A Comparison of Four Domain Area Standards for Internships and Implications for Utilization in Undergraduate Construction Education Internship Programs

Cassandrea J. Hager, MST, Caroline R. Pryor, Ed.D., and John A. Bryant, Ph.D.
Texas A&M University
College Station, Texas

This investigation analyzes and compares standards and guidelines for field-based experience internships in the undergraduate program domains of: business, political science, allied health professions, and teacher preparation with construction education. The standards from teacher education were found to be the only standards that specifically define and specify the development and structure of an internship program and its continued improvement. Analyses of the other domain standards, along with a literature review, are portrayed in a structured matrix. The key components shared by the domain areas are evident in this matrix and can be utilized as a guideline for the development or structuring of a construction education internship program.

Key Words: Internship, Construction Education, Standards, Guidelines

Introduction

Internships can provide a window to the actual world of work for construction education students. Internships vary greatly from one construction program to the next -- in length, type of supervision, amount of academic deliverables, and whether the internship is paid or unpaid. According to a Special Report on Construction Education in Engineering News-Record (ENR) (October 29, 2001), many schools encourage students to add internship or cooperative education programs to their academic experience. But, less than half of the eighty-eight schools responding to the ENR survey require internships for graduation. Internship supervisors in the Department of Technology at Southwest Texas State University report that variations in undergraduate internship programs have resulted in frustration and dissatisfaction of the internship program for many employers and students. Companies and students find it difficult to set realistic goals and have success with short internships. It was suggested that a longer internship program would result in a more positive experience for both the employer and the student.

Previous research has shown the value of a practical element such as an internship in education. The importance of combining practical elements into the teaching of any specialty has been long recognized (Senior, 1997). The schools of construction forming the Associated Schools of Construction (ASC), encourage its members to provide a curriculum that produces qualified professionals for the construction industry. Within the ASC there is agreement that a practical component, as well as the classroom curriculum, is needed for the construction student's education (Senior, 1997). The practical experience gained from a structured internship is important to lay groundwork in preparing students for careers in their chosen fields (Hauck, Allen, and Rondinelli, 2000). Internship benefits include: a) opportunities for permanent placement with the sponsoring company, b) clarifying career choices, and c) increasing student's

self-esteem (Flesher, Leach and Westphal, 1996). Other studies report the effects of structured internship programs on subsequent coursework.

In examining accounting students' post-internship scholastic performance, findings indicate that there is a tendency for both accounting and general grades to improve following an internship (Koehler, 1974). Because the Koehler study lacked a control group of non-interns, and the findings did not indicate statistical significance, Knechel and Snowball (1987) replicated the study to include these two design features. In this second study of interns, Knechel and Snow ball found that while average performance across all courses did not differ significantly between the two groups, differences were found in the undergraduate auditing course. In this case, interns performed significantly better than non-interns. In another study of accounting students' post-internship scholastic performance, English and Koeppen (1993) found that internship students perform significantly better than non-internship students in accounting courses and in overall grade point average (GPA) subsequent to the internship semester. These findings contradict prior research and support accounting internships as tools to enhance students' knowledge and motivation. In an expansion of these accounting studies, Hauck et. al (2000) investigated construction management students' performance in subsequent coursework. The GPA's of the internship group increased slightly (1.09%), but was not statistically significant. Results of this research were inconclusive. Overall the internship group outperformed the non-internship group in subsequent academic performance but the between groups was not statistically significant.

The Association of Teacher Educators (ATE, 2000) reports that the importances of field experiences are not disputed among teacher educators. These field experiences, however, vary greatly from program to program. Although some variability is desirable so programs can respond to unique circumstances, some of the differences may reflect variations in the quality of programs. Roth (1996) suggests setting standards for the internship as one way to monitor quality preparation of students and to ensure a minimum level of program quality. In the field of construction education no common set of internship field experience standards has been developed.

Methodology

This paper analyzes and compares standards or guidelines pertaining to internships with a field experience component in undergraduate domain areas of business, political science, allied health professions, and teacher preparation to determines if one model of internship standards or guidelines enhance construction education internship programs. In this analysis, if no standard was found in a particular domain, additional review of literature was conducted to determine the rationale for this omission.

This analysis required the creation of a structure that would allow for grouping standards for each domain area. These standards and guidelines were compared within the structure to help identify similarities and differences that resulted in coherent portrayal of internship programs within each of the domain areas.

Purpose of the study

This article investigates the definition and specifications of internship field experiences within four domain area undergraduate programs. Elements of the internships discussed in this article are: (a) the definitions of internship, (b) a brief review of accreditation standards and guidelines, and (c) the key components and outcomes of internships. This article addresses the following questions: What is the definition of an internship and field experiences? What are the key components of any internship program? Do current accreditation standards for construction education programs address the major components of an internship programs? Can construction education enhance its internship program by utilizing guidelines and standards for field experiences from other domain areas such as business, political science, medicine, or education?

What are field experiences or internships?

Internship is a term often used to identify the phenomenon of the experiential learning component of an academic curriculum. This experiential component is commonly employed to help students utilize classroom knowledge or extend theory into practice or application. Senior (1997) posited that internships immerse the student in an actual supervised professional situation. Internships are probably the oldest and most widely used format for experiential learning. Gross (1981) defined an internship as a practical experience outside the educational institution in an organization that deals with the line of work one hopes to enter. More specifically, an internship is a relationship with a company or organization in which a student is treated as a quasi-employee (Senior, 1997).

The four domain areas analyzed here use various terms to refer to the experiential field-based component of undergraduate curriculum. These include field experience, internship, and clinical laboratory or clinical practice. Definitions or clarification of the nomenclature within each domain is found in each domain description.

In teacher preparation, internships as a part of cooperative learning programs have been in existence for many years (Moriber, 1996). The preservice phase of a teacher education program has two major components: early field experiences (pre-student teaching) and student teaching or internship. The early field experience that precedes student teaching has two major purposes: to explore teaching as a career and to practice the necessary teaching skills needed to carry out the professional role. Student teaching (internship) is the capstone experience during the pre-service phase where the intern is placed in a school site for a prolonged period of time, typically for 10-15 weeks (Paese, 1996, p. 2). These internships are typically undergraduate, but can be found also in post-baccalaureate or alternative programs.

