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Comparative Education in the Professions: The Case of Architectural Education*

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The study seeks to provide further insight into the congruence between what experts in the preparation of architecture professionals think is necessary and what university professional schools are attempting to provide. Intensive interviews were carried out with 24 senior architects from firms in the Los Angeles area. They were interviewed to determine what business and industry requires of today's students and expects of the professional school. The deans and faculty of two professional schools in California provide the educator's 'response' to industry's identified needs and requirements. Four categories or elements of competence were utilized to determine more clearly what industry considers a complete preparation for employment and, more accurately, what contribution the university makes to that preparation: knowledge of the field, job skills, interpersonal skills, and work attitude. The analysis reveals that the job requirements in architecture are complex. Architects indicate that 'work attitude' is of most importance. Faculties were unified about their role as providers of the knowledge base. While the industry's requirements are continually changing, the connection between practice and theory appears reasonably strong. Comparison with earlier studies completed in the fields of engineering and business management, however, challenge this finding. Architecture firms while they continue to influence the university curriculum, have accepted greater responsibility for the necessary ongoing professional development of their employees. The structure of knowledge in the three professions has more to do with the congruence question than expected.

INTRODUCTION

THE NEEDS of architecture firms for competent entry-level architects with potential for making a contribution to the firm and to the profession are relatively simple. The making of a professional architect is complex. The intimate one-to-one communication that must have been possible between a successful practitioner and an apprentice 50 years ago has been replaced by a system of universities and professional schools that try to simulate workplace conditions and problems in order to prepare aspiring professionals. The benefits of a university undergraduate education are well documented in the literature [1–3]. Very little has been done, however, to document the outcomes of a professional or graduate school education. The exception to this general observation is the emerging body of literature from representative professional associations. The National Council of Architectural Registration Boards in the United States, for example, released an 'activities and knowledge/skill requirements' report [4] in 1981 and again in 1989. In engineering, the Goals Report [5] and the National Study of Engineering and Practice [6] document the evolving picture in this profession. Such reports provide us with an inventory of the requirements and expectations held by the industry. For this contribution to the field, the professional schools can be grateful. What would now be helpful to educators is a paradigm for categorizing and synthesizing the many competences. Can these competences be organized and conceptualized in a coherent way? From such analysis can we determine how these competences are best learned? Where they are best learned? In engineering this is done with modern laboratories. In business management case studies are used extensively. Architecture educators use the studio. How effective can a process be when so removed from everyday practice?

The research reported here focuses on the process through which architects prepare for successful practice. In question is the congruence between the expectations of business and industry, and higher education programs. What do employers require of professional school graduates and what do they expect of the professional school? From the perspective of higher education, how well are professional schools preparing graduates for practice? For purposes of the paper, preparation for practice was equated with four elements of competence: knowledge of the field, job skills, interpersonal skills, and work attitude. Each element was defined and used as criteria against which preparedness could be determined. Performance and effectiveness on the job, it was assumed, result if a person has acquired and can demonstrate competence in these four areas. Higher education's effectiveness, in turn, was gauged using the same four categories.

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Before describing the study in more detail, two caveats need to be mentioned. Firstly, a good part of what makes one individual more effective than another in an organization, according to Squires [7], has to do with such endogenous personal characteristics as motivation level, disposition, ability to influence others, loyalty to an employer, and consistency—characteristics that are beyond the scope or sphere of a university's influence over students. These personal characteristics were consciously and purposely excluded from the elements of competence described in the study. Secondly, the study excluded an historical analysis of the tensions that have persisted between universities and professional schools. A great deal of literature is already available on the subject of professional school–university tensions and it is not clear whether such an analysis would add to or detract from the study.

STUDYING PREPAREDNESS FOR PROFESSIONAL PRACTICE

To determine the effectiveness of professional education programs as preparation for professional practice, both employers and professional school faculty were interviewed. The assumption was that partners, senior architects, and personnel directors in large firms would have experience from which to form opinions about what separates well-prepared from inadequately prepared university graduates. Similarly, university deans and faculty are the academic experts. Individual graduates, though they presumably gain from increased enlightenment in subject areas that interest them, were not sought as a definitive source of information for questions that ultimately involved matters of competence, performance, and effectiveness.

