

5. Case Study of Surveyed Lessons

5.1. Clear Objectives and Target Oriented Programs

A program going well with one group does not always go well with another group. The findings of case studies suggest that we should consider more carefully the objectives of education program when we design the curriculum: The program will not be same when the objective is to raise general awareness with to master a special skill to participation in a ISO meeting; The length or depth of a program will be different whether it is targeted for secondary school students or for MBA/MOT students.

➤ Target Groups:

- Formal Education vs. Professional Education
- Primary/Secondary vs. Undergraduate vs. Graduate
- Engineering vs. Social Science (Higher Education)
- Biz Executives vs. Engineers/Researchers vs. Gov. Officials vs. NSB staff

➤ Objectives and Program:

- General Awareness vs. Special Expertise
- Teach what to know vs. Teach what to do
- One day vs. Two days Vs. A week; One semester vs. Two semesters
- Elective vs. Required(Compulsive)

→ Lessons Learned ←

Understand Different needs by Target Groups. We should understand that the interest and attitude are different from target groups (Primary/Secondary vs. Univ vs. Biz vs. Gov). Accordingly, we should consider seriously the difference in planning and implementing education program about appropriate hours, level of details, objective, curriculum, textbook, teaching Methods.

- Annex.E.16 (APEC – SCSC PAGE recommendations - Lesson #2)

ULU has found through its experiences educating individuals overseas that transposing programs, content and teaching methods utilized in the United States in some international situations does not always yield the same positive results. Programs need to be tailored to the audiences involved, particularly with respect to cultural differences..

- Annex.E.16 (USA – UL University - Lesson #2)

The content of the subject needs to be changed in order to make it easier to understand and more useful in the Sri Lankan context.

- Annex.E.7 (Sri Lanka – University of Moratuwa)

When teachers lecture technical college students, they should take into account the students' special knowledge.

- Annex.E.1 (Japan – METI)

Have clear objectives. With unclear objectives, education program might go different ways. If the objectives are mixed with “exposing students to standard itself” and “train students for making specialists”, the curriculum would be messed up as well as students get confused. Have clear objectives, then it would be much easier to make further plans..

- Annex.E.5 (Korea - KSA – UEPS Program – Lesson #2)

5.2. Make Teaching Materials Sexy

Probably it is not happy, but you will agree that at first glance 'standards and conformance' are not charming or attractive topics for most of the students. The question of 'how can we make it more attractive before and during the education classes' is fundamental and long term task to solve.

At this stage, it is general but natural that the initial target to make a course more attractive is to make textbook and relevant teaching materials interesting. There are some lessons learned from experiences from worldwide described below.

- Basic considerations to make it fun, sexy, interesting, or attractive
 - Simple, easy and colorful presentations
 - Images/posters/photos
 - Stories, exercises, experiments
 - Multimedia tools – audio or video clips, movies

→ Lessons Learned ←
<p>Most difficult is to attract students. At first glance the topic seems to be dull. Once students get acquainted with standardization and understand its importance they become enthusiastic. I have no real solution yet to solve this problem.</p> <p>- Annex.E.6 (Netherland – Erasmus University)</p> <p>Definitions, concepts, examples, exercises, experiments, materials, stories, photographs, and images were used for the students to understand easily.</p> <p>- Annex.E.2 (Philippines – BPS in DTI)</p> <p>Students are MTV generation. They are accustomed to visualized education materials. Also, for teaching materials, visualized education materials such as case pictures, colorful PPT slides, and moving pictures are very effective.</p> <p>- Annex.E.5 (Korea - KSA – UEPS Program – Lesson #4)</p> <p>Choice of colours for presentation – not text heavy and legible. an improve sessions through posters, display tables, video presentations etc. during breaks.</p> <p>- Annex.E.9 (Malaysia –Association of Standards Users – Methods, Materials)</p> <p>Make textbook and teaching materials interesting. Do not teach what you know well (e.g. ISO process), but what the students could be interested/excited.</p> <p>- Annex.E.16 (APEC – SCSC PAGE recommendations - Lesson #3)</p> <p>The ICES 2007 Workshop participants expressed sympathy that the content itself and the presenting way of content be FUN and SEXY in any classes of education on standardization.</p> <p>- Annex.E.19 (ICES – 2nd Workshop)</p>

5.3. Preferred are ‘Daily Life Examples or Case Studies’

It is revealed that one good way to make the program more attractive is providing examples in daily lives or working with case studies. Standards in daily lives and its significance could be used for all levels of target groups; while case studies will be used in mainly higher education or professional education as it normally requires theory-based analysis.

- Standards in daily life:
 - Example standards used in daily lives such as A4, MP3, Container, et al
 - Keep balance between practical examples and theoretical lecture
 - Provide trainer’s own experience
- Case studies, and case studies:
 - Case studies proving the significance of standards, preferably in monetary value, in trade, regulations and businesses.

