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Strategic Management in Construction Education

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Increased competition and changing economic conditions are requiring construction students to understand a wider range of issues than ever before in areas such as strategic analysis, knowledge management, and emerging technologies. However, the development of construction curricula to provide this strategic knowledge is noticeably lacking in current graduate construction programs. With a tradition of project management-focused programs, expanding educational opportunities for students in the area of strategic management represents a significant challenge for construction educators. In response to this challenge, this paper introduces a new course to provide graduate level construction students with a new knowledge set focusing on strategic management. The paper introduces the reasons for developing the course, the case study emphasis within the course, and the industry barriers that may deter the expansion of strategic management education.

Key Words: Graduate Education, Construction, Management

Introduction

The traditional philosophy of management in construction, both in academia and in industry, places great emphasis on the ability to plan and execute projects. Preparing individuals with project management competencies is viewed as a necessary role for university programs. Through the sharing of research, teaching and practice, the construction industry has evolved itself on a project management model. Professors, researchers and practitioners use project management indicators such as schedule and budget as the industry's standard of performance. Similarly, to succeed in academic programs focusing on construction management, the central focus for graduate students is to understand the fundamental skills of project management. In contrast, a similar emphasis on strategic management is noticeably lacking (Goodman and Chinowsky, 1997). Specifically, the analysis needed to solve diverse sets of problems which companies face as they struggle to create competitive organizations requires a distinct set of knowledge, understanding and skills.

Although the pressures of project performance can often obscure the broader social, economic, and professional context in which strategic management is undertaken, it is these broad contextual areas that make strategic management an essential issue for construction students. Rapidly changing social and technological issues are creating a professional environment that will look very different in the coming decades than that experienced in today's organizations. Specifically, three catalysts are converging to motivate construction programs to introduce strategic management concepts. First, the emergence of broad societal and professional issues are affecting core construction concerns including the acquisition of employees, the development of markets, and the use of information. Second, the project management tradition that has served

as the centerpiece of graduate construction education is being challenged as to its capability to address long-term issues. Finally, traditional assumptions of construction knowledge requirements are being challenged as nontraditional issues emerge in both the business and professional environments.

This paper introduces one approach to providing this new knowledge set to graduate level construction students. Specifically, the paper introduces a graduate level course focusing on the strategic management of construction organizations. Additionally, the paper summarizes the background research that prompted the introduction of this course, and the traditions in the construction industry that are setting potential roadblocks to the expansion of this area of education.

The Project Management Tradition

Technology, communication, and market advances are fundamentally changing the global perspectives of time, distance, and spatial boundaries. Two decades ago organizations could identify themselves as local, regional, national, or international in scope and expect that these definitions were clearly defined. However, with the rapid emergence of technological innovations, these boundaries have been blurred to the point where any organization could theoretically join a design or construction project in any location. Concurrently, the concepts of company loyalty, traditional competitors, and employee development are changing at a pace that has not previously been encountered in post-industrial times. It is the emergence of issues such as knowledge workers, new markets, and information technology that are forming the requirement for a broader, strategic management perspective by today's construction graduates.

The emergence of these issues related to the workforce, competition, and information technology represent a cross-section of the business environment. From operations to administration, underlying assumptions held by construction managers for decades are being threatened. In contrast to changes that have previously focused on narrow operations such as the introduction of computer-aided design systems to replace manual drafting, these new forces are focusing on organization-wide changes. However, examining these issues from a strategic perspective raises an issue concerning the appropriateness of the project management tradition as a basis for long-term organization success. The tradition of viewing business practices from the budget, schedule, and operations perspective must be challenged for its relevance to the construction curriculum of the 21st century.

