

II. Education and Training

Introduction

Actuarial professional education and examinations are two cornerstones of the actuarial profession. As in other professions, the content of actuarial education is designed to meet the needs of the profession's stakeholders, who include investors, managers, regulators, and consumers. In the past, the actuarial organizations responsible for examinations have successfully met the needs of these stakeholders. Demand for actuaries has been strong. The actuarial reputation remains good. However, to maintain that reputation, the profession's educational strategies must look externally at the needs of the public, with educational content and delivery informed by these needs.

Underlying the actuarial profession is the science of actuarial work. To develop actuarial science skills, the actuarial organizations have been charged with the responsibility of implementing continuous improvement in the education effort. All actuarial organizations must be educational and research institutions. In accomplishing these objectives, the organizations can call upon rapidly developing alternative delivery systems, such as web-based applications, and explore the potential for increased use of the university system. The goal of new alternative delivery systems is not only to educate and possibly examine prospective actuaries for skills required to meet the future needs of the public, but also to provide such benefits effectively and efficiently, when, where and how the membership requires.

Forces Driving Actuarial Services

Today, actuaries are in high demand. In the United States, regulatory requirements, such as the role of the appointed actuary, help drive this demand. The actuarial organizations have been successful in preparing growing numbers of actuaries to meet regulatory demands.

The regulatory supply/demand balance is not equal across all actuarial functions. Technology advances continue to make actuaries more efficient, with fewer actuaries needed to achieve the same productivity levels. Globalization is also beginning to expand the supply of actuarial services beyond the geographical boundaries of the United States. Economic principles of free trade will lead to more outsourcing of actuarial services. At the same time, the public's need for actuarial services is expanding. Leadership of the actuarial organizations is beginning to look for new markets for actuarial services in the areas of corporate finance, investments, predictive modeling, operational risk, customer relationship management, and enterprise risk management. New services, however, do not come without risk, and they require changes in the actuary's core knowledge.

Forces Driving Professional Competition

Actuaries are increasingly in competition with other financial professionals, particularly in non-core areas where regulations do not require actuaries. Financial engineering, behavioral economics, and enterprise risk management are fast-growing fields in which actuaries can provide insight and technical knowledge. Competition will come from non-actuarial credentialed professionals, such as MBAs, PhDs, DBAs, PRMs, CPAs, financial engineers, modelers, financial risk managers, and chartered financial analyst (CFA) charterholders. While these positions do not require actuarial credentials, actuarial skills are helpful in meeting the demands of these roles.

Forces Driving Actuarial Education

Basic education for actuaries is mentally strenuous and intellectually demanding. The examinations are written by current actuaries for future actuaries. Formal classroom attendance is not required, only attendance at the examination center. This opens the profession to many more students. It is a path of self-study from which the actuary acquires several defined values, including independence, dedication, persistence, and motivation. This process develops strong self-education skills that enable actuaries to move into new areas of training and to acquire needed knowledge.

The education dilemma for actuaries is that current market demands for actuarial services are known, but the demands for future actuarial services remain unknown. Many members of our profession believe that actuaries should be trained to meet market demands for known technical services, as the current market demands are great. Other members think we also need to educate actuaries for the demands of the future, such as financial economics. The CRUSAP Task Force agrees that greater emphasis should be placed on the latter view, while acknowledging the need to adequately serve the former.

One danger to the actuarial profession is to be enticed by an expectation of stability in the current market and the actuaries' current knowledge base. Narrow views among members contribute to actuarial organizations' inability to react and change to a dynamic environment. The potential for professional entropy in a knowledge-based environment is real. As one colleague recently quipped, "Actuaries are moving toward knowing more and more about less and less, until one day soon they will know everything about nothing."

It is also necessary to be cautious in thinking that the current examination process is an effective and efficient educational system because of the current employability of actuaries. There is no guarantee that the current educational structure is teaching the right things for tomorrow's actuaries, nor is it certain that the actuarial organizations are efficient in the delivery of that education.