Less consistency exists in business education. Business internships have been defined as any work or field experience undertaken prior to completion of the formal collegiate education, often with little or no university involvement (Smith, 1964). Other reports describe the business internship as the experiential component of an academic curriculum that provides an efficient way to involve students in actual work situations where students can apply and reinforce classroom knowledge; and can evaluate competing employment opportunities before making a permanent commitment (Koehler, 1974).

In political science, internship is defined as the utilization of practical political involvement adjunct to formal classroom coursework (Hedlund, 1973). Hedlund noted that internships have two primary goals – education and research, and one secondary goal – public service. Political science internship experiences have been developed with political officials in local, state and national level offices; sponsored by institutions of higher learning, public and private agencies, elected officials, private organizations and professional associations (1973).

The medical profession has a long history of supporting internships. Students in these internships assist, learn from, and work with more experienced doctors (Moriber, 1996). The formal term of *intern* in this instance typically refers to a phase of the medical education beyond the undergraduate level. But, a great many undergraduate health profession programs do provide students with experiential learning opportunities through clinical laboratory, clinical practice and internship curriculum. Clinical laboratory and clinical practice courses are more directly supervised and controlled than other undergraduate internships. According to the Commission on Accreditation of Allied Health Education Programs, a student's education should end with a capstone experience to integrate knowledge, behaviors, and professional attributes acquired throughout the curriculum that are necessary to the practice of the health profession (CAAHEP, 2003).

Do current accreditation standards for construction education programs address the development and structuring of internship programs?

Douglas, Ward and Dugger (2002) suggest the importance of standards for construction education programs. They stated, "An objective of accreditation, no matter what the academic discipline, is to ensure that certain predetermined sets of standards that have been established by the particular profession are being followed. Accrediting bodies address the need to establish program benchmarks such as student admission requirements, retention, scholastic success and graduate placement data. While not directly affecting the discipline development, the collection and analysis of these data, where appropriate, play a key role in ensuring that the needs of industry as well as students and society are being met."

According to ENR (2001), two accrediting organizations, the American Council for Construction Education (ACCE) and the Accreditation Board for Engineering and Technology (ABET) represent construction education curricula. The ACCE emphasizes construction management and ABET focuses on construction engineering programs. Another accrediting agency, the National Association for Industrial Technology (NAIT), provides accreditation of construction programs housed within Industrial Technology programs.

It was disappointing to find that a review of these accrediting agency standards found no method for developing or structuring an internship program for construction education. ABET stated that it has no authority to impose any restriction or standardization upon educational programs, nor does it desire to do so. ABET aims to preserve the independence of action of individual institutions and thereby, promotes the general advancement of engineering, technology, computing and applied science education (ABET, 2003). The *ACCE Standards and Criteria for Baccalaureate Programs* simply suggest that students *should* work to obtain construction related experience through participation in internships and cooperative education programs (ACCE,

2002). The *NAIT Accreditation Handbook – 2003* suggests that each major program shall include appropriate industrial experiences such as industrial tours, work-study options and cooperative education, or senior seminars focusing on problem-solving activities related to industrial situations. The industrial experiences shall be designed to provide an understanding of the industrial environment and what industry expects of students upon employment (NAIT, 2003). Additionally NAIT urges that if cooperative education is either a required or an elective part of the program, then appropriate services be provided to assist the placement and supervision of cooperative education students (NAIT, 2003).

In summary, it was found that accrediting agencies governing construction education programs do not specifically address the development and structuring of internship programs in their accreditation standards.

Why Study Business, Political Science, Health Professions and Teacher Education Standards?

Because accrediting agencies concerned with construction education provided little or no guidance in the development or structure of internship programs, it was necessary to investigate or review other domain programs. Originally concerned with internships within an industrial technology program, investigation of other disciplines *related* to industrial technology became appropriate. Industrial technology is defined as a field of study designed to prepare technical and/or technical management-oriented professionals for employment in business, industry, education and government (NAIT Handbook, 2003). Following this suggestion, this review investigated domain area standards in undergraduate programs in business, political science, allied health professions and teacher preparation was conducted.

Business was selected for investigation because the constructor is a manager. A construction manager is defined by the construction industry and university construction management programs as a manager who can effectively coordinate activities, people, subcontractors, materials, and financial aspects of a project to bring about a company's continued growth and performance (Adcox, 2000). Utilizing standards associated with economics, finance, principles of management, accounting and business regulations would be beneficial to construction education.

Political Science was selected for investigation because construction is concerned with people, their interrelationships, and the allocation of resources. Construction involves human interaction at several levels, often aligned with economic resources and development. The ability to communicate and understand human behavior are essential assets to the constructor. The greatest challenge in construction management is to bring together all the project resources, in the correct quantity, at the optimum time.

Allied Health Professions (CAAHEP) was selected for investigation because construction is a practice-oriented profession much like health professions. Although the traditional medical internship occurs beyond the undergraduate education, the allied health professions complete an experiential component during undergraduate study.

Teacher preparation was selected as a domain of investigation because similar to construction, teaching is also a practice-oriented profession. Additionally, teacher preparation programs have conducted extensive research concerning internships that involve the student, the faculty supervisor, and the practitioner. Teacher education programs are also dedicated to the continuous improvement of their teacher preparation programs and provide invaluable information concerning program improvement.

Results

Can construction education enhance its internship program by utilizing guidelines and standards for field experiences from other domain areas such as business, political science, medicine, or education?

See Appendix A: Key components of internship programs in four domain areas

This investigation analyzes and compares standards and guidelines for internships or field experiences in undergraduate university domain areas of: business, political science, allied health professions, teacher preparation, with construction education.

