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## Session 84TS

### Session Title: 2005 Education System Redesign

**Track:** Education and Research

**Moderator:** ROHANA S. AMBAGASPITIYA

**Instructor:** DALE H. YAMAMOTO

*Summary: In 2003 the SOA's Board of Governors approved a redesign of the education and examination system. Since that time considerable progress has been made with regard to implementation. This presentation gives the attendees the following: a review of the proposal, progress made to date and implications for actuarial education and training programs*

**MR. ROHANA S. AMBAGASPITIYA:** Good afternoon. It's my pleasure to introduce the speaker Dale Yamamoto for this session. Dale is a health actuary with Hewitt Association in Lincolnshire, Ill. He serves as the national practice leader for the actuarial practice in the health management line of business. Dale has almost 30 years of professional actuarial experience. He has made some valuable contributions. He currently serves on the Board of Governors of the SOA and the Board of Directors of the Conference of Consulting Actuaries. Dale has published several articles on group benefits and has delivered speeches at a number of professional actuarial and industry meetings.

**MR. DALE H. YAMAMOTO:** Today my role is to represent the SOA as well as possible.

The role that I have on the board of the SOA now is vice president in charge of education and examinations, which is why I'm standing up here now. I want to talk about the redesign, and the only thing that bothered me about the presidential speeches is that Bob Beuerlein mentioned that he wants us to put our pencils down and not make any more changes. It's in the blood to make changes. You have to do this. It keeps people active. Maybe you don't think that.

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**Note:** The chart(s) referred to in the text can be found at the end of the manuscript.

We're going to take a big-picture look at what the redesign process has been historically and what we've been doing. We'll dive down as deeply as possible. If you have questions I'm the only one speaking, so I can judge where I am in the presentation. Go ahead and ask the questions because as we get into this, I'll either defer my answer because I know it's on a future slide, or I'll try to answer it. If I can't answer it, Judy will.

The first thing I want to do in the presentation is say that we have made changes over the time frame. I initially drafted this little chart (see Chart 1) up on almost the back of a napkin, sent it into the SOA office and asked, "Do we have records of what we've done historically?" I took my first exam in 1971 or '72, so I was familiar with everything going back that far. I figured no one else is going to care beyond that, so we went back that far.

When I first started taking exams, there were 10 of them. The magical thing about this and what surprised a lot of people when I tell them this is there were only two practice areas back then: life and group. Group wasn't the same as what people think of as group today. Group was primarily retirement programs. That's what most of the exam material was on. Maybe 20 percent to 25 percent if that much was health insurance or group insurance. Most of the health education I've had has been on the job.

Starting in '77 we moved to nine exams. There were still two practice areas. Those last four were long exams. They were all six-hour exams. Anyone who complains about long exams nowadays has no sympathy from me because I went through those six-hour exams.

Starting in '82 we went back to 10 exams and also came up with the great idea to split this group insurance's retirement material because they are two separate practice areas. The body of material became so big it had to be split. Starting in '82 we split them up into three different practice areas: life, group and retirement. We also introduced investment topics at that point. Much of the reason that was done is if you go back and look at the Institute of Actuaries and its exam syllabus, a lot of material that was included for the U.K. actuaries was on the topic of investments, so we thought that would be a good thing to add to the SOA syllabus.

Starting in '90 we had people who either hated the flexible education system (FES) or loved it. I don't think I know of anyone who has neutral feelings. I became involved with education system in '90 and helped with the development of the group syllabus to the flex system, but from '90 through the remainder of the '90s, we had a course system with multiple tracks and courses that everyone can take, so you customized your own program much like a college course. The FSA was attained like a college course. You had to get credits.

Starting in 2000 we came up with this new system to replace the FES and introduced the Associateship Professionalism Course (APC). By the way, the

Fellowship Admissions Course (FAC) was introduced around '92. or . Starting in '00 we started doing the APC and also the modeling seminar, the core seven, and introduced the concept of professional development (PD) to wrap up the examination process. That's what we have today.

We formed a task force in '01 to reevaluate the process with three key objectives in mind: Get the syllabus to be a little bit more practically relevant to the work that we are doing: prepare actuaries for the future, recognizing that the work environment is changing and our employers are demanding different things from actuaries; and try to reduce the travel time. This last concern was at the top of almost everyone's list because it's taking people a long time to get through the exams. I think the average age of the last FAC was 33. That's getting up there in age, although it's changed slowly.

The process that we've gone through is we put together a working group and an advisory group and started having discussions, and those went on the first part of '02. That resulted in reports to the membership in the summer of '02. With that feedback we started having discussions again with the working groups and the advisory groups. The working groups are the people who are heavily involved with putting all the thoughts and materials together as far as learning objectives and suggested material to be included in the exam.

The advisory groups comprise people from firms located all over the country for each one of the practice areas that we're using. We bounce ideas off of them. When we put together the materials and the learning objectives, we send them out to these people to make sure we are on track. I can admit that's something that wasn't done well for the current system. All of this is a result of the feedback that everyone has received from the current system, too. That's why this process is taking longer than a lot of the other revamps have taken.

The Board of Governors' discussion and approval of issues that came out of this working group discussion and of the feedback results we received from the summer '02 membership came in the June '03 board meeting, which resulted in a second report to the membership. That's the last report to have come out, and we're getting ready to put something else together. We also have a lot of member and candidate responses to the summer report, too, and that's what people have in hand right now that we're going forward with.

