

Development of a New Model for Design and Implementation of Comprehensive Capstone Project Courses in Executive Management Education

R. Jayaraman

SP Jain Institute of Management and Research, Mumbai, India

Abstract. Capstone Projects (CP) have been used in executive MBA (EMBA) to meet with industry expectations. In this paper, a new theoretical framework for administering CCP, which is a Comprehensive CP, called the “CCP Way”, has been developed and validated in a course in a reputed B School in India. The framework has been in use for seven years, and has worked successfully in meeting three of its four objectives. These objectives are: planning, processing, practising. In the fourth objective, consisting of results and “spread the culture of CCP”, the first one has been achieved. This is the first such framework which has used the “Deming Cycle” (Plan Do Check Act – PDCA) as its basis. A new concept of “EMBA Universe” and the “EMBA-Industry Connect Triple Helix” have also been proposed.

Keywords: Comprehensive Capstone Project, Plan-Do-Check-Act, framework.

1. Introduction

Capstone Projects (CP) have been a part of MBA education for many years. (Bakul Dholakia, 2019; Sankara Moorthy *et al.* 2022). Many MBA courses included a CP as a part of their curriculum (Christopher 2013; Michael Gorman 2011; Scott Allard and Jeffrey Straussman 2003). Two types of CP are used. One, in a course; and, the other, a comprehensive CP covering the entire duration of the program. Such comprehensive (CCP) are used in Executive MBA (EMBA) courses. This paper deals only with CCP’s.

The EMBA was introduced in 1943 at the University of Chicago (Petit 2011). Till the year 2000, EMBA flourished in the USA. Companies sponsored internal candidates for EMBA courses for a variety of reasons (Robert E. Lippert 2001; R. Anand 2019). Admissions at MBA and EMBA soared between 1945 and 2000. But, due to economic pressures and other reasons, company sponsorship for EMBA fell. For example, according to the 2010 Executive MBA Council Program Survey in the USA, just 30% of students enrolled in executive MBA

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programs received full tuition reimbursement from their employers, down from 35% in 2006 and 44% in 2001 (Petit 2011). Many other EMBA watchers also wrote at length about the decline in the standard of EMBA education (Bennis and O’Toole 2005; Petit 2011; Rolv Amdam 2016; Paul Schoemaker 2008).

This led to a number of new methods, including the short-term Executive Education (EE) programs (Paul Schoemaker 2008). However, the short-term EE programs became the first victims of the economic crisis. For example, at the University of Michigan B-school, revenues fell 15% in 2001 (Mica Schneider and Brian Hindo 2001). The blended learning movement followed soon, and, as of now, is being tried out by many B Schools. Results from a study by Paul Farris et. al., 2003, indicated that demand for EE programs will grow; admissions sought will be driven by the criticality of the reputation of the institution and its faculty, and an offer of online alternatives.

The current situation is that many B Schools offer the CCP with the EMBA, and CP with many short-term courses, blended learning courses and online courses. (Victor Tiberius *et al.* 2021; Silvana Dankuk 2018; Murthy 2019).

2. Purpose of This Research

In view of the criticality of the EMBA, due to the need of companies for well trained, working executives, who can rejoin their organisations to add value, (R. Anand 2019), the EMBA is in much demand. Based on experts’ viewpoints, the overall relevance of EE will increase in the next five to ten years (Victor Tiberius *et al.* 2021). Many authors have captured the requirements and expectations of companies from EMBA. These are summarised in the Table 1 below.

Table 1: Expectations from the industry on EMBA offerings

Reference from literature	Expectations of companies from EMBA/MBA
Jay A. Conger and Katherine Xin (2000).	To build awareness and support for strategic transitions, To facilitate large scale organizational change necessary to realize new strategic directions, and To build depth of leadership talent.
Howard Thomas (2007)	Older, more experienced students will require relevant professional education Project and team-based content and experiential learning is emphasised Continuous, lifelong learning Curricula must be more flexible; Shorter degree programs Lower cost of education
Paul J.H. Schoemaker (2008)	A new approach to business education in which the management of uncertainty and paradox, as opposed to analyzing well-structured risks or tradeoffs, assumes a more central place.

Çetin Bekta, Gulzhanat Tayauova (2014)	Suitably trained and qualified students. Transferring academic skills and knowledge to industry. Allowing universities to take advantage of sectoral opportunities. Creating synergistic effects.
Harvard Business School (2016).	EMBA education should be immersive learning experiences, empowering senior executives to reflect, recharge, and improve their performance in their organizations
Victor Tiberius <i>et al.</i> (2021)	EMBA grads should be able to deal with volatile and uncertain business environments. Participants in EMBA should be able to learn continuously, and upgrade their skills and knowledge over the long term. EMBA programs should deliver soft skills as well as business ethics and sustainability as curriculum pieces. EMBA should offer more customized company programs as well as personalized curricula for individuals.