Organizations must challenge, restate, and rekindle their value propositions if they want to grow and prosper. The U.S. actuarial organizations are no different. The key issues surrounding actuarial education are the skill sets, technical tools, and education required for actuaries so that they can provide valued services to the users of those services and thus meet their needs. This is the value proposition for actuaries. Challenges to the status

quo are not detrimental to actuaries. Recurring questions regarding educational requirements are designed to address the potential needs in new markets and the scope of services actuaries may provide in those markets.

We have split our analysis into two sections: basic education and ongoing education. The demands for each will vary with the recognition and design of the future market economy and the competitive forces within the insurance industry.

Analysis

Basic Education

Responsibility for the basic education of actuaries rests primarily with the Society of Actuaries (SOA), the Casualty Actuarial Society (CAS), and, to some extent, the American Society of Pension Professionals and Actuaries (ASPPA). The professional development process generally consists of two approaches: education and training. Education is the building of knowledge from theory to a solution; training builds knowledge from practical, hands-on experience to a solution. Training is the most efficient way to obtain the skills needed to respond to specific problems. Education may be less efficient and more individualized, but it's more effective in building a set of skills that can respond to more generalized issues or problems.

Training is both an efficient and effective mode of improving skill levels in a static environment but is less efficient in dynamic environments. Education may be more efficient in a dynamic environment where issues are more prevalent and a particular solution is just one of many options.

1. Knowledge acquisition frameworks. The amount of training vs. education that is needed depends on whether the environment is static or dynamic.

In a static environment, training often dominates over education. The characteristics of a static environment include: 1) long periods of stability; 2) a strong, centralized scientific core knowledge base; 3) a constant or at least predictable future; 4) well-defined problems and solution sets; and 5) rules (bright lines). Under this environment, "if...then" statements dominate the solution patterns. This is most often the worldview of a technician. Examination provides proof of competency.

It is arguable that before the late 1970s or early 1980s, actuaries functioned primarily in a static environment. Since that time, however, the environment has become more dynamic. The dynamic nature of the insurance business is evidenced by such things as the recent developments in catastrophe securitizations, the emphasis on capital allocations and capital markets and risk financing techniques, the accounting for risk transfer and recognition for reserve volatility including discussions regarding risk margins, risk management directed toward the increased complexity in product design, and the global movement toward principles-based supervision.

When the environment is dynamic, education dominates over training. The characteristics of a dynamic environment include 1) periods of extensive, rapid innovation; 2) market-

driven, economic/behavioral analysis central to the core knowledge base; 3) uncertain future; 4) uncertain questions and fuzzy solutions; and 5) principles-based regulations. Under a dynamic environment, regime recognition dominates the response patterns. A regime represents all the operational, economic, political, and social characteristics of a time period. This is the worldview of experienced managers and business leaders. In business schools, it is a core concept for the MBA curriculum and often represents the central idea behind books on business theory and strategy.

Currently, the actuaries' basic examination process tends to develop technicians. The examination system provides detailed training exercises. Core knowledge skills are outlined in learning outcome statements, and success results in the appropriate problem recognition and use of learned solution sets. This approach quickly provides the actuary with the greatest detail regarding procedures, information, facts, correlations, relationships, model designs, and practical skills. It is very applicable to operational processes where solution sets are specific to the data set and a series of primary questions.

The perceived value of this examination approach among actuaries is apparent from the CRUSAP survey results. In question 15 of the CRUSAP survey for actuaries (see Appendix E), 65 percent of the respondents thought that basic actuarial education was "good" (45 percent) or "excellent" (20 percent), with an additional 18 percent rating the process as "adequate." Only 14 percent of the survey respondents thought the examinations "fair" (11 percent) or "poor" (3 percent).

To retain the high level of actuarial skills expected for Fellowship, more and more material is being added to the syllabus, but little is removed. The expansion of core actuarial knowledge would naturally lead to the downside of increased travel time required for attaining Fellowship. In general, the complaints against the current examination process were that travel time is too long, examinations need greater emphasis on practical considerations, too much memorization is required, the syllabus changes too frequently; and stability is preferred. However, as summarized by one respondent: "Despite some criticism, I think the system is working well."

2. The future actuary. The primary debate regarding examinations concerns the actuarial skill sets required of future actuaries. Actuaries who can address traditional actuarial responsibilities are still in demand. Employers want actuaries who know how to develop rates, perform reserve analysis, and provide actuarial statements of opinion.