The design for the study utilized a simple demand and response format in which the requirements and expectations of business and industry, as interpreted by senior architects, were contrasted with university dean and faculty opinion. The architectural education/industry analysis on its own was expected to be an interesting one. The congruence between the architecture industry and higher education would be better understood, however, if similar studies from other professional fields could be compared. To provide such a contrast and to increase the reader's perspective, the results of an earlier study by the author involving the fields of engineering and business management education will be introduced.

To define preparation for employment, two initiatives were taken. Firstly, a review of the literature involving employment preparedness in the professions was conducted. The studies completed by representative professional associations, especially at the national level, proved to be quite beneficial. Secondly, pilot interviews were undertaken. The input from practising architects, in one case the Chairperson of the Education Committee of the CCAIA (California Council of the American Institute of Architects), proved to be particularly important in forging a definition. Assuming it is possible to reach agreement on and delineate what industry considers an adequate preparation, there was still the problem of how to measure whether or not a particular school was providing that preparation. The general indicators of preparedness identified and tested in the preliminary interview stage were used to address this methodological problem.

Elements of competence were categorized based on earlier employment preparedness studies [7, 8]. It was assumed that if a student properly prepared for a profession, then competence and effectiveness should follow. Competence was defined for the purposes of this study as the state or quality of being capable of adequate performance. Competence is present, according to Trivett, 'when an individual can demonstrate skills, knowledge, values, and attitudes, that are specified in some manner' [9, p. 10]. A subtle but key word in this definition is 'demonstrate'. Competency implies a connection between acquisition and demonstration of skills. Take the university professorate, for example. It is one thing to design and complete a research project, it is quite another to influence policy and decision making. How often do individual faculty research and development efforts reach the public policy formulation stage, not to mention implementation? There is a great deal to learn from successful professionals who are able to take an initiative from concept to reality.

The four elements or categories of competence were defined as follows. 'Knowledge of field' included conceptual knowledge, experiential knowledge, theoretical knowledge, and contextual knowledge [10]. 'Job skills' was separated into two groups: general skills, such as leadership, adaptability, critical thinking; and specific skills, such as decision making, planning, analytical and supervisory skills. 'Interpersonal skills' included written and oral communication, understanding oneself, understanding others, projecting a point of view, and image management. Finally, 'work attitude' included work ethic, moral qualities, work habits, industry understanding, and professionalism.

These areas of competence were investigated for importance as contributors to effectiveness on the job in the employer's view or in a faculty's view. To measure business and industry or professional school opinion, each element of competence was ranked as to importance by the interviewee. Subsequent reviews of the rankings were valuable in determining similarity and difference of opinion among architects as a group and educators as a group, as well as the congruence or lack of it between architects and educators. Senior architects and faculty were also asked to embellish their response with anecdotal information; this information revealed the informal and often unexplored practice and thoughts of people who work with employee preparedness problems every day. The actual experiences of accomplished architects and

educators were the foundation for explanation and understanding.

SELECTING THE RESEARCH SAMPLE

Twenty-four large, medium, and small architecture firms from the Los Angeles area were chosen for the study. These were culled from an initial 749 firms in west and downtown Los Angeles. Seventy-two of the 749 firms were sent a letter of introduction and invitation to participate. All of the firms were members of the Los Angeles chapter of the California Council, American Institute of Architects. The chairman of the education committee for the Los Angeles chapter was instrumental in helping to identify those firms that, in his opinion, offered potential as rich sites for case study research of this nature.

The professional schools chosen for the study were the Graduate School of Architecture and Urban Planning at the University of California, Los Angeles, and the School of Architecture at the University of Southern California. Both schools had a tradition of providing the field with promising architects. Each site was chosen for its potential as a rich source of information, its accessibility, and the integral part it played in the industry locally.

