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Executive MBA Capstone Projects at RIT Saunders College of Business: An Enriching Experience for All

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Abstract

Education of managers in academic programs such as Executive MBA programs presents a unique challenge to college administrators and faculty. Executive students are more demanding and critical and value experiential education more than students in undergraduate or MBA programs. Also compared to regular MBA students, executive students want to understand management in a more holistic way. They want to see the linkages between subject matter taught by different academic disciplines and understand how experienced managers can sort through the details, see the big picture, and make effective decisions. Over the years Executive MBA programs have used a variety of innovative pedagogy to introduce students to "real world" business problems. Methods used include case studies, simulations, field visits, guest lectures by business executives, and international trips. None of these approaches adequately provided the experiential learning desired by executive students. 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.

Introduction

Management education, such as that conducted in most Executive MBA programs, "is almost entirely organized around texts that deliver an authoritative scientific discourse", Eickmann, Kolb, and Kolb (2002). The scientific basis for management education was established by the influential Carnegie Foundation report published in 1959 that sought to improve the intellectual standing of business higher education. This text driven approach to MBA curriculum contrasts with the experiential and problem solving education process used in many engineering, architecture, design, and art classes. Curriculum in these disciplines emphasize integration of text-based theory and application of theory through practice and problem solving, Mainemelis, Boyatzis, and Kolb (2002). In an effort to deliver the experiential learning, cross-discipline linkages, and big picture decision processes desired by executive students some Executive MBA programs have initiated client sponsored projects as part of their Executive MBA curriculum, Bowers (2008). These projects require that students consult for an external client over multiple months to address and resolve a real life business problem defined by the client. Students are expected to integrate and apply principles from their course material. Students must also complete research on the client's industry, the client's business, and the client's specific problem. In addition students learn valuable skills in addressing the complex client management and interpersonal relationship issues that are nearly always present in a business problem.

The Rochester Institute of Technology (RIT) E. Philip Saunders College of Business (SCB) Executive MBA program requires that all students complete a team-based capstone project that engages external clients. EMBA student teams analyze the client's problem and recommend required action.

This paper discusses the positive opinion that EMBA graduates have of the capstone project, specifically addressing graduate's opinion of the value of the capstone as both a learning experience and as a personal growth opportunity. In addition the paper reviews the pertinent literature, the SCB capstone process, the role of faculty mentors in the capstones, and the favorable impact of EMBA capstones on SCB's reputation in the local business community.

A Brief History of the
Saunders College of Business EMBA Capstone Projects

When the RIT College of Business (now the E. Philip Saunders College of Business [SCB]) created its Executive MBA program in 1991 the Dean of the College, the Director of the EMBA Program and the faculty sought to differentiate the program to make it attractive to local employers and potential students. Establishing that differentiation was crucial for survival and eventual success because the Simon School at the University of Rochester had a well established and respected EMBA program and a strong cadre of loyal alumni of which many resided in the Rochester area.

Multiple points of differentiation were established including: an academically qualified faculty all with significant business experience, an applied curriculum emphasizing business practices and skills that EMBA students could apply immediately at their job, a focus on leadership, team-building, and inter-personal skills and reinforcement of the principles of total quality management (TQM) for which RIT enjoyed a national if not international reputation.

The TQM emphasis was the foundation for the idea of requiring a capstone project from each EMBA student. Initially the RIT EMBA was a 100% sponsored program; that is, the cost of the program was paid by the student's employer. In the early 1990's Kodak, Xerox, and Bausch and Lomb dominated private employment in Rochester. All three companies were implementing TQM programs for their employees. The firms requested that the RIT College of Business develop an EMBA curriculum that would reinforce TQM principles.

RIT took three actions in response to this request. First a course entitled "Quality Tools" was made a requirement in the program, second quality principles were integrated into other EMBA courses; and third the EMBA capstone project was created.

The initial goal of the capstone project was for students to apply the TQM Quality Improvement Process (QIP) and Problem Solving Process (PSP) to a business situation at their own employer. Capstone projects for the first two EMBA classes involved students working individually on a project identified by the student's employer. The project lasted one academic quarter (eleven weeks). Separate faculty mentors were assigned for each project.

Feedback from students in the first two classes identified two basic problems with this approach. First, the one quarter time duration of

the project was not long enough. Second, students felt the scope of the projects identified by their employers was too narrow as the projects typically involved the functional area where students were already working. Student feedback suggested the short project time frame and the narrow scope limited the educational value of the capstone.

In the third year of the RIT EMBA program the format of the capstone project changed substantially:

- Projects became team-based rather than individual
- Projects were completed for outside clients rather than for the student's employer. The SCB administration and faculty used its contacts in the Rochester area to solicit proposals for potential capstone projects.
- Project proposals submitted by potential clients were reviewed by an EMBA faculty committee. This committee assigned projects to student teams based on an assessment of client needs and the capabilities of the student team.
- The project timeframe was expanded to two quarters, the last two quarters of the student's EMBA program.
- Separate faculty mentors were still assigned to each team.

An additional important change was made in SCB's approach to capstone projects in 1996. At this time, Kodak, Xerox, and Bausch and Lomb were facing market and financial challenges. These three companies either eliminated or dramatically reduced funding for executive MBA programs. At the same time the profile of students enrolled in the RIT EMBA program changed. The program shifted from 85% employer funding to 85% student funding. Additionally the student profile changed as enrolled students tended to be from smaller businesses and not-for-profit organizations. The average age of EMBA students increased as mid-career managers sought to prepare themselves for an increasingly competitive employment market. This "new breed" of students found that traditional TQM processes developed during the 1980's were less relevant to their businesses and to their careers. Student feedback suggested that completing capstone projects usually required the application of principles and processes taught in regular EMBA courses such as marketing, strategy, human resource management, or finance and much less on TQM principles. As a result of this feedback the heavy TQM emphasis in capstone projects was reduced. Specifically

the requirement that students follow the strict guidelines of the Quality Improvement Process and Problem Solving Process was eliminated.