Based on current known demand, many actuaries think it is unnecessary to develop the skill sets required for investment management, customer relationship management, and enterprise risk management. These skills are simply not needed in today's actuarial environment. In addition, how does one build comprehensive examinations for an unspecified set of skills in roles with unknown demands? The thought is that actuarial organizations must focus their efforts on developing qualified actuaries to fill current positions. The actuarial examinations and their content will evolve based on the actual demands and needs of future employers. In other words, the future will take care of itself.

We know that over the long term, the syllabus must change to avoid professional obsolescence. The issue is: How fast must the actuarial profession innovate? The profession needs an education system that can more rapidly respond to change and innovation. Once a paradigm shift in practice emerges, the basic education system must be able to quickly respond. For example, despite the recent additions of basic financial economics, in all our interviews with university faculty specializing in insurance issues, they consistently noted that the actuarial educational process is significantly behind in its inclusion of financial economics, which is critical to the implementation of “fair value” accounting for insurance company liabilities.

Much of the debate in the Morris Review regarding actuarial education centers on the balance between a static core knowledge base and actuarial innovation. Actuarial core knowledge was developed around regulatory risk metrics that 1) emphasize downside risks and 2) favor conservatism in actuarial solutions. Regulation created a static environment for the insurance industry and actuaries. Innovation occurs, but only over time. Unfortunately, such conservative approaches have also introduced a lack of transparency, maybe even lack of relevance, into actuarial work. This has become a handicap for actuaries in today’s financial markets and has created opportunities for others to lead efforts aimed at innovation.

3. Narrow vs. broad scope of services. Can the actuarial profession afford to remain narrow in its scope of services? Should it combine its current base knowledge in modeling downside risks with models of financial risks that also contain the upside to a transaction? The trend toward principles-based regulation of insurance requires integration among actuarial, economic, and financial theories, and frameworks and principles as they relate to the strategic direction of financial institutions.

Many current financial and economic concepts, such as modern financial theory, economic capital, value at risk, and derivatives, have significantly changed the financial markets. The insurance industry, which has been slow to follow, is now playing catch-up. To compete in this dynamic environment, actuarial examinations should place more emphasis on education, diversifying the actuarial knowledge base, and expanding training in basic modeling techniques. Consideration should also be given to offering specialized certificates for training in specific areas, such as derivatives.

4. Fellowship skill sets. What does the Fellowship designation really mean? What educational basis and skills should it indicate? According to multiple surveys and discussions with individual actuaries, no one wants a decline in the quality of the Fellowship designation.

Actuaries too often equate the difficulty of the actuarial examinations with the quality of the Fellowship designation. A long and arduous examination process exists, but it may be excessively concerned with actuarial self-image and inadequately concerned with the quality of actuarial work. Leadership of the actuarial profession must define the meaning of Fellowship at two levels: specialist vs. generalist, and basic skills vs. skilled expert.

a. Specialist vs. generalist

An educational process directed more toward training than education has led to progressively tighter boundaries regarding acceptable approaches to core actuarial problems. As a result, differentiation between any two actuaries in their approaches to a problem may, at times, be minimal (leading from Actuarial Standards of Practice). However limiting in purpose and scope, the technical skills of the specialist have been invaluable to the historical growth and reputation of the profession. According to the CRUSAP survey, specialists tend to like the traditional system of exams; the more difficult the better.

While grounded in the core knowledge base, generalists' skills are often honed by experience, allowing them to differentiate among a broader set of potential business solutions at the expense of an in-depth technical response. Generalist responses in the survey tended to emphasize well-roundedness, flexibility, and the ability to think, rather than just to manipulate formulas.

The mix of specialist and generalist within a professional organization determines the direction of the organization's examination process and content. If the demand environment shifts from one skill set to the other, will the organization membership recognize it? For example, presume a scenario where the demand is assumed to be toward specialists but future demand is actually shifting toward generalists. Students entering the profession may have specialist skills by temperament, personality type, interest, etc. Specialists will dominate the leadership and see no reason to change, regardless of the new shift to generalist skill demands. As one respondent stated: "The profession, by its testing rigor, generally attracts people who are not very good communicators and are not good advocates. So unless the educational system can reward those who do not have the deeply technical knowledge of others, it will be difficult to change the profession."