→ Lessons Learned ←

Participants found that they learnt most from practical exercises than from the theoretical presentations given and requested more practical exercises be given.

Using examples from the trainers own experience was received well by participants
- Annex.E.11 (Australia – Standards Australia Training – paragraph #1, #2)

When the course is theoretical it is not well received- the students want examples of the real life.

- Annex.E.4 (France – ZFIB)

Actual sample of commodities/products are effective to attract students.

- Annex.E.1 (Japan - METI)

Feature actual case studies of how companies have benefited from the use of standards;
Feature benefits in terms of monetary value, such as cost savings, revenue etc.

- Annex.E.13 (Singapore – SPRING)

Some participants find very useful about ‘standards in daily lives’

- Annex.E.9 (Malaysia –Association of Standards Users – from comments)

Business cases are essential, mainly when built and developed by the students

- Annex.E.4 (France – ZFIB)

Participants prefer to learn through ‘Case studies’ than mere theory only.

- Annex.E.7 (Sri Lanka – University of Moratuwa)

It is clear that ‘CASE STUDIES’ are one of the most useful and attractive tools to deal with standardization issues. A Good case study could be highlighted with various important aspects of standardization, such as economics, business management tool, patent, de jure vs. de facto, et al. One good example case discussed in the workshop was RAMBUS among others.

- Annex.E.19 (ICES – 2nd Workshop)

5.4. Exciting is 'Learning by Doing'

Learning by doing, or hands-on learning called by education experts, is to help students to acquire knowledge and skills outside of lectures, for example in group activities, role plays or simulation practices.

Hands-on learning needs relatively experienced teachers both in theory and field experiences. Skillful teacher will be able to ensure student understand unfamiliar concepts, processes or skills. The merit of learning-by-doing is that most students are enthusiastic in the process. It could be also used as a tool to assess students how much they understand what they learned in class:

- Learning by doing – Contest
- Learning by doing – Group activities:
 - Group brainstorming, discussion, debate
 - Group Problem-solving for standardization
 - Peer teaching
- Learning by doing – Simulations/role-playing:
 - Role playing: proponent, supporter, moderator, opponent
 - Simulating standardization meeting (chair, secretariat, delegates)

→ Lessons Learned ←

Participants in the training learnt a great deal from experiencing 'Standardization in action' for example attending committee meetings and participating in planning exercises etc.

- Annex.E.11 (Australia – Standards Australia Training)

A simulation tool to simulate the debates and have the consensus issue well understood should be a good idea.

- Annex.E.4 (France – ZFIB)

Quiz and group works are effective to attract students.

- Annex.E.1 (Japan - METI)

Students have found the teaching method (product/painting contests) fairly successful.

- Annex.E.3 (Thailand - TISI)

The session most participants find very useful are:

- Games, Slides and group activities

- Annex.E.9 (Malaysia –Association of Standards Users – from comments)

Also, a SIMULATION EXERCISE is pointed out to be a cheerful mechanism. A memorable case is the program developed by ISO. ISO has developed an e-learning course which uses a teaching case, a simulation, for educating experts participating in ISO standards development process. The participants of this course takes play the role of national delegates of a imaginary country "Southistan" and simulates the standardization meeting. This kind of mock meeting of standardization, would also be useful for university students.

- Annex.E.19 (ICES – 2nd Workshop)

5.5. As is the Good Teacher, So Will the Students Be

As is the master, so will his men be. As is the good teacher, so will her/his students be.

Training of teacher (TOT) is a long-established dimension for successful education program. This is re-affirmed by lessons learned from practices in survey and research. Also, guest speaker or team teaching methods is suggested in some of the lessons. One reason is that standards and conformance issues are too broad to be covered by one teacher, and another reason is that invited speakers from businesses, governments or standards organizations could handle more examples or experiences which are attractive to students. However, possible disadvantage of invited speakers is lacking in teaching experience and that of team teaching is inconsistency or duplication in a class.

- Train teachers: Training about standards and conformance; about teaching skills
- Network teachers: To exchange information and experience among teachers
- Guest speakers/ Team teaching: Speakers from various sectors including businesses,

→ Lessons Learned ←

We realize that school teachers have vital roles to educate the importance of standardization to our youth so that they are able to apply what they have learnt to their occupation and their daily lives.

- Annex.E.3 (Thailand – TISI)

Teaching experiences and skills are not in proportion to knowledge. Some standards experts, even professors who are very well-known as standards experts don't have a good evaluation from students. Also teachers (professors) need to learn standards continuously because standardization covers a wide range of topics. Therefore, Korea provides teachers standardization course and workshops (seminars) regularly to teach the teachers and help them communicate each other.