The project management culture is one that runs very deep through the academic and professional construction communities. Current academic and professional practice provides strong indicators that the project management concept is the central focus for researchers, practitioners, and reporters. Topics that are considered "soft" by traditional academicians are often ignored or glossed over in today's classroom (National Science Foundation, 1995; Lih, 1997). Consider the following observations compiled from current literature, interviews with executives, professionals and their clients, and the personal experiences of the authors:

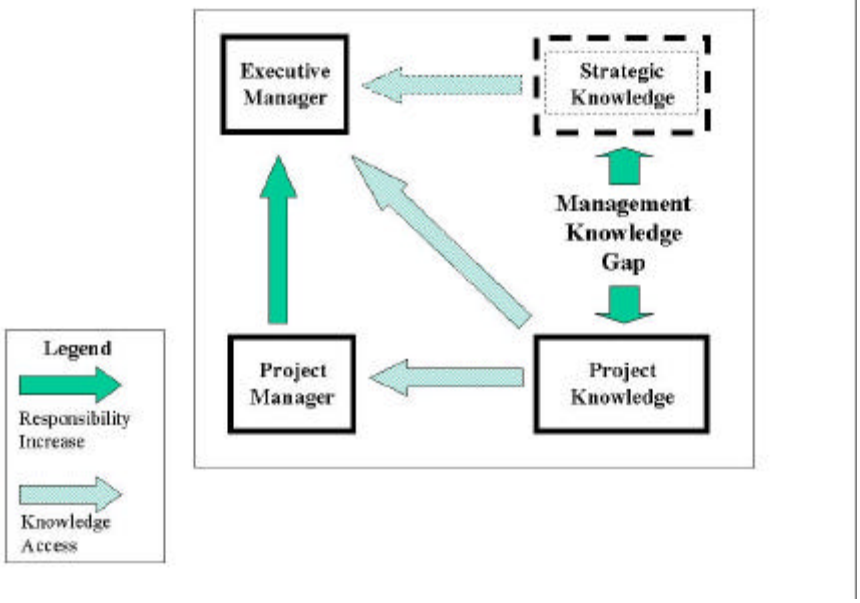

Figure 1: The management knowledge gap appears when senior managers rely on project management knowledge to make strategic management decisions.

1. in the construction-based literature, an overwhelming number of paper topics focus on the technical and managerial issues that affect project success;
2. in graduate construction programs, core courses are designed to teach a balanced combination of technical skills and project management techniques, and very few offer more than one course in areas such as company management or strategic industry analysis;
3. the research reports funded by the Construction Industry Institute, a leader in industry-focused research, indicate support primarily focused on improving the cost effectiveness of projects; and
4. in construction organizations, aspiring leaders are assigned a project-oriented career path, where extensive education and experience is provided in tasks that focus on the efficient planning, coordinating, implementing and controlling of projects.

The combination of these project management focal points has led to the development of a management knowledge gap (see Figure 1). In this knowledge gap, construction professionals are relying extensively on project management knowledge to perform strategic management tasks. Beginning with construction education, the continued emphasis on project management as the key to organization success reinforces a reliance on project management knowledge. A similar focus on strategic knowledge is downplayed as project management excellence is rewarded within the organization through increased responsibilities, and outside the organization through additional client projects. However, the justification often given within the construction industry to focus on project management is based on historical factors. The building boom and bust cycles have seen companies experience economic success and failure on a regular basis (Suhanic, 1997). Similarly, many company reputations have been damaged due to the inability to successfully control project schedules and budgets (Clough and Sears, 1991). Finally, the

attempt to predict building trends has led to both company failures as well as successes (Harrigan and Neel, 1996).

Given the impact of these economic issues on the construction industry, it is not surprising to see that construction management education has evolved with a similar emphasis on project-level budget and schedule controls. Specifically, the evolution of project management as the overriding focus of university programs has both followed and reinforced the management traditions as they have prepared each succeeding generation of industry managers (Goodman and Chinowsky, 1997). In an attempt to respond to industry requirements for specific educational skills, university programs have slowly emerged as a mirror image of the industry itself, instilling in students a strong belief that the successful planning and execution of a project is the fundamental key to professional success (Pries and Janszen, 1995). Reviewing the graduate courses offered by construction programs across the country today, only two programs were found to offer more than a single course on strategic management issues. As such, few students are exposed to more than a cursory introduction to areas related to managing construction organizations, such as creating corporate strategies, forecasting the impact of new technologies and enhancing client relationships.