The two primary actuarial examination bodies of the United States (the SOA and the CAS) have taken different approaches to this issue. The SOA's educational system incorporates and acknowledges a wider skill diversification in its track approach in the Fellowship examinations. The CAS, on the other hand, holds to a single-track approach — skill consolidation.

The actuarial organizations in the United States are in the initial stages of a dilemma. It is the primary issue in the education and training of future actuaries. If an actuary's main areas of specialization remain narrowly defined to pricing and reserving roles within the insurance and retirement industries, the current examination approach works extremely well. However, as discussed earlier, the environment in which actuaries operate is becoming more dynamic. It is increasingly important that actuaries be given the necessary skills to respond to new, emerging problems.

b. Basic skills vs. skilled expert

Does being an actuary mean an end of one's education (expert) or simply the beginning of a lifetime of learning (basic skills)? Said one survey participant: "One standard for an

actuary. Anything else might look and smell like an actuary, but he/she would not be an actuary! In other words, no ‘para-actuaries.’” However, another respondent countered: “We are too caught up in wanting to test for everything an actuary might do. The goal should be a strong core education with recognition of the professional expectations to learn more on your own.”

Leadership of the actuarial organizations must address this issue and communicate the goals and directions of actuarial education to all stakeholders — current actuaries, students, regulators, employers, and the public. Each examining organization should clarify its education position regarding not only the skill level at Fellowship (expert vs. basic) but also the core knowledge based on today’s vs. tomorrow’s skills, academic vs. practical mix, and expected travel time.

c. Efficacy and efficiency of examination process

The current examination process assumes that successful individuals demonstrate the required level of knowledge, self-education ability, self-motivation, and high intelligence. It also assumes that all individuals respond the same way to the stimuli of an examination process. Successful exam takers sometimes share common personality characteristics, which may limit diversification within the actuarial profession. In order to retain a constant flow of viable candidates, social and demographic changes require other delivery systems to support a different generation of students.

One of the strengths of the actuarial organizations is the commitment of actuaries to design content for future generations. However, the method of testing for content should not be left solely to actuaries. Quite simply, the old-fashioned examination process of using pencil and paper, including the newer ventures into computerized testing, no longer meets the requirements of actuarial syllabus content, nor the nature of the students sitting for the examination. For example, in testing for model simulation skills, examination constraints allow only the most superficial of questions. Other delivery mechanisms, such as seminars, as being designed by the CAS, must continue to be advanced to address technological advances and where new approaches to skill verification must be implemented.

With a view toward becoming more highly focused educational organizations, actuarial organizations must consider and implement newer educational techniques. This also means partnering with professional educators. Examination designs incorporating contemporary educational theory should improve testing format, reduce examination costs, and enhance educational offerings under a web-based system.

There are a number of different delivery structures that can complement the educational process. These include web-based modules, presentations/examinations, seminars, academic papers or theses, and online universities. We note that both the SOA and the CAS have begun to move toward several of these delivery structures, and this Task Force agrees with this direction.

Another component of an alternative delivery system for actuarial education, identified by the Task Force, lies in expanding partnership with universities. A particular strength of the university system lies in its utilizing the expertise of education professionals in contemporary educational theory to assist in the design of actuarial education, as well as in the expansion of actuarial core knowledge to reflect broader educational content. This can be accomplished through exposing students to theoretical issues at the core of actuarial work, and enabling these future actuaries to address risk issues that transcend conventional actuarial boundaries.

The Task Force recognizes that attaining actuarial competence requires immersion in the specifics of actuarial practice. Some university-based actuarial science programs do provide such opportunities for their student, both in classroom work and through internships tied closely to the insurance industry.

The attitude toward travel time depends on whether one believes Fellows need to be experts, or whether the profession needs candidates who are able to compete with other quantitative professions, such as mergers and acquisition specialists, financial engineers, chartered financial analysts charterholders and enterprise risk management specialists. The CRUSAP Task Force believes that through a redirection of educational activities by all actuarial organizations, revised educational and examination processes can achieve greater competitive awareness, reduce travel time and strengthen the actuarial student's understanding and knowledge of actuarial science.