The big question is why are we changing so soon? We went into the new system in '00, so why did we get the work group up starting as early as '01, just a year after the new system was put in place? A lot of flaws were recognized in the '00 system, and we had a lot of feedback from both market research surveys and almost spontaneous involuntary feedback from different individuals and firms, too, saying that they are concerned with the way the system is put together. They would like to see some changes.

The biggest one was the fact that, in an effort to have our exam structure become more global and international in nature, we purposely took out any nation-specific education from the exams. A lot of people said that isn't good. People need the nation-specific education so that we can do work. We do work in the U.S. and in Canada, and without that type of knowledge as part of our basic educational foundation, it's a big flaw and the missing piece from the exam syllabus.

We are making key changes now. We think these changes aren't as big as they appear when you first look at the end result. When you start working through the transition and mapping the current syllabus to what the new syllabus looks like, you can understand things a little bit better. There are some innovative or different things that we're trying to experiment with to deliver education. Some of those things may look radically different from what's been done in the past, but at the core we don't think the changes are that big.

The key thing is that we're trying to make the preliminary education piece. We have three basic topics of this syllabus: preliminary education, ASA course material and FSA course material. We're trying to make the preliminary education piece of the process a lot more efficient and more relevant. We're trying to notch down a bit some of the theoretical aspects that are in the syllabus today and get at more practical actuarial science and things that we hope everyone is going to use on the job. The emphasis is going to be more focused on the core actuarial topics and the practical aspect with some new reference material to reflect that.

When you look at Course 5 and parts of Courses 6 and 7, they're going to be replaced by what we think is a more efficient and relevant Fundamentals of Actuarial Practice (FAP). The FAP is a new set of modules that finish up the associate-level exams, or the social education process.

There have been other outcomes resulting from member feedback and some of the board deliberations that have been made. We are putting nation-specific material back into the syllabus. We're going to do that before the new exams come into play. Some will be in the Course 8 exams coming this fall. We put some in last year, but we're trying to get more in.

We formed a new section called enterprise risk management, (ERM) and along with that we'll have a new specialty track in ERM that will be an extension to what the current Course 8 finance exam track looks like already. We have that set to be offered this fall, too.

At a glance, the ASA education is going to be set in two or three different stages depending on how you look at that chart right now. The preliminary education comprises five topics that are prerequisites; three subjects that we would like to see validated by educational experience, which we'll talk about later; and four sit-down exams, the traditional exams that we're used to seeing.

The FAP is going to have eight interactive modules that you can take over any time period. Each module will have one to six exercises, Two exams will be spaced throughout these eight modules. I'll give that detail a little bit later.

We'll continue the APC, so that's still a course that will be part of all this and probably will be unchanged from where we are right now.

Some people have looked at fellowship education as an expansion. I think a lot of people have said that Course 8 is a fellowship exam when you get right down to it because you have a seminar from Course 7, and Course 6 is almost an ASA exam. When you look at the material that's in Course 8, Course 8 is a big exam. It covers a lot of material. Many people have said that it doesn't have enough material for everyone to understand and do the work that we have to do on an ongoing basis. We're splitting it up into essentially two exams, and we're going to have those different tracks: the traditional individual life insurance; health, group life, and managed care; retirement benefits; investments; and the enterprise risk management and finance exam together.

We're working on having four or more interactive modules. They're going to work a lot like the FAP. The exact nature of the modules hasn't been formalized yet. A work group is working on some of these issues to figure out exactly what we put in the exam material and what we put in the interactive modules.

A Capstone seminar also is anticipated someplace along the line. Again, I don't think we're sure how that matches up with the FAC. Those issues are being worked on right now.

Prerequisites are courses that aren't going to be validated in any fashion, but if you think about it, when you start doing the work in some of the later exams, you're probably not going to get through them if you don't know some of this material. These are topics that we are going to encourage students to have some knowledge of before they starting writing the exams. A math student is going to have them, but a business student might not.

They're not going to be tested on this through the exam, so people may have to go back and take some community college courses or something to get at least these basics: calculus, algebra, introductory accounting, elements of business law and mathematical statistics, which would be probably indirectly tested on the exams, but a few topics are directly tested. Some people might argue that you could get by in the actuarial exams without the accounting or business law, but I think it becomes harder to do. When you think about what actuaries do in practice today, you need to be familiar with these topics.

Probably the most controversial issue right now is validation by educational experience. There are three subjects that we thought would be best learned in the classroom and not from sitting down in a three- or four-hour exam. One is micro-

and macroeconomics. The second is corporate finance, and this is at the intermediate level and not a 101 course. It could be offered in some colleges as a postgraduate finance course. At some universities, such as Harvard, it may be a sophomore- or junior-level finance course. If you look at the material and learning objectives that you need to understand for corporate finance, you have to map that out with the syllabus at a given college to figure out whether or not that particular course would meet that need. The last one is applied statistical methods. I guess we still have an ongoing debate with the Casualty Actuarial Society (CAS) about whether or not that should be a tested exam. I think that association wants to have it tested.

**FROM THE FLOOR:** What about people who decide to get into actuarial science after college? Do they have to go back and take these courses?

**MR. YAMAMOTO:** One choice is go back to college and take this material. We are looking at some alternative ways that you can satisfy these requirements. If there are night courses you can take or if there are some other exam materials that would meet all of the requirements that we have in here, those would be options.