Analysis of the Four Domain Areas and Construction Education

Business

The accreditation agency for business education is the Association to Advance Collegiate Schools of Business (AACSB), formerly the American Assembly of Collegiate Schools of Business. This agency promotes continuous quality improvement in collegiate schools of business. Standards for business administration were first set in 1919. In 1980, AACSB adopted additional standards for undergraduate and master's degree programs in accountancy. In 1991, mission-linked accreditation standards and procedures for undergraduate, master's, and doctoral degree programs were created. According to the Preamble of AACSB, "member schools reflect a diverse range of missions. Diversity is viewed as a positive characteristic to be fostered, not a disadvantage to be reduced or minimized. Therefore, one of accreditation's guiding principles is the tolerance, and even encouragement, of diverse paths to achieving high quality in management education."

No standards directly specifying the development or structure of business internship programs were found, therefore a review of literature concerning business internships was conducted. The literature concerning business internships provided a generous amount of information related to more specific "accounting" internships, with most of that literature investigating the effects of internship programs on subsequent college performance. English and Koeppen (1993) cited earlier literature supporting the benefits of accounting internships. A study by the American Accounting Association (AAA, 1952) noted the benefits to include: broader exposure to accounting techniques and problems not possible in the classroom, improved understanding of the business world, and the improved ability to evaluate and assimilate classroom experience. Lowe (1965) found that interns felt the internship clarified accounting theory, while Koehler

(1974) asserted that internships motivate students to work hard early in their academic programs in order to secure internships and result in improved grades upon conclusion of those internships. Smith (1964) reviewed accounting education internships, citing the 1959 Council of the A.I.C.P.A.'s advice that "plans be developed so that internship be well organized and supervised by schools and practitioners."

In 1964, Smith gave six reasons for the loss of interest in the academic internship: a) industry demand for graduates (permanent positions could be secured without the contact provided by internship, b) student inconvenience to move from school to work locations and back before graduation, c) the university semester plan does not complement the work environment, d) firms, for what ever reason, are less responsive to accepting undergraduate students than in earlier years, e) new educational techniques and improvements in teaching methods and materials tend to reduce the necessity for a field experience, and f) many schools have failed to name a faculty member to be responsible for supervising and generating student interest in the internship program.

In order to overcome this lack of interest, it is important to clarify the elements that make up the business internship and the benefits that might be realized. Smith (1964) points out that the internship should provide students with a broad perspective of accounting practices by assigning students to a variety of jobs, projects, activities, companies or programs. Further, the internship should be a requirement for either a bachelor or master degree, but not granted prior to completion of the junior year (1964). However, credit toward graduation for successful completion is a matter to be resolved by the respective college or university. Smith concluded that in order to have a successful program, a faculty member should be assigned the responsibility of supervising the program, conferring with students and working with practitioners and industry personnel on all matters of common interest to the intern, the employer and the college. Lowe (1965) revealed weaknesses of some programs to include: programs were too brief to be of great value, programs did not diversify activities, and results of work not viewed by interns. While supervision from the field placement company was generally complimentary, additional instruction was often needed for the supervisor. Supervision from the college was a weakness in a number of programs, with little contact with interns in the field and little control over the quality of their experience. More reflection and reactions to the program (from students, faculty and practitioners) are necessary to improve the program (Lowe, 1965).

Political Science

Finding no accrediting agency associated with political science, or any standards or guidelines offered by the American Political Science Association (APSA), a brief review of literature was conducted. In research during the early 1970's in Political Science (*PS* – the professional journal of the APSA), Hirschfield and Adler (1973) point out that political science literature largely ignored questions regarding the scope, structure, and strategies of internship programs. Hedlund (1973) described how little assistance was available in journals or books of political science dedicated to understanding how students respond to the internship experience or what can be done to maximize student learning. Until the 1970's there was no central source to coordinate the national, state and local political internship programs or their sponsors. The communication regarding internship was fragmented and haphazard. These two 1973 reports in *PS*, along with

publication of the book, *Government Management Internships and Executive Development*; and a new journal, *Teaching Political Science*, plus the formation of a center for disseminating internship information, the National Center for Public Service Internship Newsletter (NCPSI), indicated a new stage in the evolution of political science concern with internships. Hedlund (1973) briefly reviewed the goals of internships and considered observations of program directors and participants, qualities of offices, qualities of the intern and educational structuring.

The conclusion of the NCPSI was that only after program supporters, interns and directors undertake systematic reflection and analysis regarding internship goals and methods are internships likely to maximize their learning potential. Hennessey gives the three critical elements required in any useful internship: a) it must be a "real work" situation, b) the student must participate on the same basis as other workers, and c) there must be systematic and continuous examination of the experience in relation to generalization of political science (Hirschfield and Adler, 1973). Of the three components of a good internship program – student, principal and faculty member – the last is deemed the most important. The faculty member finds a field placement for the intern, informs principals of their responsibilities, makes on-site visits, and continually communicates with the intern. The selection and training of the internship supervisor is critical to the success of the program. Hirschfield & Adler (1973), concluded that an effective internship program should include the following essential elements: a) highly motivated, professionally competent, and politically attuned faculty, b) understanding of and commitment to the educational purposes of the internship program on the part of principals, as well as faculty and students, c) well-structured and discipline-related academic input through regular seminars or class work, d) the assignment of written work so that the student can organize his perceptions of his internship experience, e) academic credit for participating so that the internship is regarded as a legitimate part of the student's curriculum, f) continuing communication among students, faculty and principals through regular meetings and newsletter distribution so that an atmosphere of common purpose is maintained, and g) adequate funding to meet the program's administrative needs and to make possible the inclusion of any students who would gain from an internship.

The APSA website provides access to, *Studying in Washington: A Guide to Academic Internships in the Nation's Capital (Frantzich, 1977)*. The first as well as the next three editions, entitled *Storming Washington: An Intern's Guide to the National Government.* The guide introduces students to the objectives, procedures, and anticipated outcomes of an internship in the United States capital. Information assists faculty in advising students and informs academic administrators and students' families about why internships make a significant contribution to education and career preparation. Although this book's main focus is an overview of the city of Washington, D.C., the advice to students about how to benefit from an internship can be adapted to internships in state and local politics and government as well.