5. Globalization of actuarial skills and accreditation of actuaries. Another of the current issues is global actuarial qualification and reciprocity. Can an actuary qualified in Australia practice in the United States? To meet this goal of mutual recognition, the profession needs a global definition of actuarial skills.

The International Actuarial Association (IAA) has been developing a global definition of actuarial skills. In addition, it has implemented educational guidelines that member organizations (in the United States, these organization include the Academy, ASPPA, CAS, CCA, and SOA) were to have met by 2005 in order to be accredited. The two U.S. educational organizations have initiated content changes in their examination systems to meet these compliance standards.

The IAA accreditation process requires that an actuarial organization provide training (education) in 10 areas of study: financial mathematics, probability and mathematical statistics, economics, accounting, modeling, statistical methods, actuarial mathematics, investment and asset management, principles of actuarial management, and professionalism.

6. Value proposition of Fellowship. Too many actuaries seem to believe that the value of Fellowship centers on the singular achievement arising from success in the basic examinations. Others, however, are adamant that an actuary's intelligence and creativity generate the value. Still others realize that regulation, through statements of actuarial

opinion, creates value for actuaries. Unfortunately, these definitions all derive from actuaries' self-analysis.

How do employers, legislators, regulators, and the general public value actuaries? A definitive statement from the actuarial leadership is needed to develop, promote, and define a set of core vs. non-core activities associated with our profession. It is anticipated that an actuarial skill set will include traditional and prospective activities. From this activities list, the value of Fellowship is measured by the public need, priority, and perceived value clients place on each of these activities. The clarity of this value statement will set the educational needs for future Fellows.

Conclusions

- Global regulation of the financial industry (including the insurance industry) is quietly moving from being a “rules-based” to a “principles-based” environment.
- The static environment in which actuarial services were traditionally performed is becoming dynamic.
- The actuarial examination process as currently structured is primarily a training process, not an educational process.
- Training is both efficient and effective for the transfer of a specific set of skills; it works best in a static environment with well-defined problem sets.
- Education is less efficient but effective for the transfer of a diversified set of skills; it works best in a dynamic environment with fuzzy problem sets.
- While technical training remains primary, it provides only a portion of the skills an actuary needs: Business acumen, communication, and human relationship skills are major factors in a successful actuarial career.
- There is increased market competition from other professions that can and do provide certain actuarial services: CPAs, MBAs, PhDs, CFA charterholders, and risk managers (GARP, PRMIA).
- There are substitutes for actuarial services arising from globalization, technical innovations, and management's attitude toward greater use of other professionals and non-credentialed actuarial technicians.
- Examination processes produce substantial homogeneity in actuarial membership; homogeneity can impede innovation.
- Actuarial core knowledge should be expanded to introduce new skills.

Boards of directors for examination organizations should:

1. Define the value proposition to the public of Fellowship in light of more dynamic markets with respect to:
 - a. Core vs. non-core actuarial activities – traditional and potential
 - b. External (public) value placed on actuarial activities
 - c. Competition in professional services markets
2. Define the purpose and scope of actuarial skills development to include:
 - a. Education vs. training
 - b. Education content (expertise vs. experience)
 - c. Travel time expectations

- d. Consideration of IAA educational criteria
3. Expand the effectiveness and efficiency of the education and research system by implementing alternative delivery formats, such as:
 - a. Web-based modules/presentations/examinations
 - b. Seminars
 - c. University-based programs to encourage more academic interaction
 - d. Online university education
4. Introduce complementary business skills within the education system:
 - a. Business strategy
 - b. Communication
 - c. Ethics
5. Increase the use of professional education services:
 - a. Increase use and improvement of learning outcome statements
 - b. Strengthen cooperation, coordination, and integration with university-based actuarial science programs
 - c. Select appropriate delivery format based on content design

Continuing Professional Education

Actuaries sell knowledge, and, as a result, most display a professional commitment to stay current, maintain a position as “thought leaders” in the industry of financial risk through research and knowledge management, and expand into new future roles.