The Strategic Management Course

In response to the gap in strategic management knowledge, a strategic management course has been introduced for graduate level construction students interested in organization management. The focus of the course is the study of strategic management issues through a combination of in-class lectures, case-study analysis, and field studies of construction, architecture, and engineering organizations. The initial offering of the course was limited to 11 graduate level construction students, with the second class limited to 15 students. The size of the course will be slowly increased over the next several years until it reaches an anticipated size of 35 construction graduate students in 1999. However, focusing on a broader impact, the concepts developed in the course will be made available to other educators to extend the strategic management concept throughout the construction education community.

Course Curriculum

The strategic management course curriculum provides students with two primary avenues to study strategic management concepts, classroom cases and field analysis (See Figure 2). Through this multifaceted approach, students obtain both a theoretical understanding of strategic management and a practical understanding of what company executives are currently doing to address strategic planning within their own construction organizations.

Classroom Cases

The central component of the strategic management course focuses upon providing students with an overall understanding of the concepts that underlie strategic planning and management. However, rather than relying on a traditional lecture format, this introduction is focused around Harvard Business School case studies. While these cases are traditionally associated with MBA

programs, the large number of cases and teaching materials available in the Harvard Press library (over 7,000) provide a diverse selection which cover cases from throughout the industrial spectrum, including engineering and construction. The selection of these materials provided a valuable benefit by serving as an added level of credibility for the course. In conversations with the students prior to the start of the course, many of them pointed to the Harvard connection as a primary reason for testing the course since they were familiar with the Harvard business methodology and its reputation for management studies.

Module 1: Strategic Planning
Case Analysis Technique, Introduction to Strategic and Business Planning, Current Construction Trends

Module 2: Mission Development
Company Organization, Vision Statements, Core Competencies
Case Analysis: Urban Restoration and Investment

Module 3: Company Organization
Hot Teams, Group Dynamics, Corporate Organizations
Case Analysis: Managing Dispersed Organizations

Module 4: Human Resources
Human Resources, Learning Organizations, Corporate Education Plans
Case Analysis: Managing Professional Intellect

Module 5: Market Analysis
Market Analysis, Opportunity Analysis, Emerging Markets
Case Analysis: Competition and Strategy Development

Module 6: Strategic Development
Long-Term Planning, Client Development, Strategic Marketing
Case Analysis: Client Response and Project Development

Module 7: Financial Analysis
Financial Analysis, Reading the Numbers, Economic Trends
Case Analysis: Land Development and Profits

Module 8: Project Presentation

Figure 2: Strategic Management Course Curriculum – The modules follow a basic business plan outline, giving students the opportunity to develop a strategic plan for a new business through the individual modules.

The use of the case studies in the course focused on weekly analytical papers. After an initial week of introduction to the case method of teaching, the students were introduced to the core of the case study method. In the twice-a-week course format, each week was devoted to the introduction and exploration of a new topic. The first lecture of each week was devoted to the discussion of readings selected from the Harvard Business Review articles. Following the pattern of a standard business plan, the articles introduced the students to the issues and requirements of starting and operating a construction company. Complementing these articles were a selection of case studies. In the second lecture of each week, the students were presented with a case study to read and summarize. Given one week to read and analyze the cases, each student was required to write a summary of the case and an analysis indicating how the case

relates to current construction management practices. To facilitate discussion of the cases, two students were selected each week to lead the analysis of the issues. This component of the course was critical to ensure that the students became active participants in the discussions. In contrast to traditional lecture formats, this focus on discussions and cases provided opportunities for students to engage in the process of self-discovery and communication that are currently being advocated by national research agencies (Committee, 1995).

Analysis Efforts

The second component of the strategic management course provided students with the opportunity to perform a field analysis of a construction company and obtain an understanding of how strategic planning is currently being done in the construction industry. In contrast to the overall perspective of the Harvard Business cases, the field analysis component challenged students to capture the strategic management process of an individual company within the context of a written case study and oral presentation. Of particular interest, were design and construction companies focusing on emerging markets and expansion programs.