The actual size and nature of the sample was determined by need and availability. In most cases a senior architect or partner was sought for interview. The interview question used to solicit a ranking response were completed for all individuals. Within each school deans and faculty were sought for interview. A total of 12 educators agreed to participate. Insight into the congruence between the knowledge, skills, and attitudes required by practitioners and the benefits or residue of a professional school education were sought. A total of 35 interviews were conducted with senior architects, professional school deans, and faculty members over a two-month period.

THE REQUIREMENTS AND EXPECTATIONS OF ARCHITECTS

The contrast between the requirements and expectations of architecture practitioners and faculty is more substantial than one might predict. One hundred per cent of faculty in a forced-choice response chose 'knowledge of field' as the most important competence category. Less than 25% of the practising architects interviewed felt the same (see Fig. 1). 'Job skills', 'interpersonal skills', and 'work attitude' were, relatively speaking, not important in the opinion of faculty. Architects, on the other hand, felt quite strongly that 'work attitude' (40% response), 'job skills (25% response) and 'interpersonal skills' (5% response) were what counted.

The responses comparing the importance of formal education, work experience and life experience were equally telling. Professional school faculty, predictably, chose 'formal education' over 'work experience' and 'life experience' as contributors to professional effectiveness over the long run. Practitioners ranked work experience as the primary contributor with formal education and life experience as equal seconds (see Fig. 2). 'You clearly learn more on the job than in school', stated one architect emphatically. Another faculty member and four practitioners thought of some capabilities as outside the realm of education, work, and life experience. 'Innate ability' somehow came into play in their opinion. The comments from successful practitioners, most with a minimum of 20 years' service, were summed up appropriately in these quotations: 'Life experience cumulatively contributes to personal development', 'University education provides introductory knowledge and skills only', 'And, work experience is the basis for effectiveness, contribution, and state of the art understanding'.

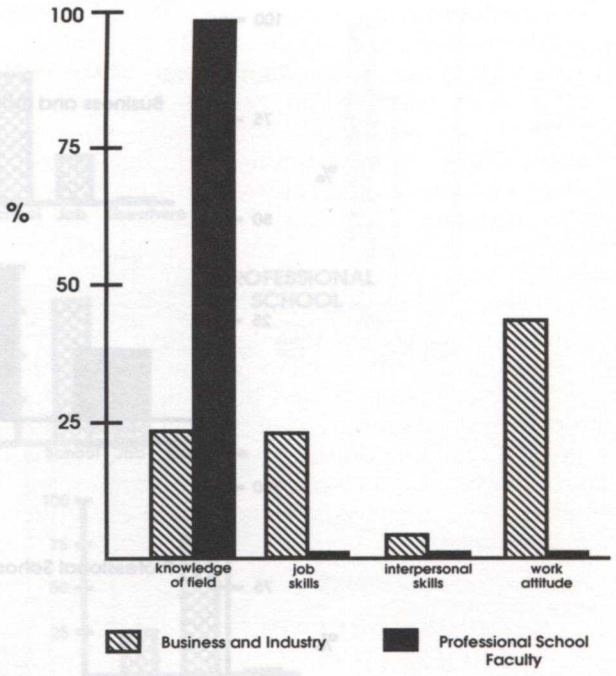

Fig. 1 Competencies considered most important in architecture (percentage of people who ranked each competence first).

The issue of congruence can be further explored as shown in Fig. 3. Where should each competence be developed? School? Job? Elsewhere? Documented here are the responses of both parties by category of competence. On the left we have business and industry; on the right the professional school. The 'elsewhere' category included travel, professional development, and community and military service. Starting from the top with 'knowledge of the field' and looking across, we see evidence of congruence between the practitioners and the educator. In this case both sides felt the school was the place to learn architecture knowledge. However, the similarity of opinion stopped here.