The survey results highlighted how actuaries assess the current state of professional education. In question 16 of the CRUSAP survey, only 39 percent of the respondents thought that continuing actuarial education was “good” (33 percent) or “excellent” (6 percent). Approximately 30 percent rated the process as “adequate,” and 28 percent of the survey respondents thought the continuing education process only “fair” (21 percent) or even “poor” (7 percent). In general, the complaints against the current continuing education process were:

- Voluntary approach to professional development credits
- Minimal continuing education requirements
- Inadequate delivery vehicles
- Failure to emphasize new developments and ideas
- Too general

From the survey results, the difference in attitude between basic and professional education is significant. As one respondent stated: “The continuing education doesn’t come close to the basic education...”

1. Professional development requirements. “Continuing education (CE) is what one makes of it,” said one survey respondent. “Some skate by, simply attending meetings without intending to walk away with much new knowledge; others learn considerably by attending to learn, or leading such a meeting.” While this comment may touch on

professional ethics, most actuaries take professional development seriously and see it as an opportunity to increase their knowledge and skills. Actuaries believe that maintaining their professional competencies is critical for their individual and professional success. Another survey respondent stated: “Change the focus from reviewing old topics and methods to a broader understanding of today’s fast-moving changes.” With an increased demand for professional development that arises from dynamic environments, the question arises as to the opportunity for and requirements of actuarial development after Fellowship.

a. Formal vs. informal professional development requirements

Many of the respondents think that more stringent, monitored professional development criteria must be established. This may include re-certification of actuaries for certain key actuarial services, i.e., specialists’ statements of actuarial opinions. This group of respondents believes that many do not rigorously maintain their skills or education. To ensure the reputation and status of the actuarial designation, a more formal professional development system must be designed.

Inadequate and informal professional development criteria lead to a lack of participation in professional development offerings. This, in turn, leads to inadequate funding for such offerings due to poor attendance and/or participation, lack of development of in-depth professional development opportunities, and deterioration of professional skills over time.

b. Verification

Survey results show that future actuarial professional educational requirements need to include two components: 1) an increase in the minimum number of hours and 2) formal verification. This would place the actuarial professional development criteria more on a par with those of other professional groups such as accountants, physicians, and lawyers.

c. Right to use designation

The carrot and stick of such a formal verifiable system is the use of the professional designation. Non-compliance results in the forfeiture of the right to the designation. A typical comment on professional development was: “CE should be mandatory to retain the actuarial designation.”

2. Updating of professional skills. The primary purpose of professional education is to update skills. This includes the cross-fertilization of financial methodologies, technologies, and theories. This also includes educational presentations from outside the actuarial profession.

The SOA, as one example, made a substantial advancement in the development of professional education for actuaries with specialized interests when it created sections. Section membership adds professional strength to actuaries practicing in areas of special interest: finance, risk management, etc. The CAS provides similar specialized educational opportunities in its annual seminars on ratemaking, reserving, and reinsurance. The Academy, the ASPPA, and the CCA also present opportunities of special interest to their

members. These educational opportunities at the grassroots level enhance actuarial knowledge and skill development. While led by actuaries, several of these SOA sections have begun to reach out to other professional association groups, thereby introducing greater diversity of ideas and practice into the section. Said one survey participant: "...exposure to other disciplines would help give actuaries a better perspective on how their work fits into the larger picture."

a. Maintenance and expansion of skill sets

In a dynamic environment, the development and maintenance of technical skills are critical. A survey respondent asked for "comprehensive 'how to' seminars for some of the more technical areas."

Beyond technical skills, professional education must fill in observed holes in the primary educational system. A typical survey respondent stated, "I'd add more non-actuarial course work to expand our areas of expertise and spur creative thought." As actuaries advance through their careers, other proficiencies must be introduced, including ethical considerations, professional ASOPs and Precepts, management responsibilities, strategic directions, and leadership skills.

b. Research and development

Professional education is not simply one way. It also entails expansion of core knowledge by creating new ideas, theories, and techniques, through research and development. Greater emphasis must be placed on new topics, such as innovations in financial market concepts or operational risk management; leadership skills, including change management; communication skills; practical business issues and in-depth topical research; and discussions in such areas as stochastic modeling, internal models, etc. This can be accomplished through academic research and thought leadership in change management, operational research, risk theory and frameworks, methodologies, techniques, markets, etc.