- Annex.E.5 (Korea - KSA – UEPS Program – Lesson #6)

We should recognize the importance and necessity of training the teachers. We should facilitate networking of teachers with website or forum to exchange teaching materials, viewpoints and test methods

- Annex.E.16 (APEC – SCSC PAGE recommendations - Lesson #4)

TEAM TEACHING METHODS, particularly inviting business experts or executives as speaker, make courses more energetic and cheerful. However, a possible disadvantage of invited speakers tends to lack of teaching experience.

- Annex.E.19 (ICES – 2nd Workshop)

One person conducted most sessions and it would be useful to have a second person lead a few sessions. (It becomes very boring for the trainee when the same person is leading the sessions all the time, however it does provide consistency.)

- Annex.E11 (Australia – Standards Australia Training)

Students love field experts' lectures because they give students their experiences and know-how. So team-teaching methods that consist of standards experts from various fields make class more fun and energetic.

- Annex.E.5 (Korea – KSA – UEPS Program – Lesson #4)

5.6. Leadership and Collaboration needed

How and who start the education activity? The survey reveals that strong leadership by government or standards organization will be the answer to initiate nation-wide education activities. The <Table 6> shows selected good examples of leadership or collaboration by governments or standards organizations in Korea (KSA), Philippines (BPS), Thailand (TISI) and Turkey (TSE).

- Communication with education ministry: It is indispensable to cooperate with education ministry in deploying programs for primary/secondary education; government ministries are best-positioned to communicate with education ministry than any other private organizations.
- Funding/Sponsoring: Government or standards organizations are the first body who could allocate budget formal education about standards and conformance.

< Table 6 > Selected Practices in Leadership/Collaboration

No	Target groups	Economy Org.	Operator (website)	Title
4	F2) Secondary	Philippines	BPS	Standards Blitz – Standards in the Curricula of Secondary and Alternative Learning Education
6	F2) Secondary (including teachers)	Thailand	TISI	The Project on Integrating Standardization in Education
7	F2) Secondary	Turkey	TSE	Standardization and Quality
27	F3) Undergraduate	Korea	KSA	Korea's University Education Program on Standardization (UEPS)

→ Lessons Learned ←

Standards related organization like a case of Korea, is the best suitable for organizing such education program.

- Annex.E.5 (Korea - KSA – UEPS Program – Lesson #1)

Make consensus of education on standardization among industry, academia, government and standards related organizations. Like a case of Korea, from the very beginning, make consensus of education on standardization by getting financial support from government, by gathering participating universities and by obtaining participating lecturers from industries.

- Annex.E.5 (Korea - KSA – UEPS Program – Lesson #3)

The modules and lesson plans on standards that were prepared by the BPS in cooperation with the Department of Education were designed to be easy to read, situational and interactive.

- Annex.E.2 (Philippines – BPS in DTI)

5.7. Other Notable Lessons

We list some lessons are listed herein not because they are less important, but they are difficult to be labeled with others.

- Regular report about operation and regular contents update are necessary
- Best method in promotion is 'use the word of mouth' by participated students
- Easier access to selected standards could be an excellent teaching tool
- Use website as a databank and a forum among lectures and students
- Make the programs mandatory
- Give training certificate the those who stayed until the last session

→ Lessons Learned ←

Progress and problems should be reported regularly; Learning centres should be established to update the knowledge and information on standardization

- Annex.E.3. (Thailand – TISI)

What I would like to see done differently is easier access to selected standards so that students could actually visit sites and study standards that applied to any design(s) they were completing for assignments. So far, this has not been accomplished but I think it would be an excellent teaching tool and would introduce students at an early level to the importance of standards.

- Annex.E.8 (USA - Faulkner University)

In order to impress upon the participants that the sessions are very important and that they should complete the whole day session, certificate of attendance was only awarded to those who stay on till the last session of the training.

- Annex.E.9 (Malaysia – Association of Standards Users)

Use website as a databank and a forum where students and lecturers can exchange opinions. This can be not only a place where lecture materials can be uploaded and downloaded but also a space where lecturers share lecture materials and related materials as well as communicate with students and lecturers. Students love.

- Annex.E.5. (Korea – KSA – UEPS – Lesson #5)

Make the program mandatory. In Korea, some universities are running the program as a mandatory for engineering students or a ABEEK (Accreditation Board for Engineering Education of Korea) certified program.

- Annex.E.5. (Korea – KSA – UEPS – Lesson #7)

One of the best methods in promotion is to use the word of mouth among students. To give students who achieve more than a B+ grade a certificate is the one carrot approach.

The feedback from the students is a sound basis for analyzing and upgrading the program. Based on the results of the survey, curriculums and lecturers can be rearranged.

Even though the contents of the program are good, if students don't give a good evaluation, it would be easy to cancel the class.

- Annex.E.5. (Korea – KSA – UEPS – Lesson #8)