & Kramer (2011).

Companies should create useful value through corporate activities, and as a result, society should be enriched. However, Porter & Kramer (2011) argue that the value of corporate activities is treated unjustly in modern society under the false recognition that corporate activities and the creation of social value are in a trade-off relationship. As a result, companies try to show the significance of their existence in society by conducting social contribution activities represented by CSR and philanthropy. However, CSR and philanthropy embrace the idea of returning profits earned by companies to the society. This is not an activity that creates new value. In other words, CSR and philanthropy are not activities that create value, but merely a "distribution" of corporate profits. Therefore, there is a trade-off between profit creation and social value creation in corporate activities. So long as we assume this position, the creation of social value cannot be the purpose of corporate activities. Rather, what a company should focus on in the first place is value creation that includes social value.

In order to combine corporate value and social value, Porter & Kramer (2011) propose the concept of "shared value," stating that the principle of shared value "involves creating economic value in a way that *a/so* creates value for society by addressing its needs and challenges." and that "businesses must reconnect company success with social progress (p.64)". In other words, it is an approach that creates social value by addressing social needs and problems through business activities, and as a result, creates economic value. By introducing the concept of shared value, Porter & Kramer (2011) argue that "the purpose of the corporation must be redefined as creating shared value (p.64)". This is the outline of the concept of CSV.

## **CASE STUDY**

This section introduces a PBL class conducted in 2018 at Hokkaido Information University (HIU). The class consisted of 7 senior students (4th grade) and 5 junior students (3rd grade). The class emphasizes collaboration with companies and focuses on experiencing actual business. Students execute a project given by a company. The central feature of this class is that it does not end at simply the planning stage, but it moves to the actual executing stage.

In the class, students worked with the Sapporo Printing Cooperative to develop teaching materials for kindergartens, which prints a circular with craft materials. 23,500 copies of this circular are printed and distributed to 120 kindergartens in Sapporo City free of charge. As will be described in detail later, the students chose the Sapporo TV Tower as the theme of the task.

### ***Sapporo City and The TV Tower***

Before I describe how the project proceeded, I will outline Sapporo City, and its TV Tower.

Sapporo, with about 1.97 million population, is the capital city of Hokkaido, the northernmost island of the four main islands of Japan. It is a popular tourist destination for people from both Japan and overseas. The TV Tower is located in the very middle of the city, with a 90-meter-high observation deck. Since its construction in 1957, it has been loved by citizens as a symbol of the city. More than 420,000 tourists visit every year.

The project was executed in the following phases, following the CDIO process.

### ***Conceive and Design Phases***

First, a person from the Cooperative visited the class and explained the outline of the project. Students were given a task to work on. The task given in 2018 was to develop the content of the teaching materials for kindergarten children. The students then discussed their ideas (Figure 1).



Figure 1. Students' discussion

The discussion took place in HIU's multi-purpose active-learning room, whose walls are covered with whiteboards. The students designed their own space, moving and arranging chairs for easier discussion and so that everyone could easily see the whiteboard during the discussion. CDIO standard 6 states that the workspace supports students' learning in which they are directly engaged in their own learning and learn from each other interactively. This discussion class is a good example of how important designing a workspace is.

Since this teaching material is circular (see figure 2), it contains advertising. Therefore, the students must set a prospective target company as a sponsor. This is another task given by the Cooperative. In other words, it was required not only to generate ideas but also to think about how those ideas could be commercialized.



Figure 2. The teaching materials

As a result, the students chose the TV Tower Company as a potential sponsor and planned "The TV Tower Coloring Contest." The plan was to recruit colorings of the TV Tower from children and display the entries on the observation deck of the Tower. Since the TV Tower is one of the most popular tourist attractions in Sapporo City and is also known to all citizens as a symbol of the city, this idea encourages kindergarten children to develop an understanding of the TV Tower from an early age. The students' plan was compiled into a proposal.

Next, the students attended a planning meeting, where professionals gathered and heard their proposal. Figure 3 shows their presentation at the meeting. Various discussions took place, and they received some criticism, but as a result, their plan was adopted. Here we can see the Conceive and Design phases of the CDIO process.