**FROM THE FLOOR:** You can take the CAS's exam.

**MR. YAMAMOTO:** This is one of the CAS's biggest concerns, too. It is going to continue to test that material for at least a two-year period, and its current plans are to offer exams on that material for two years. It'll do a look and see after that period of time to see whether or not it should continue it. That's how you'd be able to satisfy it. We have a short-term solution to that or an alternative that's going to be out there. The CAS will offer the exam on these three topics and will give you credit for it if you pass.

**FROM THE FLOOR:** Other than actuarial programs that would be geared toward satisfying these requirements, you mentioned that math majors probably have taken these courses. I was a math major and had only two of those courses in college. I didn't have accounting, business, economics or corporate finance. The core we draw from currently is math, not business programs, so that's a concern.

**FROM THE FLOOR:** I'm the director of programming at Laval University, so I'm taking care of the undergraduate program in actuarial science. We currently graduate 60 students a year. We have 250 students. Over the past 35 years, we have graduated approximately 2,000 actuarial students.

I think it's a good idea and a good way, but maybe it doesn't go far enough or maybe there were issues in the United States because I understand that the way you educate people in the United States in actuarial science is not the same as in Canada. By that I mean we have four or five major actuarial science programs at the university level, and technically the best way to become an actuarial student in Canada is to go Laval University, Waterloo University or one of the other programs,

and that's how you become an actuary. You don't go to a business school or take mathematics. If you want to be an actuary, you go into actuarial science. At least, that's what I did. I graduated from Laval University in '81.

**MR. YAMAMOTO:** I think your Canadian friends on the West Coast would disagree, but go ahead.

**FROM THE FLOOR:** That's okay. That's why I'm here. We try to teach everything for at least the first five exams. We have micro- and macroeconomics and have 75 students who will take our specialized course in microeconomics for actuaries. Up until now we have A, B, C, D and E, which is a failure, but if you pass our course with a D or a C, it's good. You've passed. We asked the department of economics to review a course for our students, and they are quite good at macro and can go further into it.

Now we have A, B, C and D and we have students who took that course and graduated two years ago and are now told that they should retake the course to have something better than a B-. One of our courses of action could be we'll split our class in five groups of 10 or 15 students and go into business classes and grab all the A's and B's in these classes and come back to our program, but that would be a big problem. We can do the same with corporate finance, but we already have an in-house corporate finance course for actuarial students, and we also have something like statistical methods.

My point here is the B- may be good for some U.S. programs, but it's not good for us.. I think that our standards are a little bit higher than other programs, so there's a contentious viewpoint because if you thought that the B- was the same across the board, even if you have the same course in different universities, you can have different professors, different exams and different grades, so it would be better to have a way to know the level of the course at Laval University and know that if your students get a B, C or a D, they have attained that grade.

Another issue would be you delegate to the Canadian Institute of Actuaries a meeting with the universities and tell us what you think in Canada is good in Waterloo or Laval University or somewhere else. The fact that you impose a B- on short notice creates a lot of problems for us.

**MR. BRUCE D. SCHOBEL:** I'm also one of the people who has been involved in this exam restructuring. We have a similar problem here in the United States. We have people who went to Harvard and earned a C. Until recently everyone at Harvard received A's, as you know, but there are people who go to good schools and make C's, and they are going to come along, and the SOA is going to say, "Well, your C from Princeton is not good enough for us." That's silly, but there are some answers to this. The students who receive A's and B's are going to instantly meet the SOA's requirements, and the students who made C's and D's are going to have to prove to the SOA in some other way that they know the subject well enough and may have

to go the alternate route. I don't think that that's a huge number of people, is it?

**FROM THE FLOOR:** That may be 20 to 25 students each year, but my issue is also that since it was published, the alternate route was not clear. What do you tell students? I have students asking me, "What shall I do?" Someone phoned me who was working at a pension plan administrator and asked, "What is my course of action? Should I take a leave from my employer to take that course in college, and that's supposed to shorten my travel time?" The employer was not happy with that answer.

**MR. SCHOBEL:** There are lots of answers. One answer is you can take the CAS exam, but that's the new answer. Let me answer in a more fundamental way. I think at the Board of Governors the question has been asked a half a dozen times, and at least half of those times by me: "Where's the alternate route?"

**FROM THE FLOOR:** I'll vouch for that.

**MR. SCHOBEL:** Yes. At every meeting where this subject is discussed, I ask, "Where's the alternate route?" If the alternate route can't be developed, and if the SOA can't come up with a better answer than to take the CAS exams, I think it'll probably have to throw this out.

**FROM THE FLOOR:** One of the alternative proposals they have in Canada is that we would ask the Canadian Institute of Actuaries to say that all those who came out of Laval with a cumulative GPA of more than 2.67 (where A's are worth four, B's are worth three, etc.) or something like that are ultimately granted for exams one, two and three or one, two, three and four or something like that. We could negotiate. I can tell you we educate our students for all those exams. The materials are there. I think our courses are stringent, and if you are wondering whether our students pass the exams, yes, and at a significantly higher level. We have something like a 60 percent to 75 percent pass rate.

**MR. SCHOBEL:** I think we have to end the discussion at some point, but Dale said initially that this is a controversial issue. It is. There are all of these problems: the problems you discussed and the problem I discussed concerning the guy who went to Harvard and earned a C, if there is such a person on earth, but the SOA has promised an alternate route. Nobody knows what it is, but it's been promised.