An example of this field analysis effort is the study of a medium-size construction and development firm (approximately $250 Million annual revenues) in Atlanta. The firm under study decided to differentiate itself from its regional competition by focusing on the emerging market of urban restoration and loft development. The corporate decision to make a strategic emphasis of this area required the company to branch into several areas beyond its traditional general contracting strength including property management, restoration design and engineering, and real estate development. The entry into this market required a combination of management decisions ranging from marketing efforts and construction management to economic forecasting and the revision of corporate mission statements. This situation is an example of a corporate decision that could not be achieved through a traditional project focus. Rather, the students had the opportunity to observe the company as it attempted to take a strategic view of its new market focus, and begin to put into place the corporate level structures required to address an emerging market. Concurrently, the students had the opportunity to objectively analyze the positive and negative steps the company adopted within this process and place the analysis into the form of their own case study analysis.

The combination of this field effort with the weekly case analyses provides the students with both a theoretical and a practical exposure to the strategic management topic. Similar to the approach of having construction students observe field operations to enhance topics such as productivity and equipment, the two-phase approach reinforces the classroom concepts. However, of greater importance, is the opportunity to view first-hand the management knowledge gap that exists within many areas of the construction industry. By analyzing the attempts by companies to expand operations based primarily on project management justifications, the students obtain a context for obtaining strategic management knowledge. Additionally, the students have the opportunity to evaluate their own career aspirations in terms of breaking from the project management tradition. With a broader perspective on the construction industry, the students have a greater opportunity to evaluate the opportunities provided by owner organizations, consulting firms, or the development of their own businesses.

The field analysis efforts have proven to be a valuable benefit for both the students and the companies studied. Each of the companies participating in the analysis section has sincerely appreciated the recommendations for future strategic plans as made by the students. This success has provided the basis for recruiting new organizations to participate in future field analysis exercises. This commitment ensures that the field analysis component of the course will continue to be an integral learning experience as the course builds to a full enrollment level.

Student Follow-Up

The success of any course can be measured through a number of measures. The retention of material, course evaluations, and student demand are all indicators that have been used to benchmark courses. In the case of the strategic management course, a different benchmark was adopted for follow-up purposes. Specifically, the students were followed after the first course to determine the impact of the course on their career objectives. The hypothesis of the follow-up was that the strategic management course provided a broader industry perspective and thus altered the career objectives of a notable percentage of the students. This alteration was broadly defined for the initial study to include options such as changing focus from obtaining a position with a contractor to obtaining employment with an owner, opening a business, starting a new division within an existing company, focusing on consulting companies as employment preferences, or electing to remain in school to pursue a doctorate in the management area. The common thread throughout these options was a divergence from the preconceived vision that the students held upon entering the course that the general contracting field was the probable employment avenue upon graduation.

The follow-up process has tracked the career directions of the original 11 students through to their current employment or education status. Based on this follow-up study, the following data was developed:

Electing to remain for Ph.D. studies in strategic management:	3
Electing to work for owner organization:	3
Starting new business venture:	1
Electing to work for non-engineering consultant:	1
Electing to work for general contractor:	1
Remaining as Ph.D. student in non-management area:	1
Unknown status:	1

While it is difficult to make any definitive conclusions from an initial data set, clear trends are emerging from the follow-up study. First, the number of students electing to continue their studies in strategic management provides a clear indication that the topic has a graduate-level audience. Second, the focus on owner organizations and consulting opportunities indicates a strong interest in non-traditional employment opportunities. Finally, the overwhelming number of students that elected to follow non-traditional career paths indicates a strong need for construction management programs to address the changing construction profession. Although further follow-up studies are required to validate these initial findings, the data provides a basis from which to examine the potential industry barriers to breaking the construction education tradition.

Industry Tradition: A Potential Barrier to Curriculum Expansion

Graduate programs provide an excellent opportunity to introduce construction professionals to the complex demands of today's business environment. However, an analysis of public data compiled by Dun & Bradstreet (Dun & Bradstreet, 1996) on construction executives reveals a potential barrier for construction educators who are interested in expanding current curricula to address these issues and better prepare future industry leaders: a tradition of field-oriented career paths by construction executives. The analysis of the data focused on the educational and professional statistics of 264 executives (vice-president levels and higher), from a broad spectrum of mid-size construction companies (100-2500 employees) throughout the United States. Although the services that each of the companies were involved in varied, all of them had significant involvement in professional project management. While these executives all had undergraduate degrees, the profile of the executives indicated a strong focus on traditional construction education and industry values. The size of the companies was limited to this domain since it represents the greatest consistency in management practices among construction organizations. Results may be different for larger organizations since they have the financial resources to develop executives within internal training programs. Similarly, smaller organizations tend to have less stability in their management structure due to project-level demands on each individual in the management hierarchy.