Allied Health Professions

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) is the non-profit agency established July 1, 1994, which accredits programs representing 18 allied health professions in over 1900 allied health education programs in more than 1300 institutions. These institutions include universities and colleges, academic health centers, junior and community

colleges, hospitals, clinics, blood banks, vocational-technical schools, proprietary institutions, and government institutions and agencies.

CAAHEP cooperates with Committees on Accreditation sponsored by various allied health and medical specialty organizations. Each of the program accreditation standards are the minimum measures of quality to be used in accrediting programs that prepare individuals to enter the respective health care professions. Standards therefore constitute the minimum requirements to which an educational program shall be held accountable.

Although specific standards regarding structuring internship programs were not found, a commonality within the many program standards was found in their respective instructional plans. Each discipline within CAAHEP expects "that the curriculum must include an appropriate sequence of learning experiences consisting of classroom and laboratory presentations, discussions, demonstrations, and *supervised laboratory* and *clinical practice"* and "clearly written course syllabi which describe learning objectives and competencies must be developed for each of the didactic, *laboratory*, and *supervised clinical* education components" (CAAHEP, 2003).

Curriculum requirements for health information management states that programs should provide, "Appropriate learning experiences and curriculum sequencing to develop the competencies necessary for graduation, including appropriate instructional materials, classroom presentations, discussions, demonstrations, and *professional practice experiences*." Another requirement is, "a) There must be supervised professional practice experience designed to reinforce learning experiences. b) The instructional staff shall be responsible for assuring that the activities assigned to students in the professional practice setting are consistent with program goals and standards. c) Supervised professional practice assignments for students shall be structured to gain experiences in applying knowledge to technical procedures and in developing professional attitudes for interacting with other professionals and consumers in the healthcare field. Professional practice experiences may be included in the curriculum as separate courses, incorporated within courses, and/or developed as simulated professional practice modules. Off-campus assignments shall be in facilities, organizations, or agencies related to healthcare. The student's education should end with a capstone experience to integrate knowledge, behaviors, and professional attitudes acquired throughout the curriculum that are necessary to the practice of health information administration (CAAHEP, 2003).

Teacher Preparation

The National Council of Accreditation of Teacher Education (NCATE) is an agency that accredits colleges, schools, or departments of education in the United States. The U.S. Department of Education and the Council for Higher Education Accreditation recognize NCATE as a professional accrediting body for teacher preparation.

NCATE Standards. NCATE's Standard 3, directly addresses field experiences and clinical practice. Clinical practice is defined as either preservice student teaching or internship for administrators. The standard states, "The unit and its school partners design, implement, and evaluate field experiences and clinical practice so that teacher candidates and other school

personnel develop and demonstrate the knowledge, skills, and dispositions necessary to help all students learn" (2003).

The following are excerpts from the NCATE Standard 3: Field Experiences and Clinical Practice.

> *Collaboration.* The standard calls for collaboration between the "unit" (teacher preparation program) and the "triad" (university faculty, campus faculty and teacher candidate), with shared and integrated resources and expertise to support candidates' learning in field experiences and clinical practice. Both faculty are involved in designing, implementing, and evaluating the unit conceptual framework(s) and the school program; they each participate in the faculty professional development activities and instructional programs for candidates and children. The faculty jointly determine specific placements of student teachers and interns for other professional roles to maximize the learning experience for candidates and P-12 students.
>
> *Partnering.* Field experiences allow candidates to apply and reflect on their content, professional, and pedagogical knowledge, skills and dispositions in a variety of settings with students and adults. Both field experiences and clinical practice extend the conceptual framework(s) into practice through *modeling* by clinical faculty and well-designed opportunities to learn through *doing*. During clinical practice, candidate learning is integrated into the school program and into teaching practice. Candidates observe and are observed by others. They interact with teachers, college or university supervisors, and other interns about their practice regularly and continually. They reflect on and can justify their own practice. Candidates are members of instructional teams in the school and are active participants in professional decisions. They are involved in a variety of school-based activities directed at the improvement of teaching and learning, including the use of information technology. Candidates collect data on student learning, analyze them, reflect on their work, and develop strategies for improving learning.
>
> *Faculty Development.* Clinical faculty are accomplished school professionals who are jointly selected by the unit and partnering schools. Clinical faculty include both school and higher education faculty responsible for the field experience or internship. Clinical faculty are selected and prepared for their roles as mentors and supervisors and demonstrate the skills, knowledge, and dispositions of highly accomplished school professionals.
>
> *Candidate Development.* Entry and exit criteria exist for candidates in clinical practice. Assessments used in clinical practice are linked to candidate competencies delineated in professional, state, and institutional standards. Multiple assessment strategies are used to evaluate candidates' performance and effect on student learning. Candidates, school faculty, and college or university faculty jointly conduct assessments of candidate performance throughout clinical

practice. Both field experiences and clinical practice allow time for reflection and include feedback from peers and clinical faculty. Field experience and clinical practice provide opportunities for candidates to develop and demonstrate knowledge, skills, and dispositions for helping *all* students learn. All candidates participate in field experiences or clinical practice that include students with exceptionalities and students from diverse ethnic, racial, gender, and socioeconomic groups.

ATE Standards. Additional standards reviewed in the area of Teacher Preparation include the Association of Teacher Educators (ATE), *Standards for Field Experiences in Teacher Education* (2000). The Association of Teacher Educators, founded in 1920, is an individual membership organization devoted solely to the improvement of teacher education both for school-based and post secondary teacher educators. ATE members represent over 700 colleges and universities, over 500 major school systems, and the majority of state departments of education. In addition, ATE has representatives on the National Council for Accreditation of Teacher Education (NCATE), the Holmes Partnership (for Professional Development Schools), and the Educational Research Information Clearinghouse (ERIC) on Teacher Education. The recent development of new "National Standards for Field Experiences in Teacher Education" was completed in collaboration with the executive board of ATE. Standards developed by the ATE correspond with, complement, and extend the NCATE standards.