**FROM THE FLOOR:** This may be my last comment because I was also asked to make that comment. One of the possible courses of action is that there could be some tendency for a university to say, "We want to look good, so we will increase our grades for our students, so we grant them all A's and B's. There will be a tendency of mediocrity over time. After a few years people will see that system doesn't work, will cancel it and come back to the old system. Maybe in '05 or '10 that will be the conclusion, and that would be sad.

While I think you should continue to delegate things to universities because that's what all the other professions have done, I think to become an engineer, architect or lawyer, you ask universities to educate people and then you test. But you don't test for 10 years or so. I've made my point. I'll stop there.

**MR. YAMAMOTO:** How many of you in this room knew that you were going to become an actuary by the time you were a sophomore? It's more than I thought, but it's only about a quarter or a third of the people. That leaves out a lot of people who may not have tried to figure this out and don't have time to make sure that they have all these courses. That is a personal concern of mine, too, because of most of the people that we hire, even though I'm in the Midwest and we have good actuarial science schools, probably half of our students are not coming from actuarial science schools, or, if they did, they're not coming from the actuarial science program. That is a big difference I think in the United States versus Canada. It's probably similar in Vancouver and Calgary, I would think, because there isn't a dominant program, is there?

I admit this is the most contentious issue. That's part of the redesign, and we want to make sure we get it right. We don't want to leave any student behind.

The next section on preliminary education is a little bit easier because there are exams. They are something we're familiar with. The only problem I have with this is we've gone to letters instead of numbers. Maybe it's just the actuary in me, but I'd rather have numbers than letters. The first exam, Exam P, is probability. The second exam, Exam MF, is mathematics and finance. For anyone who has the autographed Stephen Kellison *Theory of Interest* book, it's still going to be on the syllabus. He's president next year, so you can come to the meeting next year and have your copy autographed.

Courses 3 and 4 will survive as Exam M and Exam C, so we have a direct mapping of the modeling course and the construction and risk model course. Both of these will be four-hour exams.

The FAP is the module course, so we'll spend a little bit of time on this. We're trying to focus in these modules on education more than testing accreditation. The focus has changed from exam-taking to education or learning. People are going to have the opportunity to practice on each one of these modules and receive almost immediate feedback on some of these modules. You're going to have anywhere from one to six exercises for each module. There are common threads that purveyed all of the different module pieces that are in there, including the professionalism, validation of results, stochastic versus point estimates and how law works within this.

We're trying to attack everything from an actuarial perspective, so you'll see a lot of concepts in there that even though the topic doesn't look like an actuarial topic, we'll try to put the actuarial perspective in there. It's taking some material that

may be out there in another form and putting some actuarial context into it. It's going to be a blend of both practice and basic underlying fundamental functional types of things that we do. Practice is split among retirement versus HFCA versus life insurance, and functional is whether or not we're talking about financing or design. It's daily things that we're doing within our own practices.

The control cycle (Chart 2) is the framework. The control cycle is something that the Institute of Actuaries in Australia has come up with. If you're familiar with any of the quality circle concepts in manufacturing, such as Six Sigma processes, it's designed after that. The modules are based on this actuarial control cycle process. First of all, define what your problem is. That's the triangle up on the top left. Figure out what the solution ought to be, figure out a way to monitor results and then you may start the circle all over again. You have external forces affecting the decision and professional ethics issues that enter into the equation when you start putting these things together.

The first module is the role of the professional actuary. This may be a university course and may be someone's introduction to what actuaries do in practice. We'll raise a lot of issues there.

That leads to the professionalism piece that was at the bottom of that control cycle. It will talk about what the external forces are in a lot of the work that we do, whether they're regulatory issues that we face or other economic external forces affecting the work that we do. That was the external forces piece with the arrows pointing in on that diagram.

Module 3 is trying to figure out what some of the common actuarial problems and assignments we face on a day-to-day basis are. This is part of defining what the problem is in the first place.

Module 4 is solutions to selected actuarial problems. It's a blend of defining what the problem is and coming up with the solution.

Module 5 is the design and pricing of an actuarial solution. Again we start moving around that control cycle into the design process to try to figure out what that solution is. We're in between defining the problem and coming up with a solution because we're trying to design and piece everything together.

Module 6 is selection of an actuarial design and model. Now we're going around the curve and figuring out we have a design and need to try to figure out how to model it.

Module 7 is selection of the initial assumptions that go into the financial analysis. This is on the road to trying to figure out how we're going to monitor the results so that we can understand whether or not we succeeded in solving the problem.

Module 8 is what we do with monitoring experience.

We initially started thinking about having some of the courses being mandatory and some of the modules being mandatory with some choices being available. Right now we're down to the eight courses. I think they're all what you're going to be taking. Some things will be across practice areas so that everyone would take that certain module, and there are going to be some specialized modules in there within some of the practice areas. We'll have some type of formal validation for accountability. When you're going through the exercises it's going to be a computer-based program. You're going to be on your own to say, "I feel like I know enough about the modules based on the feedback I received from the exercises I did."

It's going to be subject to review as you go through the process. We're not going to take a look at every single result as you're going through the different modules, so people aren't going to be 100 percent audited. It's almost the same thing as this right now in PD projects. I don't know whether people realize that. It's been communicated, but some people don't realize that some PD projects aren't reviewed. They are checkmarked to make sure you have everything done. That's what we'll be doing going through this module process. We'll check to make sure you've done everything, but you're on your own to go on to the next one.