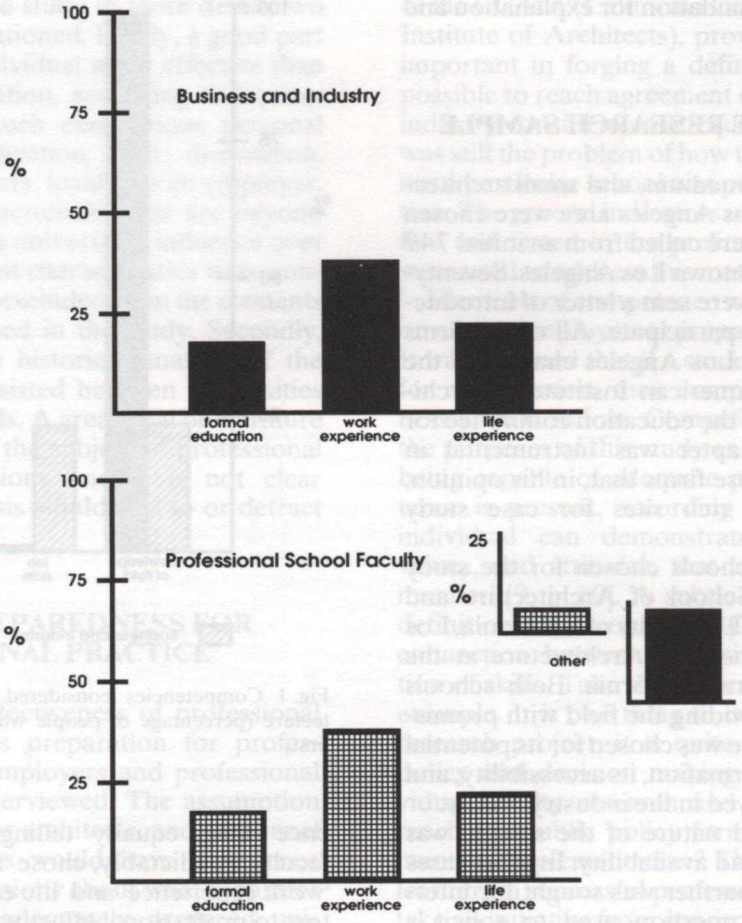

Fig. 2. What contributes most, in the long run, to professional effectiveness?

Job skills (both general and specific), interpersonal skills, and work attitude categories illustrated a complete lack of agreement. It is worth noting that in the 'job skills general' and 'interpersonal' categories, faculty members felt that school was by far the best place to develop competence. When ranking each competence for importance (Fig. 1), faculty did not pay much attention to either the job skills or interpersonal skills categories. This suggests that while 'job skills' and 'interpersonal skills' are not as important as 'knowledge of field', in the minds of faculty, they are, nevertheless, best learned in the professional school setting.

ENGINEERING AND BUSINESS MANAGEMENT COMPARISONS

The study of congruence within the field of architecture takes on greater significance when compared to the fields of business management and engineering. Using similar definitions and questions from an earlier study [11], it is possible to contrast, from a higher education perspective, how the professions differ and then speculate why they differ. In engineering (the industry explored was aerospace), for example, faculty and practitioners were in agreement for all four competence categories (see Fig. 4). The aerospace industry expected the schools to build the knowledge base while leaving the job skills, interpersonal skills, and work attitude for the workplace. In business management (in this case banking) little agreement existed. Knowledge of field was considered important by only 50% of the faculty interviewed. Other interviewees split their choice between job and interpersonal skills. Architecture faculty members, as shown in Fig. 4, were at least similar in sentiment to the engineers when it came to the knowledge base, even though not synchronized with practitioner opinion.

Despite the limited numbers in a multi-site case study of this nature, the patterns were quite clear. What conclusions can be drawn from this study? Can these congruence patterns be explained? What can we learn from these three esteemed and essential professions.