Figure 3. Students' presentation at the planning meeting.

### ***Implement and Operate Phases***

Since this teaching material is circular, the students then solicited the TV Tower Company in order to get advertising. They made a business proposal and presented the benefits of sponsoring the plan. Figure 4 shows how they presented their plan to the TV Tower Company. They proposed that if the company recruited coloring works and displayed them on the observation deck, parents and grandparents would visit there to see the works of their children and grandchildren, and the company's income (i.e., the entrance fee of the deck) would increase.



Figure 4. Business proposal by the students.

They also proposed that this project would not only increase the profits of the company but also provide families an opportunity to enjoy their own company, which is often lost in the modern daily lives of people. When children work on coloring, parents can enjoy talking with and sometimes helping and advising their children. Grandparents can enjoy seeing their

grandchildren's works with their families on the observation deck. That is, the students argued to the company that their proposal would benefit them not only in terms of profitability but also in terms of social value for the company of families.

After presentation and negotiation, the students received the company's consent. It agreed to contribute funds as well as to recruit and display children's works. As a result, 88 works were collected and displayed at the observation deck. Here we can see the Implement and Operate phases of the CDIO process.

## **DISCUSSION**

### ***Availability of CDIO to Business Education***

From the perspective of business education, the students learned a lot from the process of this project, which is based on the CDIO framework. It is a good example of active learning that corresponds to CDIO standard 8. In particular, the students learned through the first-hand experience that making plans is totally different from executing them. At the stage of moving the plan into effect, there are many unforeseen factors that need to be confirmed. For example, the design of the TV Tower has its own copyright. In order to use the TV Tower in teaching materials, the copyright issue must be resolved. They negotiated with the company in order to solve problems like these. In this way, they learned what was needed to make the plan effective.

Furthermore, these activities were conducted with a constant awareness of CSV because the project was originally designed with the CSV structure in mind. Figure 5 illustrates and summarizes the CSV structure of the project.

Of course, the publisher (i.e., the Cooperative), makes a profit through this project. They receive advertising fees and printing fees. However, the development of teaching materials for kindergarten children was not only to generate profits for the publisher but also to provide educational opportunities for kindergartens. That is, the project was a good opportunity to contribute to education through the business for the publisher.

By using this teaching material, kindergarten teachers can save time on making materials by themselves. For kindergarten teachers, making teaching materials is a complex and time-consuming task. They can get various craft materials for free because they are included in the circular. Teachers can use the time they save on other tasks, which can improve the quality of education. From this perspective, this project has social and educational values. It helps kindergarten teachers to save time, to find good teaching materials, and to improve the quality of education.

Sponsor companies, meanwhile, can achieve increased advertising effectiveness: parents and families do not tend to quickly forget the crafts that their children worked on. They tend to keep the children's works almost forever. That is, the advertisement is not likely to be thrown away, despite it is circular. This project solves the problem of sponsor companies that their circulars are thrown away quickly. From this perspective, it has significant business value.

For families, as mentioned above, the result of the project offers enjoyable experiences for parents to talk and work on coloring with their children at home. It helps them to regain and enjoy their family's company. Further, by selecting the TV Tower, a symbol of the city, it also becomes an activity to help raise children's awareness of the city they live in. Perhaps, it

motivates them to appreciate their hometown. From this perspective, this project has social value.