There will be some spot audits every once in a while. That's probably not going to happen after the first one. It's probably going to happen after the third or fourth one that you take or maybe even after the first exam. There will be a comprehensive exam after you take the first five modules based on what you've gone through on. The second exam will be a followup with the completion of module 8, which is probably mostly examining modules 6 through 8, but you may reserve the right to go back to modules 1 through 5 for some of them.

They're going to be multiple-choice exams, and there's potential for on-demand. They're going to be computer-based exams. Right now the thought is to have them on a scheduled basis because we haven't figured out a good way to make them an on-demand process. As time goes on and we build up a question bank for each of these two exams, it will be easier for us to make an on-demand exam. I think we also have to satisfy the exam committee people that they can set the proper pass mark for an on-demand exam.

**FROM THE FLOOR:** Are you using only what's in the module, or do you have books?

**MR. YAMAMOTO:** It's going to be a combination of reading things on a computer-based learning basis, and also you're going to be downloading some material. I think we're going to be downloading everything.

**FROM THE FLOOR:** Can you give a hint about the schedule? Will it be twice a year

or once a year?

**MR. YAMAMOTO:** I don't know whether we have a schedule of how often the exams will be given. I hate to say something, but I expect it to be at least twice a year at the beginning.

**FROM THE FLOOR:** Do you have any time constraints for taking the modules?

**MR. YAMAMOTO:** There aren't going to be any time constraints. The thought is that someone should be able to go through all eight of the modules in about the length of time that you're sitting for an exam, so it's a six- to eight-month time period. If you're taking the modules at the same rate at which someone typically studies for an exam, you might be able to get through it that quickly.

**FROM THE FLOOR:** How will you police these computer exams? Are they going to be at an exam site where there's a bank of computers, or will they be taken at a person's work site with a proctor present?

**MR. YAMAMOTO:** We haven't worked that out completely yet. We are looking into computer-based examination centers or alternatively having an FSA present monitoring the student taking the exam.

**FROM THE FLOOR:** One thing that I've heard in the rumor mill is that people who are about to take Course 5 or 6 shouldn't take Course 5. They should take Course 8 because with Course 8 they can get their FSA exams out of the way. If they're left with just Course 5, they take these Internet modules, surf the Web or something and then take a multiple-choice exam. It's easier than taking Course 5 right now, which is a five-hour essay exam.

**MR. YAMAMOTO:** Yes, it's a hard exam.

**FROM THE FLOOR:** So that would be the way to go for those students?

**MR. YAMAMOTO:** I think everyone is going to have to make his own decision and take a look at what's going to suit his needs the best to become a Fellow. I'm not sure whether that's necessarily my thought. I'd almost rather take an exam than go through the module. I think everyone is going to be different. It's not the rumor mill. I've heard people say that it looks as though this module approach is simpler than taking an exam.

**FROM THE FLOOR:** Yes, the feeling is that these modules, like Course 7, are going to have a high pass ratio.

**MR. YAMAMOTO:** Yes, it will probably have a high pass ratio. That's certainly something to consider when people are thinking about what their conversion options are and what they should be sitting for in the next two years before

everything gets fully in place.

**FROM THE FLOOR:** Given that you've had all of these questions about how you're going to do this, I saw on the Web site from August that you have versions with dates on them. How can you have dates when you don't even have the thing mapped out?

**MR. YAMAMOTO:** We have to set targets somehow. Remember when President Kennedy said we'll have a man on the moon by the end of the decade?

**FROM THE FLOOR:** There seem to be many questions on how it's going to work.

**MR. YAMAMOTO:** The question is, how we can set such definite time frames as far as transitioning the exam? That's why the transition is working in phases so that preliminary exams are coming into place for next year. The preliminary exams are exams that exist already for the most part. That's the easy part. The hard part is putting together the modules that we have here. We have two that are mostly put together, and all the other ones have a good start. The Fellowship courses go into place in '07. This is similar to studying for exams. You have to set goals and say that things are getting done at this point in time; otherwise, they're not going to get done.

We learned some stuff from the FES. I think we learned a lot. We learned that we can't determine whether or not a student understands material in a one-hour exam. That was evident by the experiment of the one-credit-course exams where people sat for a one-hour exam. Looking at the results of those exams we're satisfied that we can't do a one-hour exam because it's not long enough to distinguish good students from lucky students from poor students. It's probably going to be a longer than a one-hour exam. Is it going to be a six-hour exam? No. We have some boundaries between one and six hours. It's not a good answer, but that is a detail that we haven't answered yet, and some of it is going to depend on the material that gets put together for all of these modules.

Why are we doing this e-learning solution process? It's to try and gauge the learner more practically and interactively. It offers flexibility and access to learning so that you don't have a target time whereby by May 5<sup>th</sup> you have to learn all of this stuff to get through any type of material. You can take it at your own speed, and hopefully it's going to be more convenient for candidates going through this process.

I think it's going to be easier to update the material more quickly. Given that it's an Internet-based program, it will make it easier for our global distribution of this type of material. Right now we have exam centers all over the world. It's not an easy way to work the whole system. We have some issues every once in a while with getting exam materials to some of the countries where we have exams.

FSA education is going to focus on trying to make sure that anything that we deem as critical content to whatever practice someone is in will be examined. Anything else relevant to the practice area will probably be delivered through these modules, which are going to look much like the FAP modules and will be validated by exercises. We haven't necessarily said we're going to have exams on that. I think they are going to primarily be validated by the exercises that you go through in the Fellowship modules mostly because we're going to try to take topics that are grayer issues that you can't come up with a question for and necessarily fairly grade. We're hoping that we can get it and touch on areas that are more difficult to examine.