CONCLUSIONS AND IMPLICATIONS

The research reported here focused on the importance of certain competencies over others. Which competencies were necessary and sufficient

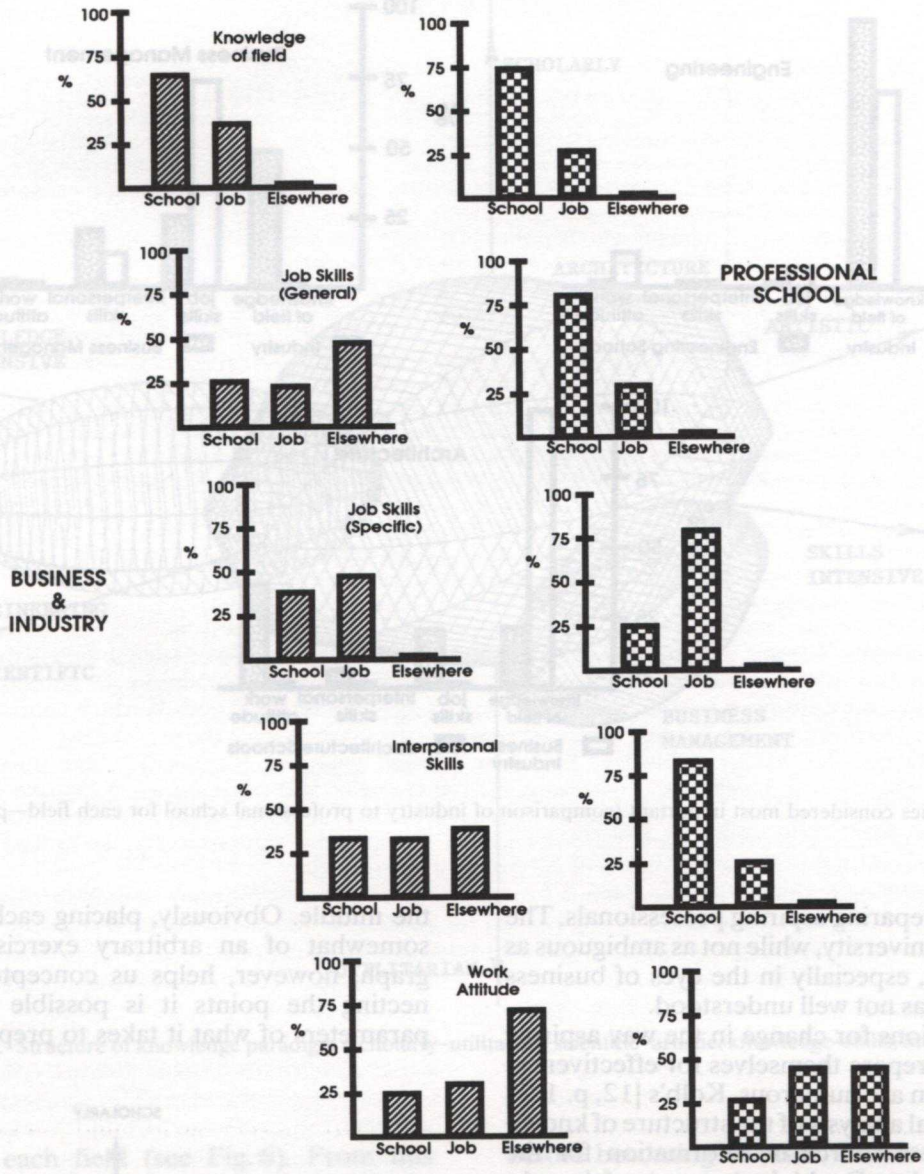

Fig. 3. Where should each competence be developed (percentage of people who ranked each competence first)?

conditions for successful practice? Where were these competences best learned? Moreover, how did the perceptions of veteran architects compare to those of university deans and faculty? The congruence between faculty and practitioner opinion was uneven. Successful practitioners in architecture pointed to the importance of knowledge, skill, and, interestingly, work attitude. Faculty members were adamant that knowledge of field was all that mattered. Predictably, faculty felt that formal education contributed more to professional effectiveness than work or life experience. Practising architects saw the benefit of all three, with work experience as the primary contributor. The only agreement that existed regarding where each competence should be developed was in the 'knowledge of field' area. Professional school faculty members, despite their apparent indifference for job skills, interpersonal skills, and work attitude, as important competencies, perceived the professional school as the place to develop general job skills and interpersonal skills. Architects were more liberal in their choice. They could see such competencies being developed in schools, on the job, and through other life experiences.