Since these changes were made RIT's basic approach to organizing EMBA capstone projects has remained relatively consistent. Only two changes of any significance have been made since 1996:

- A single faculty mentor was established for all the projects. This change was made because when there was one faculty mentor per team some clients perceived that the faculty person was leading the capstone study and the students were merely assisting.
- The EMBA faculty committee no longer assigned capstone projects to the student teams. Instead 15 to 20 potential capstone studies that had been pre-qualified by faculty were given to the student teams. Student teams selected the project that matched their skills and interests. This change increased team ownership of the project.

In retrospect one of the most (if not the most) important differentiating decisions made in the first year of the program was the capstone requirement. EMBA capstones have had two important positive impacts on the RIT EMBA program. First, they are a valuable differentiator for recruiting new students. EMBA graduate satisfaction with the capstone process is very high (data on student satisfaction discussed later in this article clearly substantiates this). Additionally, graduates recommend the RIT EMBA program to friends and peers specifically because of the value of the capstone project. Furthermore, client satisfaction with the performance of SCB students on capstone projects is high. This client satisfaction has helped SCB establish a solid reputation for its EMBA program with local business leaders.

The quality of the work done by RIT EMBA students on capstone projects is made evident with the following data. Over the last five years RIT EMBA student teams have completed a total of 22 capstone projects for external clients. Of these 22 projects seven were sponsored by RIT EMBA alumni, five were clients for whom a previously capstone was completed and another five were clients who submitted a capstone proposal based on the advice of business colleagues who were prior capstone clients.

The Uniqueness of the RIT EMBA Capstone Process

Many MBA and EMBA programs either offer or require a capstone project as part of their curriculum. In 2006 and again in 2008 a review of MBA and EMBA curricula was performed that examined the leading programs as well as SCB peer and aspirational schools. Many schools offer a capstone like experience for their students. After this review it was concluded that the RIT EMBA offers a unique set of four distinctive characteristics:

1. It is required of all EMBA students.
2. Projects are team-based utilizing teams of three to five students..
3. The clients for all capstone projects are external organizations, either local businesses or non-profit organizations. There is no requirement that these external clients be SCB alumni.
4. Capstone project teams work on real world problems defined by the team's client. Capstone projects are not library research projects. Instead they involve students working on real client problems, problems that often are central to the ultimate success of the client organization.

In 2006 a benchmarking study was performed at RIT for internal purposes. Two additional EMBA programs were identified that required a capstone project similar to RIT (University of Michigan and UCLA). However neither of these programs required a team-based external client capstone as a degree requirement. Many colleges use team-based business simulations as an EMBA capstone course. Some require that EMBA students complete a project that addresses a problem with the company where the student is employed.

The 2008 benchmarking study identified additional curriculum trends; more integrated curriculum, a holistic approach to decision making (integrating statistics with unstructured decision-making models, for example), and an increased emphasis on business ethics. This benchmarking study did not uncover a significant increase in the kind of capstone projects completed by SCB EMBA students.

Following a review of the pertinent literature a detailed evaluation of the RIT EMBA capstone project will be presented.

A Review of the Literature

The majority of the articles reviewed for this research are concerned with the overall approach and status of graduate business education and adult learning. Where possible and appropriate a distinction will be made between MS programs (Business), MBA programs and EMBA programs.

Several authors, including Crotty and Soule (1997), Conger (1998), Pfeffer and Fong (2002) and Starkey, Hatchuel and Tempest (2004), suggest that it is ironic that as business schools around the world are enjoying a good deal of success that some of its leading professors and administrators as well as alumni are critically questioning the role of the business school. Concerns are being levied against business schools across a number of dimensions and it appears that many don't believe business schools are sufficiently addressing these concerns. While it is always a good thing to have critical analysis to help uncover areas of concern it is also important to accurately depict what actions are being taken to address these concerns. In this light to help establish the true benefit of the capstone projects a review of the literature surrounding both executive education and experiential and applied learning is needed. A look at the benefits and criticisms of business schools and in particular executive education will be provided and in turn how the EMBA program at the Rochester Institute of Technology (RIT) addresses many of these concerns most notably with their capstone projects. Additionally the benefits and criticisms of experiential and applied learning especially for adult learners will be reviewed and in turn how the EMBA program at RIT is able to use the capstone projects to take advantage of many of these benefits as well as address the criticism cited.

As Colleges of Business literally around the globe continuously review all their programs to ensure their offerings are appropriate, competitive and attractive to students and employers one is reminded of the changing patterns and needs for business education. In particular for executive education, as reflected on by Bardach (1997) ten years ago, "the duality of perspectives in executive education today mirrors the dramatic changes that have taken place around the world in geopolitics, economies and individual firms…. The battle between centrally planned, managed economics, and free enterprise, competitive systems has clearly unambiguously been won by the latter." This debate will undoubtedly be contested by many over the ensuing years and suggests the need for courses and curriculum to be constantly reviewed by faculty and administrators.