The ATE *Standards for Field Experience in Teacher Education* (2000), include twelve standards: 1) collaboration of universities and schools with a commitment to simultaneous review and reform; 2) assessment of the internship program; 3) selection, preparation and assignment of university faculty; 4) selection, preparation and assignment of cooperating faculty; 5) the roles of the triad – candidate, cooperating school supervisor, and university supervisor; 6) feedback to candidates – verbal and written based on agreed upon outcomes by university and school supervisors; 7) continuous communication and interaction through on-site observation, cross-site interactions, and use of communications technology; 8) opportunities for ongoing reflection on and analysis of teaching and learning, school conditions, and candidate development; 9) context and sequence of the field experience; 10) school contexts provide supportive environments; 11) diverse student populations and diverse settings; and 12) adequate resources (expertise and financial) for administration and implementation.

The following are excerpts from the ATE *Standards for Field Experiences in Teacher Education,* providing the elements necessary for a successful field experience:

1. University/School Collaboration with commitment to simultaneous review and reform -- the goals and mission of the teacher preparation program and the goals and processes of the field experiences are developed and agreed upon collaboratively by the university and cooperating teacher educators and administrators.

2. Assessment of the Internship Program – uses a model of assessment that addresses realistic goals and objectives and promotes high expectations. Assessment is ongoing and used for program improvement. The program model is

developed by those involved in the field experience (triad) regarding the following areas: context or setting, placement process, collaborative fostering, professionalism, program goals, candidate outcomes, benefits to students, resources, rewards and accountability, and compliance with state and local policies/practices.

3. Selection, preparation and assignment of university faculty – is systematic, collaborative, and based on the agreed upon internship program framework.

4. Selection, preparation, and assignment of cooperating faculty – is systematic, collaborative, and based on the agreed upon internship program framework.

5. The focus of the roles of the triad – candidate, school supervisor, and university supervisor. All field experience participants demonstrate pedagogical and content knowledge, skills and dispositions that are congruent with teacher education program outcomes. Field experiences are aligned to meet program and/or national standards.

6. Feedback to candidates – verbal and written formative and summative feedback regarding progress demonstrating professional learning in relation to explicitly stated program outcomes agreed upon by university and school supervisors. Multiple assessment procedures include professional portfolios, self-assessment and peer-assessment.

7. Continuous communication and interaction through on-site observation, cross-site interactions, and use of communications technology – the triad communicates with each other in some way at least once a week. Quality interactions facilitate a professional learning community and decrease communication problems. Candidates demonstrate increased self-confidence and skills in communication.

8. Opportunities for ongoing reflection on and analysis of teaching and learning, school conditions, and candidate development – reflection tools include journals and portfolios.

9. Context and sequence of the field experience – the triad unit hold compatible views and philosophies about teaching and learning, with varied field experiences designed to meet varied and sequential goals of the teacher education program. Field experiences are sequential and cumulative and based on models of professional development. Placements meet goals of the teacher education program and are sequenced to meet the developmental needs of the teacher candidate.

10. School contexts provide supportive environments – teacher candidates feel comfortable in the schools in which they are placed. Administrators, teachers, students, and parents in the school setting want and support teacher candidates.

Candidates participate in the life of the school as member of a learning community.

11. Diverse student populations and diverse settings – extended field experiences with diverse school populations include students of different age levels, diverse racial and ethnic groups, diverse socio-economic backgrounds and diverse special needs. The internship program provides diverse placements in schools with diverse administrative, curricular, and structural features. Candidates have opportunities to work with different students in different school structures.

12. Adequate resources (expertise and financial) for administration and implementation – both university and school resources are necessary. Administration of the field experience is a shared expense. Personnel are designated and compensated for handling logistical responsibilities of the program including: candidate clearance; procurement and placement of candidates; development of field experience guidelines, handbooks, etc.; arranging seminars and meetings; and developing and implementing assessment and research procedures.

Because an extensive review of literature was included in the preparation of the NCATE and ATE standards for teacher education field experiences, an additional review of literature concerning teacher education internship was not necessary.

Construction Education

In order to *compare* the above four domain areas with construction education, and because accrediting agencies concerned with construction education provided little or no guidance in the development or structure of internship programs, it was necessary to review literature regarding construction education internships. An analysis of construction education literature follows.

Senior (1997) reported the need for an internship as part of the construction curriculum to be almost universally supported by ASC faculty across the country. The level of intervention, however, was found to be quite different among colleges. Some programs like Purdue University's Construction Engineering and Management, require the internship component of the curriculum. Purdue's full-time internship director, recruits sponsors and is the liaison between them and their interns. Other programs are minimalist in approach to internships. These programs allow the campus Coop program to administer the internship. Students are responsible for contacting sponsors. The number of interns hired and their work conditions are organized at the discretion of the sponsors.

According to Adcox (2000), the internship experience is generally the most important single part of a construction management student's professional preparation. Internships should be a competency-based program with pre-stated instructional goals and outcome performance behaviors designed to specifically represent the competencies necessary for the construction manager to function efficiently". Adcox (2000) posits that the internship experience is conceptualized as a partnership between construction industry work sites and the university's

academic environment. Each partner brings a special and necessary area of expertise to the partnership, thus enabling on-site directing managers to assist and direct the construction management student to progress from novice to productive construction manager.

Marshall (1999) provided a rationale for implementing a required professional internship and presented the typical elements of an internship portfolio, and examined the crucial role of the professional internship coordinator. Marshall stated that the benefit of a well designed and carefully structured internship would not only provide job placement for graduates, but is also a recruiting tool for potential students with a desire to upgrade their skill sets. The internship partnership also affords opportunities for equipment donation, scholarships, faculty sabbaticals and is a source of members for advisory boards. Marshall (1999) reported that internship provides an opportunity for the student to link theory to practice and to reflect on situations outside the classroom where problems are real, solutions are complex, and individualized challenges are possible. Upper class standing is important to optimize the internship experience. Securing employment is the student's responsibility. Portfolio assessment is recommended with typical elements including: student resume, company organization chart with mission statement or goals, student performance goals, daily logs, self-evaluation with reflection, and a final written evaluative report. Marshall reported that the hosting firm plays a vital role toward the success of the internship program by the assignment of intern's professional responsibilities and providing the industry supervisor for guidance.