When architecture was compared with engineering and business management, several general conclusions also emerged. How well the university prepared students for practice varied from field to field. Competence was an elusive concept. What mattered in one profession did not hold in another. Congruence, or lack of it, between the business and industry sector and the university was unpredictable. Industry expectations of the professional school were relatively apparent. Industry was also prepared to accept responsibility for and take

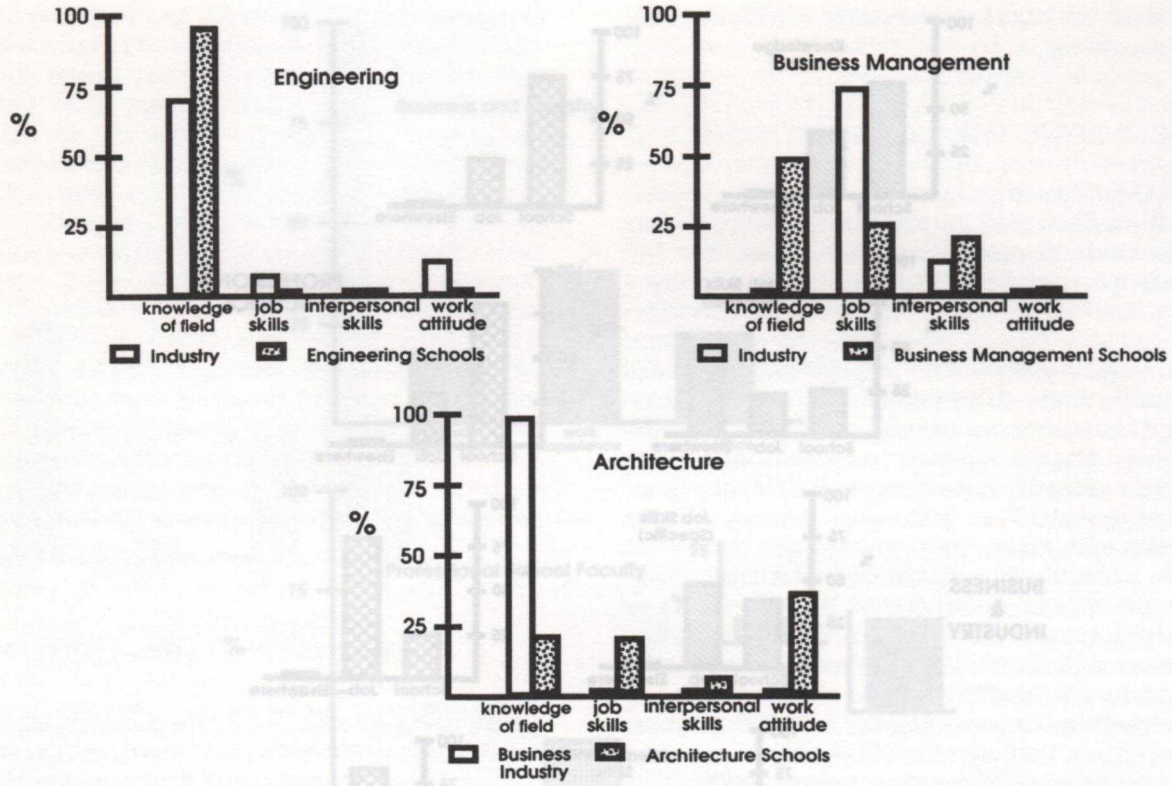

Fig. 4. Competencies considered most important (comparison of industry to professional school for each field—percentage of first choices).

leadership in preparing aspiring professionals. The mission of the university, while not as ambiguous as we might think, especially in the eyes of business and industry, was not well understood.