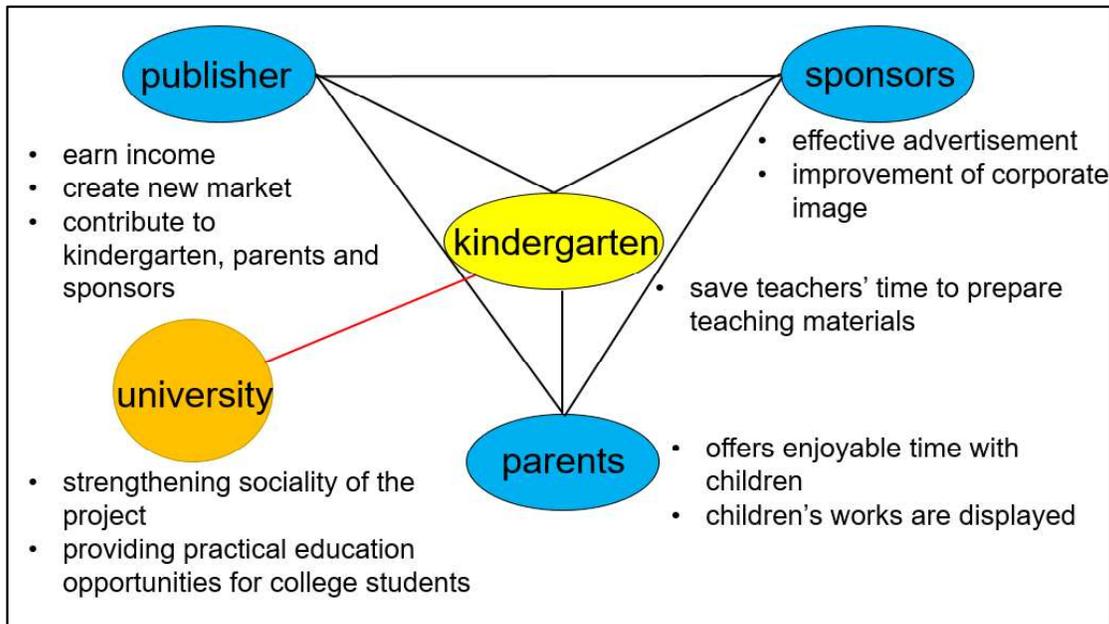


Figure 5. The CSV structure of the project.

Finally, the university can provide practical educational opportunities for its students through this project. Students learn about how the real business world operates, as well as realize the importance of fostering social value through business activities. The commitment of the university strengthens the sociality of the project.

As I have outlined above, this project has both business value and social value, which means it creates shared value. The students have learned not only to conduct business but also to create social value through business by participating in this project. In other words, the significance of this project is not just to experience business, but to find shared value through business activities.

Through this activity, it becomes apparent that the CDIO approach is useful for students to enhance their understanding of the importance of CSV when conducting business. They learn that a business plan is not realized by itself, but only after considering its social value. They learn it by following through to the actual executing stage, not by staying and ending at simply the planning stage. This follow-through to the end is a hallmark of the CDIO process.

Business education needs to include a treatment of sociality or social contribution through business activity. The only real way to achieve this is by having students experience these things first-hand through carrying out real business projects. The CDIO approach is, therefore, a useful way to provide students with experience in real business projects, because it includes the Implement and Operate stages. One could even say that the CDIO approach is necessary for students to understand the importance of CSV.

## Challenges

Figure 6 shows a part of, not the whole of, the curriculum map of the Faculty of Business Administration and Information Science at HIU. The PBL classes are at the core of the curriculum. Students take the PBL classes from the 1st grade to the 4th grade, including an introduction to PBL. The purpose of the PBL class is to develop people who can realize a prosperous society from a broad perspective based on the acquired knowledge. The required competencies are the ability to collect necessary information from various opinions and materials, the ability to express one's thoughts accurately, and interpersonal communication.