Some of the advanced applications will be put into the seminar format, so there are things that we would like to see some give and take for. They'll be much like the FAC itself but will be group discussion topics where you can raise some of the practice area issues up to a higher level to get people thinking about certain topics. We'll definitely maintain the FAC in the process.

There will be two exams for each practice area. They'll be similar in size to the current Course 8. We're trying to make sure there isn't going to be "an easy track" whereby someone could look at this and say, "I think I'll take the group track because that looks easier than the retirement track," or "I'll take the life track because it looks a lot easier than the finance track." We're trying to make it as fair as possible going across the different practice areas.

We're going to continue the control cycle framework going into both of these exams. The title of the first exam is DP, "Design and Pricing of Product/Plans." It's coming back to that control cycle where you define the problem and the solution, so you design a retirement program and determine what types of methods you use to price it. It's a life insurance product. You come up with the types of products that the marketing force wants to be able to sell and insists that it has to sell. How do you deal with the pricing and reserving issues for that? I guess that would be on the sponsor perspective side.

The second exam, CSP, which is "Company/Sponsor Perspective," looks at the company. What type of employer if you're dealing with employers, or if you're with an insurance company, what the insurance company's or sponsor's perspective is. I said that the other way around — the insurance company and plan sponsor of a given benefit program. What are their particular perspectives for the different practice areas? What are their needs for financial reporting for both the insurance company and the plan sponsor themselves?

There will be two six-hour exams. Right now Course 8 is a six-hour exam.

**FROM THE FLOOR:** You mentioned that there will be modules for the FSA.

**MR. YAMAMOTO:** Yes. There will be modules.

**FROM THE FLOOR:** Is that going to be another multiple-choice exam?

**MR. YAMAMOTO:** The Fellowship modules are going to work just like the FAP modules. It's a computer-based course that you go through. Have you taken computer-based training courses where you get a quarter of the way through and are asked a series of questions? It's so you can evaluate your understanding. Did you understand what you just did? That's the process for these modules. You'll go through a series of exercises. You're going to be on your own to decide whether you know enough.

**FROM THE FLOOR:** As you go through the module, can you rifle through the questions and keep doing it until you pass it?

**MR. YAMAMOTO:** If that's the way you learn, certainly. I think some people learn that way by sitting through it, answering questions, getting that immediate feedback and then going back. Some people say we shouldn't allow people to do that. I don't know whether we decided.

It's a set of exercises that you're going through. Did we decide someone is going to sit through and validate that people got the correct answers — the final answer and the final exercises.

**FROM THE FLOOR:** But they won't be able to make progress unless they -

**MR. YAMAMOTO:** Yes, you have to be able to answer the questions correctly.

**FROM THE FLOOR:** The ASA ones are going to work the same way as the FSA? They're going to have to write?

**MR. YAMAMOTO:** We haven't figured that out either. There will be a group of people grading these questions. From my experience sometimes it's hard to get people to volunteer for some of the \_\_\_\_\_ because they know what the timing commitments are. There are some short periods of time during the year when you have to sit down. You're responsible for a set of grading. I know a lot of people have said, "I can't commit to that because I don't know during those one- and two-week windows what my personal work commitments are going to be, so I can't volunteer for something like this."

I'm thinking it should be easier for that type of person to be available to do these gradings throughout the year rather than at specific times during the year. I don't think it would be that hard to find volunteers to do some of this because it's going to be a different group of people from that doing the grading right now and will continue to do the grading on this set of exams.

**FROM THE FLOOR:** Grading may not be the right word.

**MR. YAMAMOTO:** Yes, it's making sure you understand the topic.

We're looking at different alternatives as far as satisfying the exercises to each one of the different modules. It may be a matter of writing a paper or writing something more extensive than just answering the questions.

**FROM THE FLOOR:** I'm trying to figure out how that would work. Would you compose your answer as though you were e-mailing something, or would you write it by hand? If you need to write formulas, what would you do? If you have a required formula, that would be complicated on a computer.

**MR. YAMAMOTO:** I suspect we're not going to have answers that require formulas.

**FROM THE FLOOR:** We could have a typing exam.

**MR. YAMAMOTO:** Every time I give one of these discussions, I'm questioning whether this going to have a positive impact on the travel time. Everyone keeps on saying that it will, so that's what I have to keep in mind.

We think the preliminary examination structure is a more efficient alternative than going through an exam structure, certainly not for the students who have gone through prerequisites and the validation by experience. They have taken the courses in college. We're not asking them to reexamine something. Take that with a grain of salt.

Preliminary exams and the preliminary education FAP exams at some point will be administered more than twice a year, so that will be a way to get through the exam process faster. Given that we're talking about three-hour exams for some of the preliminary exams, if we can give them three times a year instead of two times a year, that will help people get through the Fellowship faster.

I think the innovative design of the FAC, the FAP course, would allow people to go through material more quickly because theoretically you could take these modules at the same time that you're studying for an exam. If you can do these things on a concurrent basis, it will help you to get through the material at a faster pace. You could sit down and take one at a time and take them slower than going through all of the modules in a six- to eight-month time period. You can begin the FSA modules even before taking the Fellowship exam. As far as travel time, how do we measure that? That is the \$1,000 question because how do you measure travel time given the fact that we've changed the syllabus every five or six years?