Additionally, Colleges of Business offering executive education programs (both degree and non-degree) must be mindful that their offerings are indeed demanded by the market place. Competition is growing especially from the ranks of non-traditional entities such as corporate universities, consulting firms and for-profit providers. Colleges must be able to provide students with a meaningful and valuable set of courses that significantly add value for each and every student in a cost effective manner. Many programs are becoming shorter allowing for completion in less time. As program content and emphasis change what is clearly needed is an effective manner for all programs to tie the content material together in a meaningful way. At RIT, the capstone projects which are an integral part of the Executive MBA program (EMBA) allow this connection to happen.

As Conger and Xin (2000) discuss, "Executive Education is no longer simply a reward for high potential executives or a chance to renew an individual's knowledge base, programs are increasingly harnessed as opportunities to recast the world views of executive teams and to align organizations in new directions." Also as reported by Conger and Xin (2000) from a survey of member organizations of the International Consortium for Executive Development Research (ICEDR), "the executive education programs in organizations are designed to enhance the overall leadership and change management effectiveness." At RIT we clearly have recognized this and have designed the capstone projects to require and enable students to gain the experience to assist them to become effective change agents. The clients for the capstone projects often times are looking for specific action items that will have an immediate and significant impact on their organizations and the capstone teams are expected to come up with these kinds of recommendations.

As Long (2004) suggests from the findings of a survey of 308 North American managers as to why they attended Executive Education programs, four distinct prompts were provided. These are, the wish for personal development and success, the wish to contribute to the organization, the wish of others that they should attend and finally self-serving reasons that related only to personal needs. With the exception of the "third wish" it is easily recognized how the completion of a capstone project helps to meet the other three reasons cited. Evidence that is presented later collected from graduates of the EMBA program at RIT help verify this.

Miller (2006), Doria, Rozanski, and Cohen (2003), Bennis and O'Toole (2005), Mintzberg and Gosling (2002) and many others all

strongly suggest the need for enhancing interpersonal skills of Business students (both undergraduate and graduate) as a primary means to help business graduates manage more effectively. It is also suggested that complaints waged against graduate students are more prominent, presumably because of the higher costs incurred by students in obtaining a graduate-level degree and the greater risks and costs incurred by corporations in hiring graduate students. Furthermore, in a landmark article, Porter and McKibbin (1988) reported that critics of the business school curriculum felt that quantitative analytical techniques, though important, were being overemphasized while insufficient attention was being given to developing leadership and interpersonal skills. A great deal more research can be cited with the same general theme, Business schools must do a better job of providing their students with the means to become better and more effective in dealing with interpersonal issues. The RIT capstone projects require a considerable amount of interaction with the various clients and in order for teams to succeed they must be effective in dealing with the clients. Survey results obtained from graduates of the EMBA program support this statement.

As discussed by Pfeffer and Fong (2004), "US business schools dominate the business school landscape… But US business schools face a number of problems…" The authors go on to suggest as others rush to emulate the US model, all is not well in the world of the US business schools. As both Grey (2001) and Starkey and Madan (2001) note, "business schools experience a curious dual insecurity. On the one hand they fear… the scorn of other, more traditional academic subjects. On the other hand, they often stand accused of being less than relevant to business." Furthermore many have charged business schools with doing a poor job of meeting the needs of their students and their employers. While it is not the intent of this research to support or deny the "scorn" of others it can be strongly stated that the issue of "relevant to business" can be addressed directly with the application focus of the RIT capstone project and its specific focus to an existing concern/problem of an individual client. It's hard to imagine a more effective way of addressing the relevancy issue than to have student teams working with specific clients on specific issues as identified by the clients.

Much has been written over recent years concerning the development of students' critical thinking and analytical abilities Martin (2002). This approach is based on the idea that problems do not come neatly compartmentalized by subject area and successful people approach tasks with a distinctly more integrated decision-making process than their less

successful peers. Further Mintzberg (2004) suggests that business schools "graduate individual specialist and not collaborative managers." Many suggest that the development of integrative skills is more the exception than the rule. It is suggested that the use of a capstone project at RIT helps remedy this concern. Given the nature of the typical assignment, student teams must take an approach that essentially requires critical thinking to get their hands around the problems/issues. And for the team to be successful a truly collaborative approach is needed that includes all members of the capstone team as well as the clients' key personnel.

Before turning to a review of the literature concerning experiential and applied learning for adults it seems appropriate to once again recognize the many researchers who have accurately suggested some of the apparent faults in business school education. It has provided a very useful framework to help establish the benefits afforded from the effective use of capstone projects.

Executive education especially at the graduate level (adult learners) presents some unique challenges that need be addressed in order to be successful. Typically one finds that executive education students are more demanding and critical. They also value experiential education more than other students, Sihler (1993). One cannot merely present the same set of courses to executive education students as regular graduate students. Thus an MBA program needs to be different than an EMBA program. Cason (1993) suggests that students are older in executive education and are more likely to challenge the instructor. They also prefer a results oriented program.

As discussed by Judge (2005), many programs are experimenting with innovative venues for leadership development in Executive Education programs. Judge reports on the evolution of an outdoor-based experiential training event that evolved over three years and has led to some significant leadership development benefits for the participants.

As suggested by many including Goodwin and Fulmer (1995), Longdecker and Ariss (2002) and Garvin (2007), Executive Education is an important and growing activity at business schools. Yet despite the growing demand there seems little reason to question Lynton's (1984) conclusion reached 25 years ago "that most college and university faculty do not know how to teach experienced adults." With this as the basic research question an investigation of the literature surrounding experiential learning for adults was undertaken with the basic premise that the use of capstone projects is an effective way of providing a rich learning environment for experienced EMBA students.