Graduate Degrees Held by Executives

The first finding of interest focuses on the extent to which industry executives hold graduate degrees. The data analysis found that sixty of the executives (23%) hold graduate degrees. However, only fourteen executives (5%) hold construction or engineering degrees, while forty-six executives (17%) hold non-construction or engineering degrees. The majority of these non-construction degrees being in business or management.

The disparity between the number of construction degrees and business degrees held by executives is an issue for several reasons. First, graduate construction programs are intended to provide the greatest opportunity to investigate the evolving issues in construction. Business school programs spend limited amounts of time discussing issues directly related to construction, focusing more on familiar manufacturing and service industries that have extensive teaching materials and case-studies. Secondly, the trend for executives to choose business schools over construction programs indicates that what is currently being offered in construction is of little value to their knowledge development. This perception, either real or imagined, represents a problem for educators in that before revised programs can begin to have an impact on the industry, industry leaders must see a value in either sending their employees to such a program, or in hiring students with such an expanded knowledge base.

Number of Years with Company

The second finding of interest focuses on the career paths that executives typically follow within a company. This finding is significant based on the traditional industry viewpoint that experience and loyalty are valued above advanced university training. The data analysis examined this issue based on the number of years each of the executives had spent with their

company and found that 63% of the executives had spent twenty years or more with their organization, and fewer than 10% had spent less than 10 years (See Figure 3). What this finding illustrates is that companies value an employee who charts a long-term career path within an organization. While these findings cannot conclude that all industry professionals necessarily follow a similar path to the executive level, this finding does reiterate the notion that the industry tends to create environments that facilitate slow, traditional career progressions, emphasizing the acquisition of established company processes and strategies.

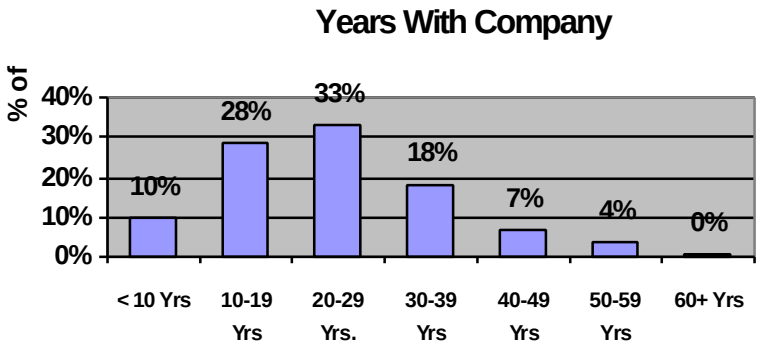

Figure 3. Number of years that executives currently have spent with construction company.

Additionally, this finding also suggests that little effort is being made to infiltrate new ideas from university programs into the upper levels of construction companies. Rather, companies appear to value long-held company processes and strategies. While there is merit in relying on proven strategies, the rapidly emerging world of construction requires companies to examine innovative ideas to remain competitive. Until industry companies understand and accept this need to obtain fresh ideas within the upper levels of the organization, this reliance on traditional company processes and traditional construction knowledge will be a barrier for educators to convince the industry that new curricula is required.

Conclusion

The identification of the management knowledge gap as a construction education issue represents a first step toward creating a solution for construction educators. Building upon this step requires the next major effort. The development of courses that diverge from traditional industry and program objectives is a major undertaking requiring the commitment of faculty and administrators as well as student interest. However, as the emerging construction issues illustrate, a need exists to introduce these concepts into formal curriculum offerings and thus to a greater student audience. While it is unreasonable to argue that educators should abandon their traditional approach to graduate education, it is reasonable to argue that graduate construction education must be augmented and expanded to address the emerging concerns of today's business world. Tradition is an important element in both education and industry; however, tradition cannot limit progress in the development of education curricula. It is time for

construction educators to break from tradition and start laying the educational foundation that will result in once again producing industry leaders.

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