Education, in the broadest sense, is inherent in most actuarial organizations' activities. For example, a critical component of the research and development activities resides with many committees, task forces, and working groups. From these activities comes an expectation of practical and theoretical advancement, actuarial service enhancements, and thought leadership. The reports from these groups should receive broad distribution and discussion. Too often they are written, accepted, and buried.

3. Professional development delivery. The SOA and CAS are only beginning to understand that not all actuaries learn in the same way. They need to fulfill members' professional education needs by providing more varied and innovative approaches. Many of the survey respondents like the traditional self-study, or even advocate additional examinations, but most respondents want more content combined with convenient, effective, and efficient delivery.

Survey results reveal a great desire for relevant, cutting-edge, advanced, hands-on, in-depth learning experiences offered through a series of low-cost, time-sensitive, and efficient channels.

The Academy, ASPPA, CAS, CCA, and SOA must all continue to assume an expanded role in the delivery of educational topics, including web-based platforms; academic sponsorship of papers, symposiums, and classes; and “online university” education; as well as the traditional seminars and programs at annual meetings. With the ever-decreasing time allocations combined with increasing costs of travel, there is greater demand for distance-learning approaches.

4. Value proposition. To maintain and increase the value the public places on actuarial services, the intelligence, creativity, ethics, and professionalism of all actuaries must be evident throughout their careers. The number of credentialed actuaries continues to increase. Demands for actuarial skills continue to expand. With a growing membership, the profession must design a complete educational system sufficient to meet the growing demands of the post-examination professional. To accomplish these goals, adequate budgets must be established for the implementation and monitoring of professional development among actuaries.

Conclusions

- Credentialed actuaries have significant educational needs that are not currently being met.
- Actuarial core knowledge is expanding; professional development is required to remain current.
- To assure actuarial competency in a dynamic environment, actuaries need to spend an adequate number of hours on professional development.
- Professional education processes must emphasize building new skills in meeting membership needs; these processes must be timely in content, effective in delivery, convenient, and efficient.
- Professional development will produce greater heterogeneity in skills with more diverse specialized skills among actuarial membership.
- Continuing professional education is both a technical training process and an educational process.
- Training must be detailed, timely, and must transfer a specific skill set.
- Education must be time efficient and effective in knowledge dissemination.
- Competition from other professions will increase in areas where actuaries can and do provide services; competing professionals including CPAs, MBAs, PhDs, CFA charterholders, financial engineers (members of the International Association of Financial Engineers — IAFE), and risk managers (members of the Global Association of Risk Professionals — GARP — and the Professional Risk Managers’ International Association — PRMIA).
- There are actuarial alternatives arising from globalization of actuarial services, technical innovations, and management’s attitude toward greater use of non-credentialed actuaries.

Boards of directors should direct the strategy of their organization toward becoming a premier educational organization. To accomplish this strategy, they should:

1. Define the value proposition of Fellowship:
 - a. Periodically survey user needs and the perceived value of actuarial services
 - b. Periodically evaluate competitors in the professional services market
 - c. Review membership strengths and weaknesses in light of the survey to define and enhance the value proposition of Fellowship
2. Define the purpose and scope of professional development that include:
 - a. Enhancing the value the public places on actuaries (this is the value proposition for actuarial services) through educational content
 - b. Minimum professional development credits
 - c. Education, training, and technology content
3. Draw up budgets for professional development
 - a. Increase the budget for development and implementation of a professional development agenda for alternative delivery systems
 - b. Develop joint professional training and educational activities among the actuarial organizations — for a minimum of 50 hours annually
 - c. Develop joint professional training, and develop joint educational activities with universities and other professional associations (IAFE, GARP, PRMIA, CFA Institute)
4. Expand the education system to include a combination of delivery formats:
 - a. Seminars
 - b. Special interest sections
 - c. Examinations
 - d. Academic/papers/theses
 - e. Web-based modules/presentations
 - f. Online education
5. Increase the use of professional education services:
 - a. Increased use of and improvements to learning outcome statements
 - b. Selection of appropriate delivery format based on content design