The student is expected to be exposed to various aspects within the company and will be paid at a level agreed upon, while no permanent employment is being offered. The intern's industry supervisor also completes intern performance evaluations. According to Marshall (1999), the university coordinator's role involves recruitment, administration, guidance, coordination, and a great deal of quality control. The coordinator must be readily available to assist the student or the hosting firm. The communication process between the "triad" – student, hosting firm and university coordinator, must occur prior to and continuously throughout the experience. The coordinator is the established liaison with the industry, maintains the historical relationship, and insures the quality and consistency of the program. The university coordinator conducts site visitations and develops a written evaluation of the intern.

The answer to the question, "Can construction education enhance its internship program by utilizing guidelines and standards for field experiences from other domain areas such as business, political science, medicine, or education?" is, not from accreditation standards alone. Construction education can however gain some insight for structuring internship programs by reviewing literature in each domain area, and placing the data collected into a structured matrix (see Appendix A), revealing the key components shared by the different domains areas of interest.

Comparison of the Four Domain Areas with Construction Education

Although the standards from teacher education were found to be the only domain area that specifically define and specify the development or structure of an internship program and its continued improvement, the analysis of the standards along with a review of literature in each domain area, provided data for placement in the following structured matrix (see Appendix A).

This matrix provides for the comparison of program variables of the four domain areas with construction education.

It was interesting to find that all domain areas except political science have accreditation agencies associated with their discipline. In construction education, not one of its three governing accreditation agencies was found to address in their standards the structuring of field experience or internship. The allied health professions, on the other hand, set standards for each and every specific discipline within their domain. Teacher preparation was the only domain area to write formal standards addressing the structure, development and continued improvement of field experiences and internships.

When comparing across domains whether internship is "required" for graduation, only teacher preparation and the allied health professions make internship a requirement. Within construction education, the ACCE makes internship mandatory for program accreditation, but does not provide any guidance for the structure or development of that internship experience.

Across domains, all were found to have certification exams or licensure (except political science), with the allied health professions having a board of examiners overseeing each separate discipline. Interestingly enough, only the allied health professions require these examinations for college graduation. The allied health professions programs also require these examinations for employment. Teacher education programs do not require the examinations for employment, but typically states require the exam for teacher certification. Teacher ed programs organize their programs to respond to state program requirements and in order for graduates to pass the state teacher certification examination. Alternative teacher certification does exist and programs vary among states. However, alternative certification programs include some measure of supervised field experience (U. S. Department of Education, 2002).

Paid internships are allowed and are considered the "norm" in business, political science, and construction education, while internships in the allied health professions and teacher preparation are not paid.

Collaboration between university programs and their respective industries are found in all domain areas with more formal partnerships in the allied health professions and teacher preparation. Construction education has shown increased interest in collaboration and partnering.

While placement of students in specific internships is not typically provided by construction education, allied health professions and teacher preparation have provided placement for students.

While all domain areas including construction education, provide for specifically selected university faculty supervisors to administer their respective internship programs, construction education does not select the cooperating industry supervisors nor do they provide any special training for those supervisors.

University supervisor site visitations are not mandatory across all domains (except teacher preparation).

Evaluation and deliverables across all domains vary. Evaluation and deliverables for the construction internship experience vary as greatly as the many different names of their programs. On one end of the spectrum, some programs require the majority of the following deliverables: self evaluation, university supervisor evaluation, cooperating industry supervisor evaluation, written reports, daily logs, portfolios and written reflections or perceptions. While on the other end of the spectrum, a minimal account of the whole experience may be required in one short written report.

Course credit for the internship was found to influence the amount of evaluation and deliverables required for the internship experience across all domains.

Although an industry advisory council was found to be required for only the allied health professions and teacher preparation, all domains showed evidence that these councils are being considered to improve university program and related industry relationships.

All domain area literature revealed an interest in collaboration between the university and the triad members, and collaboration on the internship structure and improvement. Across all domains, continuous communication between the triad members was considered important.

Construction education does not choose the work context for its students, nor does it formally promote work in "diverse populations". The construction education literature suggests that construction by its very nature is diverse and therefore provides a diverse working environment. On the other hand, the other domain areas promote work in diverse populations, and the allied health professions and teacher preparation programs have often chosen the context for their students. All domains suggest that a diverse work environment is important for the student's education.

All domain areas consider the appropriate sequencing of the internship to occur in the upper-level years of a student's education. Construction education literature suggests that the experiential component being implemented in the Junior year helps the student to clarify career choices, direct subsequent coursework interests, and integrate classroom knowledge with real world work experiences.

Across domain areas, not all literature suggested that internship administration be adequately funded.

When comparing the length or duration of the internship field experiences across domains, considerable variation was found. In business, political science and construction education the length of an internship varied from none, to one summer session, to two summer sessions, up to one long semester. Political science additionally allowed one- and two-month internships while students were concurrently enrolled full-time students. Only allied health professions and teacher preparation required long semester internships.

From this comparison of domain areas with construction education, Figure 1 reveals the key components of internship shared by all domain areas (see Figure 1).