As suggested by Cordell (2001) "two themes which pervade graduate business education are internationalization of curricula and making the educational experiential more relevant and applied." Regarding these themes various innovative pedagogies have been used to make the curricula both more international and more applied. Methods such as case study analysis Stewart and Winn (1996),simulations Butler and Herbig (1992) and market planning cases Herbig and Day (1992) are each effective but lacking the totality of how businesses operate or dealing with a real live client. Client sponsored projects have been discussed by Munro and Preece (1998), and Hiller, Cosse and Franzak (1995).

Taking each of these pedagogies in order, case studies have proven to be a time tested pedagogy that provides a template for students to follow with all case studies. Case studies are useful in generating class discussions which help to fine tune analytical and presentation skills of students as well as provide an international perspective when needed. Often times however the case is limited to a fairly narrow focus and the cases themselves become dated. Simulations can be very effective in helping students get immediate feedback on their decisions but at times they present a gaming situation to the students where the focus becomes winning the game with respect to certain metrics as opposed to thoroughly understanding all the factors involved and their interaction. The marketing planning cases which many times are company specific typically requires the students to conduct research that results in making hypothetical actions decisions. Often times the analysis is very comprehensive but there is limited if any contact with the actual company involved. Thus the true ramifications of the decisions are not known either in terms of reactions from the company personnel or the actual results that potentially would be forthcoming. Disadvantages cited regarding the client sponsored projects include a forced time frame as required by the school's schedule, varying commitment of sponsors (time and personnel committed), and varying quality. Overall however they are considered by students to be superior to the other kinds of experiential learning.

At RIT we have addressed the concerns cited for client sponsored projects in the following way. We dedicate two quarters (22 weeks) for team involvement on their capstone projects. We require clients to sign off on their commitment to the project and we have set milestones that must be met. Additionally faculty are assigned to specific teams to ensure timely progress is being made and that the work is of high quality.

EMBA Student Survey Results

The EMBA students who completed their EMBA studies in November 2005, 2006, 2007, and 2008 were surveyed about their capstone experience. EMBA students completed the survey immediately after finishing their capstone projects, during their last weekend of EMBA classes.

The survey was anonymous. Survey results for each class were not given to the capstone faculty mentor until after capstone grades were submitted. Students were not aware of their grade for the capstone project prior to completing the survey. The completion rate on the survey was close to 100%. Over the four year timeframe only two students did not complete the survey. A total of 71 students completed surveys.

The original purpose of the survey was to determine whether the capstone project was accomplishing its objective of providing a "capstone experience" that tied together student learning during their EMBA experience. In addition the capstone faculty mentor and the Director of the EMBA program had received informal feedback from prior EMBA classes that the capstone experience had positively impacted EMBA graduates' management skills, confidence level, and career ambitions. We wanted to use the survey to determine if this anecdotal feedback reflected a broader EMBA graduate perspective.

Two questions were asked on the student surveys. Students were asked to respond to each question with a rating from 1 to 10. Students were also asked to comment on the reasons for their rating. Over 90% of students wrote comments. The two questions are:

- How valuable was the Capstone Project to you as an educational experience? For example did it reinforce material from your EMBA classes? Did you learn things that were not discussed in class?
    - On a scale of 1 to 10, where 1 is "Not Valuable at All" and 10 is "Very Valuable" rate the value of the capstone project as an educational experience.
    - Rating: _____
    - Please explain the reason(s) for this rating

- How valuable was the Capstone Project to you as a personal development experience? For example, as a result of the capstone did you gain more confidence in your ability to manage unfamiliar

unstructured projects? Did the capstone experience cause you to reevaluate your career potential?

- On a scale of 1 to 10, where 1 is "Not Valuable at All" and 10 is "Very Valuable" rate the value of the Capstone Project as a personal development experience.
- Rating: _____
- Please explain the reason(s) for this rating.

Students appear to have been serious and focused in completing the survey. As previously mentioned over 90% of student respondents wrote comments. Nearly all of the comments were thoughtful; many were quite long. A sample of student comments, positive and negative, is included in Appendix 1. More than half the students assigned a different score to the "educational experience" question than they did to the "personal development" question, indicating that students gave more than a passing thought to their responses.

Table 1 and Table 2 provide a summary of the results of the survey:

Table 1
RESULTS OF EDUCATIONAL EXPERIENCE QUESTION

Rating	2005 Class	2006 Class	2007 Class	2008 Class	Totals
9 or 10	5	15	13	11	44
7 or 8	3	8	6	5	22
4 to 6	1	1	0	0	2
≤ 4	0	1	1	1	3
Totals	9	25	20	17	71

Table 2
RESULTS OF PERSONAL DEVELOPMENT QUESTION

Rating	2005 Class	2006 Class	2007 Class	2008 Class	Totals
9 or 10	6	18	14	11	49
7 or 8	3	5	4	5	17
4-6	0	1	1	1	3
≤ 4	0	1	1	0	2
Totals	9	25	20	17	71

The headline results of the survey are that 93% of RIT EMBA students rated their capstone experience as at least a 7 on a 10 scale in terms of its educational value and 62% rate it as a 9 or 10. Comparable numbers for the capstone project as a personal development experience are 93% and 69%.

The positive experience provided to EMBA students by SCB capstone projects is more impressive when one considers that there was an important uncontrollable factor involved in each capstone study: an external client. There was considerable variability in the relationship between the student teams and their capstone client. Some clients were highly involved with and supportive of the students. Other clients established a more arms-length relationship with the team. Many students who made negative statements in the comments section of the survey focused on the difficulty of managing the client relationship.