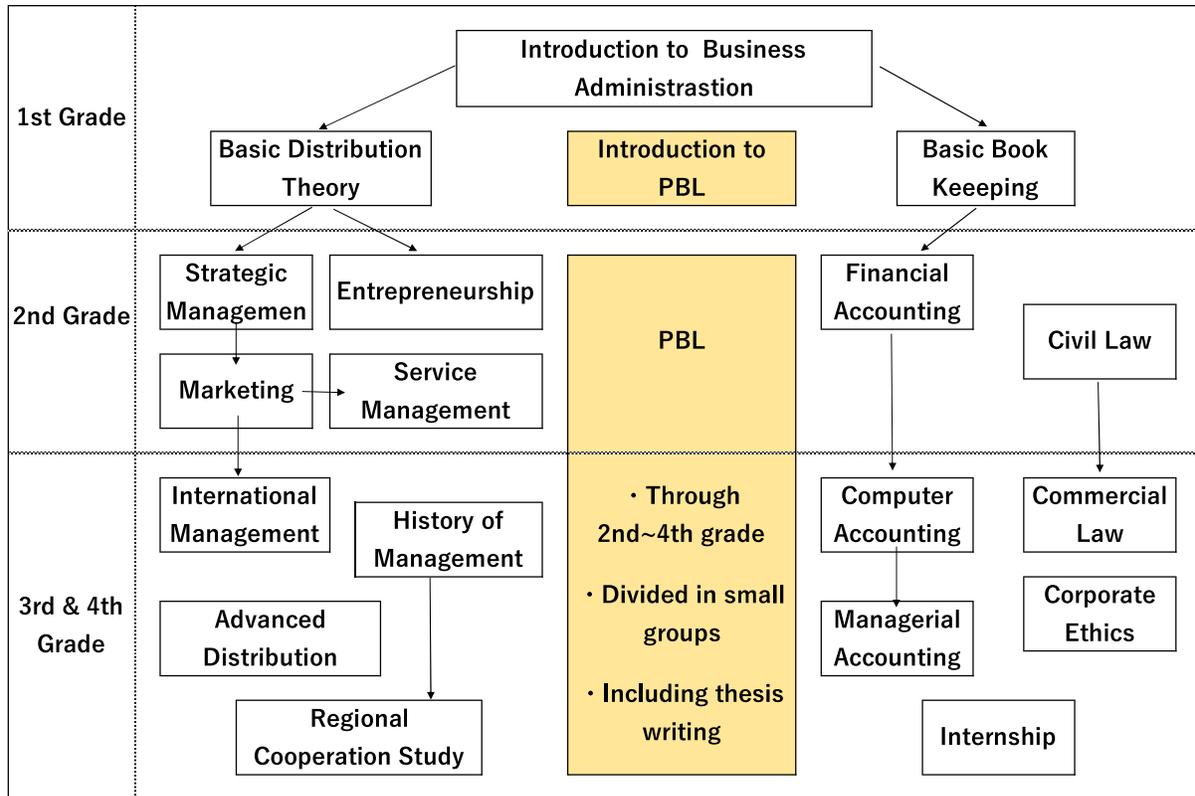


Figure 6. Curriculum map of Faculty of Business Administration and Information Science.

For these purposes above, the class aimed to apply the CDIO framework and make it more effective based on corresponding subjects. Since this project is the first attempt, however, there are some challenges that are yet to be overcome. In conducting this project, the class focused on achieving results too much. There was a lack of evaluation for both the students' performance and program itself, which has a bearing on CDIO standards 11 and 12.

CDIO Standard 11 requires that instructors must evaluate students' learning by using a variety of methods matched appropriately to learning outcomes. These methods may be, for example, rubrics, rating scales, and peer and self-assessment, among other things. However, conducting the program admittedly took more time than expected, which compromised the time necessary for sufficient evaluation.

Further, CDIO Standard 12 requires that a program should be evaluated by evidence of program progress, and improved based on that evidence. In this case, because Standard 11 was not sufficiently addressed, Standard 12 could not consecutively be satisfied.

Taking the above points into consideration, establishing and implementing effective evaluation methods, and improving the program incrementally over the course of time are future goals for this class.

## CONCLUSION

This paper introduced a PBL class conducted in collaboration with a company and examined the availability of CDIO to business education. By examining the activity using the CDIO framework, it should be considered that the CDIO process can be useful for experiencing CSV through business education.

Education, including but not limited to business education, should not be unrelated to society or industry. It should always respond to stakeholders' requests and/or needs. In today's world, business education, in particular, should strive to foster in students a consciousness of social value. Within the CDIO Initiative as well, there is a movement to explicitly incorporate sustainability that society demands (Malmqvist et al., 2019). CDIO, therefore, stands to enhance the social aspect of business education.

As Pasos et al. (2018) pointed out, this kind of education is a time-consuming process. However, it is beneficial for instructors to take the CDIO framework into consideration. They should implement effective evaluation methods and make efforts to improve their programs continuously.

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