The key takeaways from table 1 are: EMBA participants should be able to deal with VUCA through “immersive learning”, should be problem solvers, develop abilities to think strategically, and be able to learn continuously. EMBA programs should enable senior executives to reflect, recharge and improve their performance over time.

In view of the many formats being used in EE, B Schools need to devise frameworks which suit their EMBA programs. Such frameworks should be aligned with the vision and mission of the schools, as also deliver the outputs summarised from Table 1.

This framework specifically addresses the gap that, after a CCP is done, the B School and the industry do not follow-through on the effects of the CCP on the working of the organisation. For a successful, long-term partnership between the B School and industry, it is necessary to have a “superordinate goal” of practising the inputs from the EMBA and CCP into the organisation for day to day management, to practice “systematic management” (Daniel Nelson 1974), which has been derived from “scientific management” of FW Taylor (FW Taylor 1911). This cyclical nature of the CCP, for continuous learning, which has been identified as a key factor, in table 1, has not been addressed in literature, and that gap has been addressed in this research, by evoking the PDCA cycle of Deming.

3. Why Is the CCP a Cornerstone of an EMBA Program?

As shown in Table 1, companies expect EMBA candidates to be well trained in problem solving, thinking strategically and provide leadership in due course of time. All these three qualities are developed through the CCP using the unique primary research – secondary research methodology, in which participants are asked to solve a live problem in the company that they are working in. The

company mentor, who is a senior member of the management, provides in-company guidance to the candidate through the tenure of the CCP. The methodology adopted for the CCP helps the candidate to obtain significant results which impact the company, and the career path of the candidate is thus facilitated. Thus, the CCP addresses the objectives of all the three key stakeholders – the B School offering the EMBA, the candidate and the company. Hence the centrality and criticality of the CCP to the EMBA course.

4. Literature Review

Universities and colleges run CP for achieving different objectives. Indian Institute of Technology, Kanpur, runs a two semester CP, with the objective of “Enable a student to not only implement function specific techniques and knowledge, but also to learn the integrative skills where knowledge across specific streams can be applied to a real-life problem”, amongst other things, as a part of its two year MBA. LabourNet and Christ University, Bengaluru, have launched a CP, “to bridge gaps between the development sector in India and academia”. An eight-week CP is being offered by the Birla Institute of Technology and Science, India, “where you will work towards solving a Data Science related business problem under the mentorship of BITS Pilani faculty members and senior industry practitioners”. As can be seen, CP is a versatile tool, designed to achieve multiple objectives. Timelines can vary – from eight weeks to two semesters, or more. The Harvard Extension School offers two different types of CP – faculty directed and student directed.

EMBA education has been undergoing continuous changes, especially with a view to make it more industry friendly. (Philip Phan *et al.* 2009; Bagley *et al.* 2020; Campbell *et al.* 2006; Tej Anand and Mitchell 2022; Ehsan Ahmad and Ali Alammary 2022, Anuj Mittal, *et al.* 2020). The Haslam Business School in the University of Tennessee, Knoxville, offers a CP in the second year of a two-year MBA. Lim ha chan Bowers *et al.* (2019), describe the mechanics of the course. ‘The capstone creates a hands-on learning environment in which we require the students to develop an implementable data-driven solution to a difficult, real-world problem in real time’. Students work in teams of four/five. A faculty is put in charge of each project. An alumnus provides training to the student teams. Students visit the site of the project in the chosen organisation, and carry out the project in a period spanning 12 months, at the end of which they submit a written report, and make a presentation to the faculty. The limitations in this approach are that individual students get to work only on a part of the problem, they spend more time in resolving team-work, project management issues rather than concentrating on acquiring knowledge and experience. The time period is also too short for a significant impact on the student. The solution is not implemented on the ground, thereby depriving the students of a “problem solving” experience, as

the solution proposed is not actioned by the team. The team becomes a mediator between the student and the solution. And the involvement of the organisation is not apparent.

Scott Allard *et al.* (2003), describe their experience of conducting a capstone course in the Maxwell School, Syracuse University, USA. Students choose their projects from a write-up provided by professors, and do a four-week capstone project. Donald Mong, 2011, has identified five goals for a capstone project at the undergrad level: integrated learning, learning to work with uncertainty, to learn about the top management perspectives in managing companies, to analyse how strategy is constructed in companies and to reinforce functional business skills. These apply to CP at the EMBA level too.