The consistency of student numerical scores across the four surveyed classes is also interesting. The 2005 and 2008 classes had the same faculty mentor for all eight capstone projects. A different faculty member mentored all six projects for the 2007 class. In 2006 the two faculty members split mentoring responsibilities for the six completed projects. Student evaluations of their capstone experience appear to not depend upon who their faculty mentor was.

As previously mentioned, a sample of verbatim student write-in comments is included in Appendix 1. Nearly all student comments are positive. Typical write-in comments related to the educational experience are:

> "The capstone project reinforces the material from our
>   EMBA classes."
> "This was a valuable real-world project."
> "This truly was a capstone experience."

Typical write-in comments related to the personal development question are:

> "The capstone got me out of my comfort zone."
> "The project really forced me to work effectively on a team."
> "I am confident that I can solve unfamiliar and unstructured
>   business problems"

Negative student comments about their capstone experience related to lack of cooperation from the client, ineffective teamwork on the capstone team, the time demanded by the capstone project along with their regular EMBA coursework, and the pressure some teams felt to choose projects favored by their faculty mentor.

The RIT Capstone Project Management Process

The RIT EMBA capstone project management process is relatively simple. Capstone project applications are solicited, the applications are screened by the capstone faculty mentor, and student teams are given a list of between 15 and 20 client projects to choose from. Teams then identify their first two choices and final selections are made. Next students receive classroom training in consulting and project management skills. Each team then engages their selected client and starts the consulting process. Throughout the entire process the faculty mentor provides assistance to student teams as required. Finally, the faculty mentor provides feedback to the team and a grade is assigned to the teams' work.

A description of the timeline is as follows:

Early March	Solicitation of capstone project applications
Early April	Screening of applications takes place
Late April	Follow-up and visits to potential capstone project clients by faculty mentor
Early May	Potential capstone project clients are provided to teams
Early June	Teams select their capstone project client and begin their work
Mid November	Capstone projects are completed

More detail is now provided for each of the steps in the process.

Soliciting Capstone Project Applications

Solicitation of capstone project applications is done by email and through a short news release to the local press. Emails soliciting applications are sent to EMBA graduates, to RIT trustees, and to the SCB Dean's Advisory Council. The press release is sent to the local newspaper (the Rochester Democrat and Chronicle) and to the local business weekly (the Rochester Business Journal). Both newspapers have always included a short article about the capstone projects. The emails and press release advise potential clients to call or email the EMBA office to request a capstone project application.

The Capstone Project Application

Capstone project applications are mailed, faxed, or emailed to potential clients. The application itself is simple: it asks for basic information about the organization applying for the project (name, address, phone, email, etc.), and for the name and contact information of both the project sponsor and the day-to-day contact for the project. The application then asks for a brief description of the project itself and for a description of the desired outcome of the project from the client's perspective.

An attachment to the capstone application includes a description of the nature of EMBA capstone projects and specifies SCB's expectations

from the client. The application form is included as Appendix 2. There are three critical capstone project criteria:

- The problem described by the client "must be challenging to an experienced manager and must also draw on the skills and knowledge acquired by students during the EMBA program."
- The project scope must allow the project realistically to be completed within the six-month capstone project timeframe, and must also match the skills of the EMBA capstone team.
- The client must commit to spend a sufficient amount of time with the student team so that the team can gather the information necessary to complete the project. The client must also be willing to provide potentially sensitive data (such as sales activity and financial reports) to the student team (Note: the students sign an NDA's as representatives of RIT and the SCB). The client must also attend the final team presentation.

The capstone project application is fairly simple and self-explanatory and very few potential clients have asked for clarification.

As the reputation of SCB capstone projects has grown many potential clients, perhaps in an effort to influence the odds of having their project selected, include substantial additional information such as extensive cover letters, business plans, brochures, catalogs, etc. Our experience is that this additional information has not affected the student's choice of which capstone project they select.

Screening the Applications and the Client Selection Process

Typically between 30 and 45 capstone project applications are received from potential clients. About 12 to 15 applications are presented to the student teams for the teams to make their selections. Only between three and six projects are done each year, depending upon the size of the EMBA class and the number of capstone project teams.

The faculty mentor makes an initial sort of the capstone project applications. The initial application sort is relatively easy. About half the applications received clearly do not satisfy at least one of the three criteria established for a capstone project. Most frequently the reason for rejecting applications is that the scope of the project is too narrow and therefore the project does not provide a sufficient challenge to the student

teams. The second most frequent reason for rejection is that the project requires specialized knowledge that the teams don't have. Oftentimes this involves some area of IT or some other technology.

We have learned from experience to be cautious about doing projects for established businesses that are in trouble and start-up businesses. One of the obvious criteria for a capstone project is that the organization remains in business for at least the duration of the project itself, and hopefully for sufficient time after the project is completed so that the impact of the team's work can be assessed. Capstone project teams are not miracle workers. Teams can not immediately fix a bad business plan or a failing business. Over the past 10 years no capstone client has gone out of business during the project itself. But we have on occasion faced several situations that have impacted the success of our projects. One situation involved a change in the management of the business, specifically when investors changed senior management and the new executive team had little knowledge and no ownership of the capstone project. This change in management was not anticipated from the evaluation of the application. A second situation was when the client management team spent its time scrambling to save the business and lost interest in the capstone project. The lesson from this experience is that while entrepreneurial businesses often present an interesting and attractive capstone project application, we carefully check the business' prospects for survival before allowing our student to engage the client.

Typically about 20 capstone project applications survive this initial screening. Each of the 20 potential clients is either visited or interviewed by phone to gather more information about the project and to assess the commitment of the client to working with the student team. The 20 potential clients may then be reduced based upon information contained in the application itself; the results of direct contact with the client and any other information that becomes known.