**FROM THE FLOOR:** Look at the average age of Fellowship.

**MR. YAMAMOTO:** That's the focus — taking a look at the average age of Fellowship. Hopefully, it's going to go down because we keep track of who's going through the FAC and what their average age is. We're all actuaries, so you're

suspicious of averages in the first place, especially because when you look at some of the averages, you look at some who are 50 years old. They are 50 years old because they came over from the U.K. and are taking the FAC because of our exchange with the institute.

I think we may look at the 25<sup>th</sup> percentile. Part of the control cycle is measuring results, so we are going to have to come up with some metrics to make sure that we satisfied the school because exercises have been done in the past to try and measure time from first exam to attaining Fellowship from associateship to Fellowship. They are tough things to take a look at because you always get the comment that someone took the first exam while a freshman in college and took the second exam after graduation. How can you measure from the first exam? We have all those issues that we have to deal with.

One of the things that we're striving to do is have new Fellows get their Fellowship at a younger age if that's a fair goal. Maybe instead of travel time we should say one of the targets we'd like to see is the attainment of Fellowship become a younger age than it currently is.

**FROM THE FLOOR:** With less variance, as well.

**MR. YAMAMOTO:** I'm not sure that we're going to have less variance.

**FROM THE FLOOR:** Your average age of Fellowship is 32, you mentioned?

**MR. YAMAMOTO:** It seems that it always ends up to be 32 or 33 at the recent FACs.

**FROM THE FLOOR:** It use to be 28 or 29 if you go back 20 years.

**MR. YAMAMOTO:** Do you think it was that young?

**FROM THE FLOOR:** Yes, you go back 20 years.

**MR. YAMAMOTO:** Regarding implementation, I mentioned already when discussing preliminary education that the exams are going to be in place next year in '05 and the FAP goes into place in '06. The Fellowship exams will go into place in '07. At different points in time the redesign team has expressed some concern about meeting some of these targets. Are we on target? Preliminary education is ready. That will make some people feel good. spring for the '05 target.

Let's discuss the conversions. Course 1 goes into the probability exam. Course 2 goes into the mathematics of finance, and you also get credit for validation by experience for economics and corporate finance if you pass Course 2. Course 3 maps into the risk modeling course. Course 4 goes into construction and risk models. You also get credit for applied statistics. Course 5 is what we had talked

about a little bit earlier. If you take Course 5 you get credit for the FAP modules 1 through 5 in the first FAP exam. The argument is why take Course 5? I think a good argument is you become a Fellow sooner if you have nothing else to take. Students are going to have to make their own decision about that. With Course 6 you get credit for the FSA modules excluding the Capstone module.

**FROM THE FLOOR:** Course 6 is 1 through 8?

**MR. YAMAMOTO:** Course 6 is the four FSA modules. Course 7 is the remainder of the FAP, the 6 through 8 and that exam. You also get credit for the Capstone module. If you either have Course 8 or have satisfied the PD, you get credit for the design course. If you had both Course 8 and PD, you get credit for both Fellowship exams in whichever practice area that you took Course 8 in and also satisfy the PD end.

Anyone who had the partial PD credits primarily from the '00 conversion can use them to complete PD and then use it for the conversion going into the new exam process. You get credit for some of the pre-'00 exams that may have been unassigned PD credit, which could be used to complete some of the validation by education subjects.

**FROM THE FLOOR:** What is the Capstone seminar?

**MR. YAMAMOTO:** I don't have any clue what the Capstone seminar is. Does anyone have a clue what the Capstone seminar is? Judy.

**FROM THE FLOOR:** After finishing your FSA it's a bit redundant, but the Capstone seminar is meant to bring everything back to the control cycle.

**MR. YAMAMOTO:** I think a coming debate may be whether to combine the Capstone and seminar with the FAC primarily because it's more efficient, but employers are giving us feedback that they're having a hard enough time sending people to continuing education meetings such as where we are at today let alone sending people off to satisfy their basic education in two different seminars. I think that would make a lot of sense. In fact, we've shortened the FAC, so I think it means we would lengthen it to include the Capstone seminar.

Don't complicate things. We used to have an FAC by practice area, too. Several design teams have been appointed to move this process forward. The preliminary education team is almost done with exams. Judy said they are done. As far as validation by educational experience goes, there is a draft that's been put together by Stuart Klugman, as I understand it, and there's a working group putting that together. There is a draft of that. It hasn't been reviewed by the Board yet, but a lot of people are looking at that right now. We recognize that we need to get that out as soon as possible because universities with actuarial science programs need to have what valuation by educational experience means.

There's been a lot of progress already made for everything. Bruce had already mentioned that the CAS has decided to offer optional exams so that you can satisfy the three subject areas in the validation by experience area. We plan to support as much as we can the efforts of the CAS to have them meet these exams, and if students take them, we'll give them SOA credits for the validation by experience.

The FAP course team has put together a prototype module, and a second one is almost done. We're well on our way to putting together the concept of modules and how they're going to work.

Regarding design teams, Al Ford is working diligently at this moment for each of the different Fellowship tracks to refine what the learning objectives are. The learning objectives are well-laid out by the redesign team already. Al's team is putting extra refinements on them to get down to the next level of detail on the learning objectives. I think that looking at what's out there right now can give you a good understanding of what a student needs to do to satisfy each one of the two exams.

We still need to figure out how the EA exams match into the FSA exams. You need to recognize the fact that the Joint Board for the Enrollment of Actuaries is not going away, and we'll have to fit it into our exam syllabus.