The implications for change in the way aspiring professionals prepare themselves for effectiveness in the profession are numerous. Kolb's [12, p. 127] two-dimensional analysis of the structure of knowledge serves as a source of information for the following schemata. Could the structure of the subject matter in different fields have something to do with the degrees of congruence found between business and industry demand and professional school response? While it is difficult to illustrate, Fig. 5 helps to describe the nature of the three professions compared in this study, especially the academic and experiential substance, or the epistemology. Given this research, architecture (designated by A) and engineering (designated by E) are placed on the left of the vertical centre line because each has a distinct body of knowledge, especially engineering! Business management (designated by B.M.), by comparison, is more skills intensive and is positioned right of centre. On the vertical dimension, engineering, by nature, is equally utilitarian and scholarly, thus it is placed in the middle. Architecture is more utilitarian than scholarly, and falls below the horizontal line. Business management is even more so. Along the scientific versus artistic dimension one could make the case that architecture is more artistic, engineering more scientific, and business management somewhere in the middle. Obviously, placing each profession is somewhat of an arbitrary exercise. Creating a graph, however, helps us conceptually. By connecting the points it is possible to define the parameters of what it takes to prepare for and be

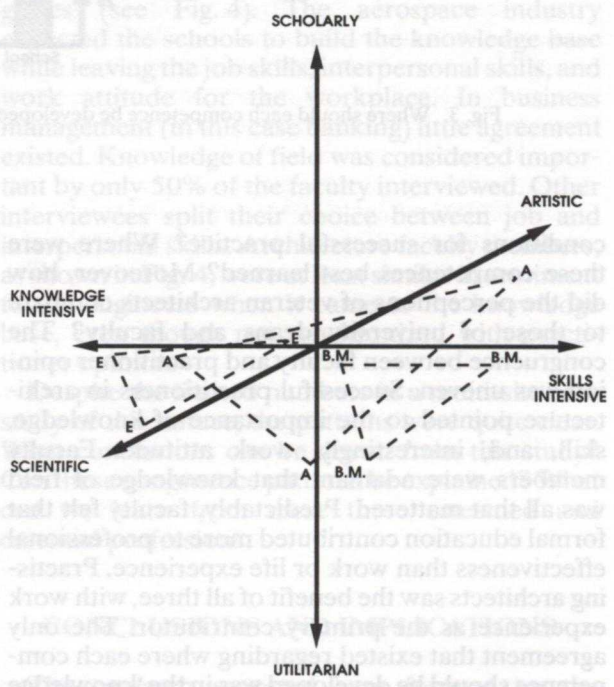

Fig. 5. Structure of knowledge schemata (architecture, engineering, and business management).