During the last EMBA class weekend in May students attend a two-hour presentation that describes the capstone process and also provides students with the final list of clients from which the teams will make their selection. Students receive the capstone syllabus and a package that includes the original client capstone applications. Each of the applications is discussed in detail, including feedback from the faculty person (usually the capstone mentor) who interviewed the client.

Student teams are given two weeks to identify and email to the capstone mentor their first and second client choices. It is made clear to student teams that they are not guaranteed their first client choice.

Students are encouraged to call and visit clients that they are interested in to gather more information. All client visits are coordinated through the capstone mentor.

If two or more teams select the same client as their first choice the capstone mentor attempts to facilitate a solution ("How strongly do you fell about your first choice?" "Are you willing to give up on your first choice if I guarantee that you can have your second choice?" And so forth.). If the teams continue to insist on their first choice, which fortunately doesn't happen very frequently, the contending teams are required to make a formal presentation explaining why having their team complete the project is in the best interest of the client. The presentations are made to the faculty capstone mentor, the EMBA Program Director, and an EMBA faculty member. A decision is made immediately following the presentations and the teams are informed of the decision.

Consulting and Project Management Training

Prior to client engagement students receive four total hours of in-class consulting and project management training. The initial part of the training discusses the expectations of the faculty mentor concerning student team behavior and performance. Customer feedback from prior capstone projects is shared. A sense of urgency is established. The importance of time management is reviewed and students are STRONGLY advised that completion of the capstone project cannot be "crunched" into the last month of their EMBA experience. Behavioral standards are reviewed (professional dress, high quality written communication, frequent communications with client, etc.). Deliverables are explained.

The McKinsey Mind is used to provide EMBA students the core concepts of consulting. Students have found the McKinsey problem solving process described in the book to be valuable. Also the McKinsey concepts of "MECE" (Mutually Exclusive, Collectively Exhaustive) and the "logic tree" are valuable tools to assist the student teams with their work.. Students read the first three chapters of The McKinsey Mind prior to the training session. In the session students are given a case based on a real capstone project (the name of the actual client is disguised) and asked to develop their plan for addressing the problem described in the case. Student teams prepare their plan in break-out sessions. The class reassembles and student teams present their plans, discussions are held, plans are modified and eventually a class consensus on the plan is reached.

Training in consulting skills was added to the capstone process four years ago. Feedback from students suggests that the training is valuable. It gives the student teams the confidence to manage effectively the initial meetings with the clients and helps the team's control of the consulting process with the client.

Faculty Mentoring of Student Teams

The faculty mentor is a resource for the student teams, to help the teams complete their projects successfully. The mentors do not manage the project, nor do they manage the teams themselves. The teams are fully responsible for their performance on the capstone project. Unless there is clear evidence that a team is struggling with their project the mentors do not interfere with team activities, instead waiting for the teams to initiate contact and seek guidance.

Mentors are also the graders of record for the capstone projects. The mentor assesses student deliverables, seeks input from the client concerning the team's performance, and assigns a final grade for the project.

Prior to student teams' first official meeting with their clients the faculty mentor visits the client and meets with the capstone project champion. At this meeting the mentor explains the capstone program in detail, describes deliverables, reviews expectations of the team and of the client, and establishes rapport with the client. One important part of this client meeting is to communicate that the project is first and foremost a learning experience for the students. Also the mentors discusses the fact that students will likely make mistakes and learn from these mistakes during the course of the capstone project, but teams will not be allowed to fail. The mentor will become involved in the project as required to assure a quality deliverable to the client.

Historically the mentor's role has been most valuable early in the project when the teams need assistance defining the customer problem, organizing the project, and identifying data and information sources. The mentor also has played a key role toward the end of the project, to help students synthesize the team's findings and organize the findings and recommendations into an executive level presentation.

The mentor maintains informal contact with the students throughout the capstone project by being present at the lunches served on Fridays and Saturdays during EMBA class weekends. Students take advantage of this informal time to update the mentor on project status and to seek advice on where the project should go next.

Student Team Deliverables

There are four team deliverables over the roughly six month duration of the capstone project. These deliverables are:

1. A consulting agreement signed by the client and the team (ungraded).
2. A "half-time" presentation in class that describes the client problem, the team's work plan, and preliminary findings (graded).
3. A professional, thorough report that is given to the client that describes the team's findings and recommendations (graded).
4. A professional presentation of the team's findings to the client and representatives from the client's management team (graded).

Details of each of these deliverables are as follows:

1. The consulting agreement: This is a two page agreement between the student team and the client that describes the client problem, student deliverables, and work process. The document also identifies the team's data needs, e.g., information that is required from the client.
2. Half-time" presentation: This is an in-class presentation of approximately 30 minutes (20 minutes for slides, 10 minutes for questions) delivered during the first weekend of the fall quarter. The presentation describes the client's business, the problem the capstone team is addressing, the team's work plan, findings to date and the plan to meet the promised client deliverables. All team members are required to participate in this presentation. The presentation is graded. The faculty mentor provides feedback on both the content and the quality of the presentation.
3. Final written report of findings: This report is delivered to the client at the end of the project. It is a thorough report of the capstone team's work, including its research findings and recommendations. Typically the students have this report professionally printed and bound (the EMBA program provides up to $200 per team for production of client materials related to the capstone). Team reports often exceed 100 pages in length.

4. Final presentation of findings: This is a formal professionally prepared and delivered presentation of the team's findings and recommendations presented at the client's site, and presented to the project champion and whoever else is invited. Usually the client project champion invites the entire senior management team to this final presentation. It is not unusual for the team to present to client managers whom they have never met. These presentations last a minimum of two hours.