If you have any comments, you can use the Web site. As our president said at the beginning of this meeting, we have a redesign of the Web site. You can write an e-mail directly to that address if you have any questions.

**FROM THE FLOOR:** I want to ask you about an earlier question about Course 8 being worth more than Course 5 in the transition rule. You might have a 60 percent chance of passing Course 5 and a 30 percent chance of passing Course 8. Course 8 is worth more, but you have only half of the probability of getting it. Make your own decision. The student has to decide for himself whether he wants to go for it, even though he has a low probability of obtaining it. You made an accurate observation that Course 8 is worth more than Course 5 in terms of the transition.

**MR. YAMAMOTO:** I've been asked to describe what the two Fellowship exams are going to be. When you think about the different practice areas and the work that we do, what are the effects on the insurance company side, the employer side or the plan sponsor side of all the work that we do? Some of the pieces that are going to fall into it would be the finance issues, the tax issues of that company, the plan that it support whether it's the products it's selling or the benefits that it's sponsoring. I was trying to get at some of those issues other than the pricing of the plan, the product, or the design of them.

**FROM THE FLOOR:** It's still not clear to me whether it's possible to fail a module.

**MR. YAMAMOTO:** Yes, you can fail the module in a couple of ways. You can

voluntarily say you don't know the material and have to go back and retake the material. You can get through three of them. I mentioned that we're probably going to be auditing some of the exercises that come through, so you may have someone come back to you saying, "Based on the answers to the exercises that you gave, we don't think you have knowledge of the material." That's before you get to the exams, and then you have those two exams that you're taking.

The auditing of the exercises is going to be much like the auditing right now of the PD submissions. Some are thoroughly read and reviewed, and some just go through a process to make sure everything was turned in.

**FROM THE FLOOR:** What you've said is not consistent with what she said earlier that, with the exercises at the end of the FSA module, you're talking about random auditing. If I heard correctly, she was saying that they'll be sent in and graded, and you need a pool of graders.

**MR. YAMAMOTO:** My answer was for what the plans are for the FAP. Judy was addressing the FSA modules. Now we have gone through the process to say the exercises in the FAP modules will be randomly audited. The exams will be graded. The FSA modules are still being developed.

**FROM THE FLOOR:** It's likely they'll be randomly audited.

**MR. YAMAMOTO:** Yes. It's one of those details that hasn't been decided. You're catching us in something that's going to happen two or three years from now in '07. Things could change. We're giving answers right now that may well change by '07.

**FROM THE FLOOR:** We can start randomly auditing and decide that's not good enough so we'll look at them all, or we can go the other direction.

**MR. YAMAMOTO:** In the beginning of the PD project everyone of them was being reviewed, but it was such a stretch on the volunteer and staff time. A lot of staff time was going to the PD review process, so we made the administrative decision to randomly review them.

**FROM THE FLOOR:** In the preliminary section where you're giving credit for college courses, that is definite. What is not definite is how that credit will be used?

**MR. YAMAMOTO:** As far as the validation by educational experience, it's almost definite that those three subjects are part of the validation by educational experience.

**FROM THE FLOOR:** Inaudible no microphone.

**MR. YAMAMOTO:** No, it's definite. It's not going to be examined. One step that's definite is when you take a college course that's equivalent to the topic material

that we said you have to learn for those courses. We have some alternative ways to satisfy that validation by experience. We're listening to what Louis was saying, which is that there are circumstances, for example someone going to Laval University or Waterloo, that require us to take a close look at the course material and the grading of the topics and talk to the professors at the universities.

**FROM THE FLOOR:** We have good universities in Mexico, as well, and actuarial programs.

**MR. YAMAMOTO:** That's how the Mexican actuaries get their basic education — through Mexican universities.

**FROM THE FLOOR:** Are we going to be addressing their needs as well in '05?

**MR. YAMAMOTO:** I think we need to.

We're not going to shut the door on students who did not get a B- at Laval University because we have our out by saying we're going to investigate any alternative means of meeting this education by experience. I think we need to continue our discussions.

**FROM THE FLOOR:** How would people feel if we simply dropped the B- and said if you received a passing score, you're done? We have 20 people in the room. What do you think?

**FROM THE FLOOR:** Ask for what? A D or better?

**FROM THE FLOOR:** I think you have to restrict that to certain colleges.

**FROM THE FLOOR:** No, you can't do that. That's going to be too hard for the SOA to start evaluating colleges and course material.

**FROM THE FLOOR:** You cannot start rating colleges and determine which colleges have better courses than other ones.

**FROM THE FLOOR:** That's what I think, too.

Chart 1

## Introduction – Past E&E Systems

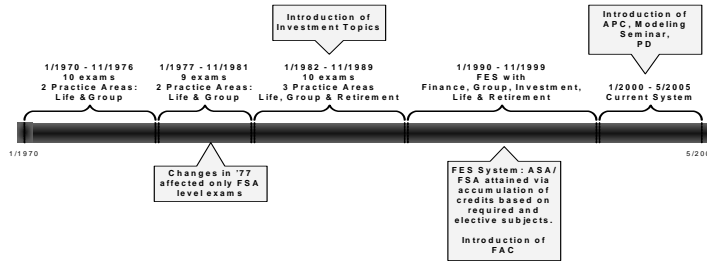


Chart 2

## Control Cycle

Actuarial Control Cycle