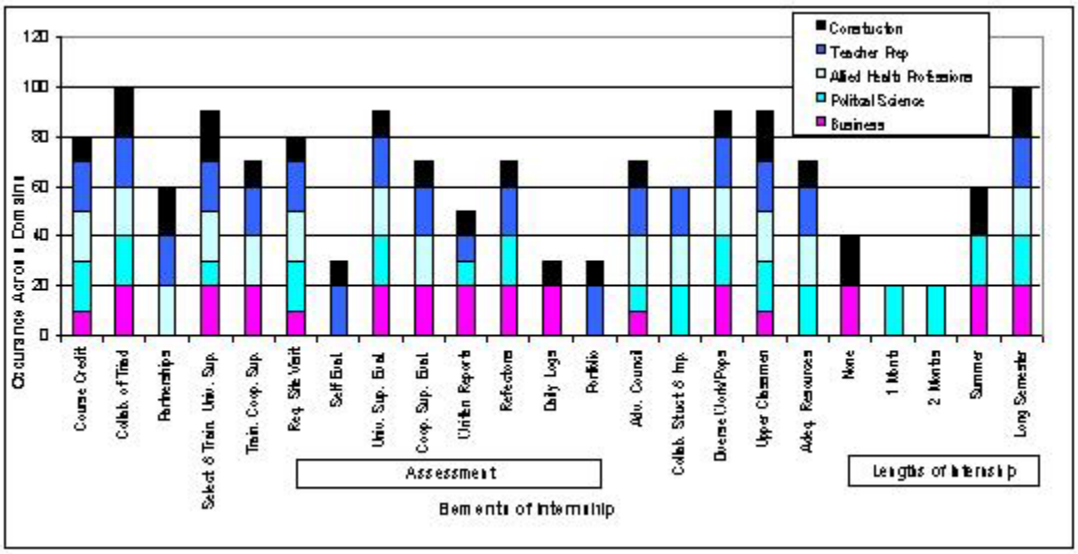

Figure 1: Key Elements of Internship Shared Across Domains

The key elements of internship shared across domain areas included: course credit; collaboration of triad members to design, implement and evaluate internship programs; formation of university-industry partnerships; selection and training of university faculty; providing adequate guidance for cooperating supervisors; required site visitations; evaluation methods to include: self-evaluation, university faculty and cooperating supervisor evaluations, written reflections of student on performance, program, and improvement, daily logs and a portfolio; creation of industry advisory councils; collaboration for internship structure and continued improvement; diverse context of work with diverse populations; sequencing within academic program to be at least upper class standing; adequate resources (both expertise and financial); and adequate length of internship programs.

Conclusion

This investigation analyzed and compared standards and guidelines for internships or field experiences in undergraduate university domain areas of: business, political science, allied health professions, teacher preparation, with construction education. The standards from teacher education were found to be the only domain area that specifically define and specify the development or structure of an internship program and its continued improvement. An analysis of the standards, along with a review of literature, provided the data for placement in the structured matrix (see Appendix A). Figure 1 reveals the key components shared by the different domains of interest.

Although the many issues that the teacher education field experience standards address are essential in a teacher preparation program, it is unlikely that construction education programs or the pragmatic hosting firms will see the necessity to consider *all* the issues addressed.

While the information revealed in Figure 1 provides a list of key components for utilization in a construction education internship program, additional research is necessary before a set of "best practices" guidelines can be suggested.

Further Discussion

More important than arguing for just one model to enhance construction education internship programs, the construction education discipline needs to research in depth, internship programs currently being implemented at the undergraduate university level. And, because the interactions of the "triad" (student, university faculty supervisor and industry supervisor) were found to be important in developing and structuring internship programs, research concerning the triad's perceptions regarding internship needs to be conducted. Additional research in this are is now being conducted and will appear in a follow-xup report. It will then be possible, through the integration of the investigated standards and guidelines, information gathered concerning currently implemented construction education internship programs, and the perceptions of the triad members, that a set of "best-practices" guidelines or standards can be developed for the construction education discipline.

References

Accreditation Board for Engineering and Technology (ABET). *Accreditation policy and procedure manual: 2002-2003 accreditation cycle* [WWW document]. URL http://www.abet.org

Adcox, J. W. (2000). Measuring complex achievement: The construction management internship. *Journal of Construction Education, Summer 2000, 5,* (2), 104-115.

American Council for Construction Education (ACCE). *Standards and Criteria for Baccalaureate Programs* [WWW document]. URL http://www.acce.org

American Political Science Association (APSA). [WWW document]. URL http://www.apsanet.org (Retrieved: 1/29/2003).

Associated Schools of Construction (ASC). [WWW document]. URL http://www.ascweb.org

Associated Teacher Educators (ATE). [WWW document]. URL http://www.ate.org

Associated Teacher Educators (ATE). (2000). *Standards for field experience in teacher education.* Guyton, E. and Byrd, D. (Eds.). Reston, VA: Association of Teacher Educators.

Association to Advance Collegiate Schools of Business (AACSB), (formerly the American Assembly of Collegiate Schools of Business) -- the International Association for Management Education (AACSB). *Standards for Business Accreditation* (2001). [WWW document]. URL http://www.aacsb.edu (Retrieved: 1/17/2003.)

Commission on Accreditation of Allied Health Education Programs (CAAHEP). Chicago, IL: CAAHEP. [WWW document]. URL http://www.caahep.org (Retrieved 1/23/2003.)

Douglas, Ward & Dugger (2002). A Comparison of selected categories of accreditation standards of NAIT, TEC-ABET and AACSB. *Journal of Industrial Technology, 18* (3), May 2002 - July, 2002, 2-8.

English, D.M. & Koeppen, D.R. (1993). The relationship of accounting internships and subsequent academic performance. *Issue in Accounting Education, 8* (2), 292-299.

Engineering News Record. (2001). Special report on construction education. *Engineering News Recor,*. Oct. 29, 2001, 26-39.

Flesher, J., Leach, S., & Westphal, L. (1996). Creating effective internships. *Performance Improvement, 35* (10), 22-25.

Gross, L. S. (1981). *The internship experience*. Belmont, CA: Wadsworth Publishing Company.

Hauck, A., Allen, S., & Rondinelli, D. (Fall, 2000). Impact of structured internship programs on student performance in construction management curricula. [On Line] *Journal of Construction Education, 5* (3), 272-287

Hedlund, R.D. (1973). Reflections on political internships, *PS, 6* (1), 19-25.

Hirschfield, R. & Adler, N. (1973). Internships in politics: The CUNY experience, *PS, 6* (1), 13-18.

Knechel, W.R., & Snowball, D. (1987). Accounting internships and subsequent academic performance: An empirical study. *The Accounting Review, 62*(4), 799-807.

Koehler, W.R., (1974). The effect of internship programs on subsequent college performance. *The Accounting Review*, 49 (2), 382-384.

Lowe, R.E. (1965). Public accounting internships. *The Accounting Review, 40* (4), 839-846.