One of the extraordinary accomplishments of students involved in capstone projects is how quickly the students learn about the client's business and the client's industry. Past capstone projects have involved very specialized topics in niche industries. Examples include, remanufacturing of mixing shafts in the food preparation business, the application of nano technology to the identification of viruses in the global meat supply chain, training of recent accounting hires in audit client management, and customization opportunities for Harley Davidson motorcycles. It is not unusual for student teams to discuss business strategy on a peer-to-peer basis with senior executives who have spent lifetimes in the subject industry.

Grading

The capstone process extends over two academic quarters. Students receive a grade for both quarters. The grade reflects the performance of the student teams over the entire six months of the project.
Following are the weightings for the final student team grades:

- Half-time presentation   20%
- Final team report and presentation   60%
- Client feedback   20%

The criteria for grading the final team report and presentation is described below:

Criteria	Weight	Description
Effectiveness of the final presentation	20%	Organization of presentation. Logic flow. Effectiveness of presentation itself. Coordination among team members. Professionalism. (Note: Presentation content elements are addressed in the two factors immediately below)
Relevance, thoroughness, and clarity of analysis.	25%	Relevant and substantial client issues identified. Correct data collected and presented. Implications of data explained to client. Recommendations flow from data analysis. Recommendations are convincing and well supported. Logical connection between information and data collection and analysis and recommendations.
Application of EMBA course concepts	20%	Effectively applied appropriate course concepts. Tied course concepts to analysis, conclusions, and recommendations. Concepts applied are relevant to client situation.
Rigor of team work effort	15%	Thorough research into client business problem. Appropriate secondary source material and internal client data and information used. Primary research efforts (if required by client problem) well organized. Evidence of significant team effort to address and resolve client problem.
Quality of final written report	20%	Quality graduate level report that represents the Saunders College of Business, the EMBA program, and the Capstone Team well.

Client Feedback

As mentioned above feedback from the client is 20% of the student team's final grade for their capstone project. Feedback has been universally

positive. Student teams are effective at managing client expectations, and they have generally delivered well against those expectations.

A sample of verbatim comments from clients concerning their capstone experience is included in Appendix 3.

There almost certainly is a "halo effect" in the client ratings of the student teams. The students are personable, they establish positive relationships with the clients, they focus their time and energy on problems defined by the client, and they deliver a professionally prepared presentation and thorough narrative final report at the end of the capstone project. Capstone clients are naturally positive about their experience with the students and appreciative of the student efforts.

Of considerable interest to us is client satisfaction levels two to five years after the students completed their capstone projects. Were the student findings and recommendations correct? Did the client implement the student recommendations? What if anything has changed in the organization in the time since the students completed their project, and did the students have any influence on these changes? In retrospect what is the level of client satisfaction with the capstone project? These issues will be addressed in future research. The plan is to interview clients of projects completed two to five years ago to determine whether their attitudes toward SCB capstone projects have changed.

Summary

The RIT Saunders College of Business EMBA capstone process is an enriching experience for all stakeholders touched by the projects. Capstone clients receive a six-month duration free consulting project from a team of experienced managers who are highly motivated to deliver client satisfaction. The thorough fact-gathering, analysis, and recommendations of the student teams helps client organizations grow. For example, one capstone client had previously hired a nationally known strategy consulting organization to study the same business problem addressed by the student capstone project. The client reported that the student's thoroughness in the collection and analysis of relevant data, and the correctness of the student's recommendations (the students recommend that the client exit a marginally profitable business) exceeded the quality of the work done by the national firm.

SCB gains substantial brand equity from the capstone studies. Many former capstone clients have recommended that their colleagues apply for capstone projects. Local firms that were capstone clients send employees

to the SCB EMBA program because of favorable impression made by their capstone experience. The local Bar Association recognized an EMBA capstone team for the quality of the work they did in consulting on the merger of two Rochester-based pro bono public service legal organizations.

Most importantly, as previously discussed, EMBA graduates are enthusiastic about the value of their capstone experience. Graduates describe the capstone as a valuable education experience that integrates their classroom learning. In addition graduates gain confidence in their ability to manage projects outside of their comfort zone, and to work effectively on a team under stressful circumstances.

The capstone experience has become a major differentiator for the SCB EMBA program, and the cornerstone of our recruiting efforts. Our internal process for managing the capstone process and for mentoring the student teams has matured to the point where significant changes to the program are unlikely.

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Appendix 1: Sample of Verbatim Student Write-in Comments

Educational experience

"This project brought many aspects of the entire program together to solve a real life situation. This was invaluable!"

"We were able to apply information from almost all classes, plus we learned so much more because our client was in a different business situation."

"Ties together ALL MBA learning."

"This was a true stretch of our knowledge and capabilities."

"The project was just another project to get through. We lacked leadership and direction."

"Excellent learning about consulting skills, market research, product development, analyzing results."

"I was able to apply the knowledge gained throughout the quarter and apply it to real world application."

"It tied in the overall experience very well!! Applications we learned in class were able to be used in product development and marketing and was well received by our client."

"Virtually all aspects of experiences from EMBA course work were utilized. It reinforced many concepts."

"It brought everything together and forced application of concepts learned."

"This provided an opportunity to apply the models and concepts in a real environment, which was different than the neat examples in class."

"The project brought the whole program together. Tied in all the concepts from the first quarter through the last."

"Excellent change to use all we learned throughout the year."

"It was a real world case study and helped to bring the whole program together."