Michael F. Gorman, 2011, has reported on the capstone projects done by the post grad operations management students at the University of Dayton. He used course feedback, graduate exit interviews, participants surveys to gauge the reaction of students to the capstone projects experience. Moira Tolan 2011, has described the creation of a CP course for students at the graduate level. Mark O. Lewis 2011, describes a CP in which “innovation” is embedded. This approach has the advantage of developing new ideas and incorporating them in the strategy formulation of the organisation in which the CP is done.

Describing a CP experience in the Molloy College, New York, in an MBA program, authors Robert Gut *et al.* 2017, report that a team of students was constituted to work with a local hospital to solve develop an automated solution to provide online services to patients and their relatives. The hospital staff provided a description of the problem and the expected solutions. The students worked on the problem and came up with a solution, based on their learning in the MBA. Once again, it is the team that works. Solutioning is remotely done, with visits to the hospital on a need basis. The students worked as a ‘consulting team’, to propose recommendations. Implementation was left to the hospital. Eric Gresch and Janita Rawls 2017, also from the same college, provide glimpses of their experience in running CP. Christopher Klein 2013, has described how to design an econometrics capstone course in the university curriculum.

Hadia Khan *et al.* 2018, describe another experience from the same college, quite similar to the earlier cited one, with similar results. Cotae *et al.* 2016, tested out the use of a business simulation software, Glo Bus, as a capstone experience learning tool, but conclude that the scope for capstone type of learning is limited. Desai *et al.* 2014, “discuss an innovative capstone course to prepare students to be more business-ready upon graduation. By combining aspects of problem-based learning (PBL) and competition-based learning (CBL)”, in an undergraduate program. They follow the previously described pattern of teams of 3 to 5 students, acting as “consultants”. Dean Croushore 2015, has explained how he has successfully designed and implemented a CP for teaching monetary policy in an economics course in a business school. In his words, “the goals of such a course are diverse but usually include the need to both assess and improve

students' writing and oral presentation skills, to introduce students to research methods, and to ensure that all students have been exposed to a certain set of topics that may not have been covered in other required courses". This is quite different from the usual aims of a CP. Unique, but functional in a context. Specially selected topics are covered through students reading papers, government reports, etc., to improve their knowledge and skills.

Frank Raymond, *et al.* 2013, gives a more detailed view of the CP in economics courses. Ishuan Li, *et al.* 2016, describe their experience of developing an economics CP course, much on the same lines as Frank Raymond *et al.* 2013. Lynn Metcalf 2010, has captured the twenty- year developments of a CP in marketing. She has described the year-wise main changes made in the CP to make it more effective and interesting. At the start, in 2001, teams of students, ranging between 9 to 15, were deployed in community projects. Gradually, this size was capped at 12. Moreover, team composition is not restricted only to marketing students, others could also join in, depending on the skills – CP requirement match. No mentor is provided from either the sponsor or the organisation in which the CP is being done. Mark Usry, *et al.* 2009, describe the development of an international business CP course. Similar to what Desai *et al.* 2014, have described in their work.

Robert Boehner and Brian O'Neil, 2010, have described their experience in running a CP course in executive MBA. "The Rochester Institute of Technology (RIT) Saunders College of Business (SCB) Executive MBA program requires that all EMBA students complete a team-based capstone project that engages external clients. EMBA capstone teams analyze the problem defined by the client and recommend required action'. The difference in doing a CP in an EMBA is that the clients are more easily accessible, as many of the students attending the EMBA will be working in some organisation. And they have the option of doing a CP there. However, in the case of SCB, the profile of the students' population changed drastically from 85% company sponsored to 85% self-sponsored. SCB does students team projects. This is primarily due to a feed-back received in the US that MBA students are analytical in their approach, but lack in leadership and other "soft" skills. A CP similar to the SCB is run by the business school in the University of Austin, Texas, for its MSBA program – Master of Science in Business Analytics – and the details are described by Tej Anand and Daniel Mitchell 2022.

The literature survey brings out the salient developments in EE. Short term and longer duration CP courses are prevalent. Of late, blended learning (Silvana Dakduk, *et al.* 2018), online courses, Management Development Programs have also become popular. All these formats are suitable to fulfil specific client needs. CCP's are designed to satisfy those needs where companies are looking to develop problem solvers and leaders.