Marshall, J.A. (1999). Professional internships as a requirement for graduation. *Journal of Industrial Technology, 15* (3), May 1999 to July 1999, 2-8.

Moriber, A.C. (1996). Cooperative internships that work. *Community Review*. pp. 76-79.

National Association of Industrial Technology (NAIT). [WWW document]. URL http://www.nait.org (Retrieved 1/17/2003.)

National Association of Industrial Technology (NAIT). (2003). *NAIT Handbook - Industrial Technology Accreditation Handbook – 2003*. [WWW document]. URL http://www.nait.org (Retrieved 1/17/2003.)

National Council for Accreditation of Teacher Education (NCATE). (1995). *Standards, procedures, policies for the accreditation of professional education units.* Washington, DC: NCATE. [WWW document]. URL http://www.ncate.org (Retrieved 9/19/2002.)

National Council for Accreditation of Teacher Education (NCATE). (2002). *Professional standards for the accreditation of schools, colleges, and departments of education.* Washington, DC: NCATE. [WWW document]. URL http://ncate.org (Retrieved 2/3/2003.)

Paese, P. (1996). Division I: Contexts for effective field experiences. Contexts: Overview and framework, 2. In McIntyre, D.J. & Byrd, D.M. (Eds.), *Preparing tomorrow's teachers: The field experience. The Association of Teacher Educators Teacher Education Yearbook IV*. Thousand Oaks, CA: Corwin Press, Inc.

Roth, R. (1996). Standards for certification, licensure and accreditation. In Sikula, J.; Buttery, T. J.; & Guyton, E. (Eds.), *Handbook of Research on Teacher Education*. 2nd Ed., 242-278. New York, NY: Macmillan.

Senior, B. A. (1997). Infusing practical components into construction education. *ASC Proceedings of the 33rd Annual Conference* , University of Washington - Seattle, Washington, April 2 - 5, 1997, 45 - 52.

Smith, C.A. (1964). The internship in accounting education. *The Accounting Review, (39)* 4, 1024-1027.

U.S. Department of Education. (2002). *Meeting the highly qualified teachers challenge: The Secretary's annual report on teacher quality*. Washington, DC: Author.

Appendix A

Key components of internship programs in four domain areas:

Variables	Business	Political Science	Allied Health Professions	Teacher Preparation	Construction Education
Accreditation Agency	AACSB	No	CAAHEP	NCATE	ACCE, ABET, NAIT
Experiential Learning Nomenclature	Intern	Intern	Clinical Lab Clinical Practice Internship	Field Experience Student Teacher Clinical Practice Internship	Intern
Required	Required	Optional	Required	Required7,8	Yes11/No9
Optional	Yes	Yes			Yes11/No9
Course Credit	Yes/No3	Yes1	Yes7,8	Yes7,8	Yes/No
Standards for Internship Program Structure			Discipline Specific	NCATE, ATE	
Certification Exam/Licensure	CPA CMA		Board of Examiners (each discipline)	ExCET in TX (each State)	AIC
Required for Graduation	No	No	Yes	No	No
Optional for Graduation	Yes		No	Yes	Yes
Required for Employment	No	No	Yes	Yes	No
Internship (Can be PAID)	Yes	Yes	No	No	Yes11
Partnerships			Healthcare facilities, Organizations, or Agencies	Schools7	Yes10,11
Placement Provided	No	No	Yes	Yes7,8	No9,11
Selected University Faculty	Yes3	Yes1,5	Yes6	Yes7,8	Yes9
Selected Cooperating Supervisor	Yes	Yes	Yes6	Yes7,8	No
Special Training	Yes4	No	Yes	Yes7,8	No

University Supervisor Special Training Cooperating Supervisor	Yes4	No	Yes6	Yes7,8	No
University Supervisor Site Visit					
Required	No	Yes5	Yes6	Yes7,8	Yes11/No
Optional	Yes	Yes	Yes	No	Yes
Evaluation of Internship Required			Each discipline requirements		
Self Evaluation				Yes7,8	Yes11/No
Coop. Sup Eval.	Yes2		Yes6	Yes7,8	Yes11/No
Univ. Sup. Eval.	Yes2	Yes5	Yes6	Yes7,8	Yes11/No
Written Report	Yes2	Yes/No		Yes/No	Yes11/No
Daily Logs	Yes2			No	Yes
Portfolio				Yes7,8	Yes11/No
Written Reflections/ Perceptions	Yes2,3	Yes1	No	Yes7,8	Yes11/No
Industry Advisory Council					
Required	No	No	Yes6	Yes7,8	
Optional	Yes	Yes			Yes11
Collaboration of Univ. w/Triad	Yes3	Yes1,5	Yes6	Yes7,8	Yes10,11
Collaboration on Internship Structure and Improvement	No	Yes1	Yes6	Yes7,8	Yes10,11
Promotes Work in Diverse Populations	Yes3	Yes	Yes6	Yes7,8	No
Context chosen For Student	No	No	Yes/No	Yes7,8/No	No9,10,11

Context Diverse	Yes3,4	Yes	Yes6	Yes7,8	Yes11
Continuous Triad Communication	No	Yes1,5	Yes6	Yes7,8	Yes11
Sequencing of Internship	Jr.3	Jr.	Jr./Sr.	Jr./Sr.7,8	Jr.11
Adequate Funding for Administration	No	Yes1	Yes6	Yes7,8	Yes/No
Length of Internship	None Summer Long Semester	1 month 2 months Summer Long Semester	Long Semester	Long Semester	None Summer Long Semester

1. Hirschfield. R. & Adler, N. (1973)
2. Moriber, A. C. (1996)
3. Smith, C. A. (1964)
4. Lowe, R. E. (1965)
5. Hedlund, R. D. (1973)
6. CAAHEP Accreditation Standards (2003)
7. NCATE Standard 3: Field Experiences and Clinical Practice (1995)
8. ATE Standards for Field Experience in Teacher Education (2000)
9. Senior, B. A (1997)
10. Adcox, J.W. (2000)
11. Marshall, J. A. (1999)