Personal Development

"The capstone is a way of taking your EMBA knowledge for a "test drive" before returning to the workplace."

"Helped me to learn how to manage a project that did not have a lot of definition."

"We were pushing beyond our comfort zone."

"It gave me more confidence to tackle projects outside of my normal expertise."

"Gave me confidence and helped me build up my consulting and people skills."

"Pushes people WAY out of their comfort zone in terms of teamwork and getting familiar with an industry and firm."

"This was a great personal development experience primarily because I was able to reach outside my comfort zone of finance and use my EMBA education."

"Improved teamwork skills, presentation skills, and pointed out my strengths and weaknesses."

"This project was a major confidence builder. It demonstrated to me personally that we could do it!"

"I feel that it has helped my confidence level. I definitely have re-evaluated by potential. I am more confident in my abilities."

"Truly opened my eyes to the value of a driven team. I couldn't have touched the level of the end product on my own."

"I gained confidence in managing an unfamiliar unstructured project."

Appendix 2: CAPSTONE PROJECT OVERVIEW

Executive MBA Program
Saunders College of Business, Rochester Institute of Technology

Purpose of RIT EMBA Capstone Projects:

The purpose of the EMBA Capstone Project is twofold:

(1) To provide students in the Executive MBA program with an authentic business problem or opportunity for analysis and recommendations. This business consulting experience allows EMBA students to apply their skills and experience by identifying relevant issues, analyzing alternatives, and making recommendations.

(2) To support local businesses by offering the consulting services of a team of three/four talented managers who combine their business experience with the lessons learned during their EMBA studies This assistance benefits client organizations by contributing to improved strategies and enhanced operational effectiveness.

Client Selection Criteria

Following are the criteria for selecting Capstone Projects for consideration:

(1) The business problem or development opportunity described in the capstone proposal must be challenging to an experienced manager and must also draws on the skills and knowledge acquired by students during the EMBA program.
(2) The scope of the project must allow it to be realistically completed within the Capstone Project six-month time frame and must match the skills and capabilities of the consulting team.
(3) The organization must designate (a) an executive-level project champion who can manage the Capstone client's internal resources required to complete the project; and (b) a key contact person who will serve as the primary day-to-day interface with the consulting team.
(4) The organization must share internal financial, product, and market data required for project completion.

Time Frame

A Capstone Project is conducted during RIT's summer and fall academic quarters. Consulting teams will dedicate Friday afternoons every other week for visits to capstone clients and/or and project data collection and analysis. Teams often find it necessary to spend more than this scheduled time with their Capstone clients. Dates for the 2008 client visits are:

June 13	July 25	September 5	October 17
June 27	August 8	September 19	October 31
July 11	August 22	October 3	

Teams are also expected to devote an additional five hours per week to the Capstone Project. A faculty mentor is assigned to each project to (a) review and clarify specific objectives, and (b) serve as a resource for the organization and the consulting team.

Output:

Following are the student Capstone Project deliverables to the client organization

(1) A thorough professionally written report with detailed analyses and specific recommendations. The document will include problem definition, substantial fact-based analysis, recommendations, and implementation suggestions.

(2) A team presentation to the client of the team's project findings, including thorough discussion and any needed follow-up. This presentation is attended by the team's faculty mentor.

The Director of the Executive MBA Program for RIT's Saunders College of Business will request from Capstone clients a short written assessment of the team work, and input to the team's grade for the Capstone Project.

PROPOSAL FOR CAPSTONE PROJECT

Executive MBA Program
Saunders College of Business, Rochester Institute of Technology

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Name of Organization:

Address:

Project Champion: Telephone:

Title: Email:

Key Contact Person: Telephone:

Title: Email:

Project Description:

Briefly describe the nature and purpose of the project, its scope, and its importance to the organization. Use additional pages if necessary.

Project Deliverables:

Briefly describe the outcomes desired at the end of the project. Use additional pages if necessary

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Please fax completed form to the EMBA office at 475-6441 or email to embamail@rit.edu by April 25, 2008.

Appendix 3: Sample of Verbatim Comments from Capstone Clients

"I would like to thank you and the entire EMBA team at Rochester Institute of Technology. We could not have been more pleased with the results of our participation in the capstone program. Not only did we learn a great deal about our business, we received confirmation on many issues we had suspected. The report gave us insight above and beyond our expectations, and completely answered all the questions we had submitted. I am also thankful for the wonderful friendships that formed between the students, me, and our staff. They truly became part of the DeCarolis family of employees. I would enthusiastically recommend and encourage participation in the Capstone program at RIT."

> Timothy Coons
> General Manager, DeCarolis Heavy Duty Parts
> Rochester, NY

"It is easy to become encapsulated in our own proverbial market fishbowl comprised of the same products, vendors, and consumers that you've always dealt with. It's refreshing and enlightening to see three bright seasoned minds look at your company profile and history, understand its core competencies in the competitive marketplace, and then make detailed recommendations relating t new markets and products, potential market share, competitive factors, manufacturing, and distribution."

> Scott Hurwitz
> Founder and President, Magnum Shielding
> Pittsford, NY

"It was a privilege to participate in the Capstone project. The team assigned to ExecuScribe was diligent and dedicated to researching challenges specific to my industry and exploring opportunities for future growth. We have made some major strategic decisions based on their summary. They were a delight to work with."

> Linda Yamoszewski
> CEO, ExecuScribe, Inc.
> Rochester, NY

"The team's performance was entirely beyond our highest expectations. They were consummate professionals and provided a product of higher caliber than most of the paid consultant teams that we have used."

      Jim Munroe
      General Manager, Agriculture, Monroe Tractor