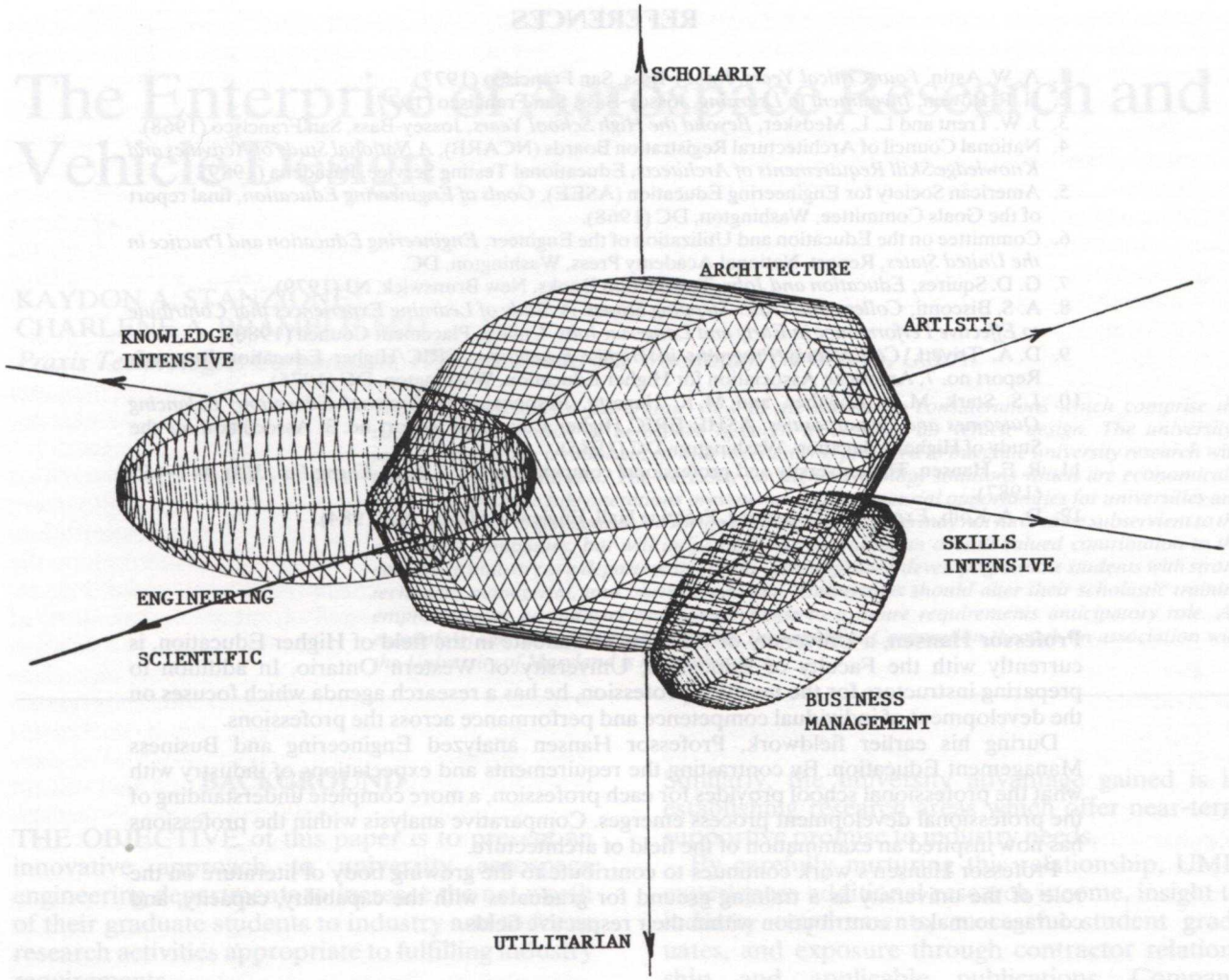

Fig. 6. Structure of knowledge paradigm (scholarly–utilitarian, scientific–artistic, knowledge–skills, intensive).

successful in each field (see Fig. 6). From this illustration, especially if one imagines the ellipse-like shape created by the third dimension, it is possible to speculate to what extent the university has a role to play in the preparation process. Or, alternatively what curricula and process it would take to prepare people effectively for a particular field. Finally, this visual representation has implications for what criteria we use in admitting aspiring professionals into respective fields.

Note also the relative size of each area. Architecture, in words, is very broadly defined. Engineering, a very intellectually demanding field, is not as broad in scope as architecture. Engineers in North America typically qualify for entry into the profession upon completion of a four-year university program. Architects often complete both an undergraduate and graduate degree, taking four to six years and then spend three to five years in practice before becoming licensed. Business management, by comparison, does not involve professional licensure and often requires one or two years of graduate work beyond a first degree.

The opportunity for change in our professional schools, especially architecture, is enormous. The expertise of faculty is not in question. The rigor of both undergraduate and graduate programs is to be applauded. The willingness to consider how the curricular process should be defined, however, is missing. Also missing is a faculty or school agenda that addresses the preparation process from recruitment through to licensure. Is too little time available for reflection? Is the effectiveness of the learning process important? Are incentive systems for meaningful change available? In light of government, public, and now professional association cries for accountability, this seems an appropriate time to re-examine professional school program development.

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Professor Hansen, a University of California Graduate in the field of Higher Education, is currently with the Faculty of Education, University of Western Ontario. In addition to preparing instructors for the teaching profession, he has a research agenda which focuses on the development of individual competence and performance across the professions.

During his earlier fieldwork, Professor Hansen analyzed Engineering and Business Management Education. By contrasting the requirements and expectations of industry with what the professional school provides for each profession, a more complete understanding of the professional development process emerges. Comparative analysis within the professions has now inspired an examination of the field of architecture.

Professor Hansen's work continues to contribute to the growing body of literature on the role of the university as a training ground for graduates with the capability, capacity, and courage to make a contribution within their respective fields.