

Survey on Utilization Status of SCORM Specification in Japanese e-Learning Industry

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Abstract: We present the result of a questionnaire survey concerning the dissemination status of SCORM specification in Japanese e-learning industry. The survey targets are employees of e-learning vendor companies and e-learning users. The focus is the type of e-learning content, authoring tools, and LMSs. The survey results indicate that the SCORM specification provides benefits as a result of the ‘bandwagon effect’.

Keywords: e-learning standardization, SCORM, dissemination of standard technology

1. Introduction

Fallon and Brown (2003) have described how e-Learning standards have become an indispensable component in implementing and operating e-learning activities in the academic and industry sector. These standards are also important to enhance e-learning business because they facilitate novel value-added products which can help companies get into the market (Nakabayashi, 2004). Among various e-Learning standards, the SCORM specification (Advanced Distributed Learning, 2006) may be the most widely accepted one. The e-Learning Consortium Japan (eLC) has promoted SCORM in the Japanese market (Nakabayashi, 2007).

This paper describes the survey results regarding the dissemination and utilization status of the SCORM specification in the Japanese e-learning industry. The focus is how this specification can be best used to activate the e-learning industry. The survey results indicate that SCORM specification brings some benefits to the industry by fostering an introduction of new tools and content as well as the creation of value as a result of the ‘bandwagon effect’.

2. Outline of Survey

The eLC asked its member companies’ employees, participants at exhibitions related to e-learning, and subscribers of an eLC mail magazine to answer a web-based questionnaire survey. There were 73 respondents including not only LMS engineers and content designers but also marketing staff in e-learning vendor companies and management responsible for e-learning operations in e-learning user companies. In the following sections, results will be shown for 45 respondents who are actually using the SCORM specification in some way.

3. Results

a. Amount of Created Content

The number of items of SCORM content created by the respondents’ organization is shown in Table 1. It is categorized by content types. Here, ‘ready-made’ means the content created to be sold for multiple users; ‘custom-made’ means the content created in accordance with the order from a certain customer; ‘in-house’ means the content created for the organizations own use. There is a tendency for the amount of custom-made content is greater than that of ready-made content. One third of the respondent answered that their organization creates more than 50 SCORM content. Some respondents stated ‘My company creates more than 1000 custom-made content’ or ‘More than 100 custom-made content per year’. Concerning in-house content, there were respondents who created a few hundred SCORM

contents. This means that SCORM specification is widely accepted as a basic infrastructure in Japanese e-learning industry.

Table 1: Number of created SCORM content (n=45)

# of Content Content Type	0	~5	~10	~20	~50	51~	N.A.
Ready-made	14	2	4	0	5	12	8
Custom-made	7	3	3	4	6	14	8
In-house	14	7	3	1	4	9	7

b. Type of Authoring Tool and LMS

The type of authoring tool and LMS used for SCORM content operation are shown in Table 2 and 3. A variety of tools and LMSs with SCORM specification is used in practice. This indicates that the SCORM specification is implemented in the various e-learning products in Japan. The number of LMS types used by respondent is shown in Table 4; 17 respondents used only one type of LMS, but two used 6 to 9 types and other two used more than 10 types. This means that SCORM specification make it possible for e-learning engineers to efficiently use numerous LMSs.

Table 2: Type of SCORM authoring tools
(n = 45, multiple answer)

Only for SCORM (Commercial product)	21
Only for SCORM (Free software)	8
Equipped with LMS	14
General purpose tool (e.g. Flash)	31
In-house (e.g., Converter, Template)	22
N.A.	2

Table 3: Type of SCORM LMS
(n = 45, multiple answer)

Commercial/Japanese	30
Commercial/Overseas	17
Open source/Japanese	12
Open source/Overseas	17
In-house	9
ASP	12
N.A.	2

Table 4: Number of LMS types used by respondent (n = 45)

# of LMS Types	1	2~3	4~5	6~9	10~	N.A.
# of Respondent	17	17	5	2	2	2

c. Type of Content and Medium

Created content types and medium types used are shown in Table 2 and 3, and indicate that the users create various types of content by using various media. This implies that the SCORM specification can be adapted for a variety of user requirements: from simple lecture type content using Power Point to complicated simulation type content using Flash animation.

Table 5: Type of created content
(n = 45, multiple answers)

Mainly Lecture	29
Mainly Exercise	20
Mixture of Lecture and Exercise	32
Simulation	16

Table 6: Type of medium used for content
(n = 45, multiple answers)

Power Point	30
Video	17
HTML (Text and Figure)	12
Animation (e.g., Flash)	17
Other	9

d. Intention and Effect of introducing SCORM

The users' intention before introducing SCORM products and the achieved effect after its introduction is shown in Table 7. The most common reason was the 'requirement of customer' then 'compliant LMS was already introduced'. The next common reason was 'reliability of standard' and 'content reusability'. Both are technical reasons. The fact that the value is stable before and after implementation means the SCORM specification works in a practical environment and fulfills users' expectations.

Table 7: Intention and Effect of introducing SCORM (n = 45, four-point Likert scale)

Intention and Effect	Before introduction		After introduction	
	Av.	S.D.	Av.	S.D.
Requirement of customer	3.21	1.01	3.16	0.81
SCORM-compliant LMS introduced	3.07	1.01	—	—
Reliability of standard	3.02	0.73	3.02	0.70
Content reusability	2.84	0.82	2.78	0.82
Content development efficiency	2.62	0.86	2.64	0.82
Standardization of development process	2.57	0.70	2.57	0.70
Variety of compliant product	2.47	0.83	2.64	0.78
Variety of technical information	2.09	0.71	2.26	0.69
Outsource content development	2.14	0.93	2.33	0.85
Recommended by vendor	1.71	0.87	—	—

4. Discussion and Conclusion

One of the most important effects of standardization is not to introduce new technology but to construct a common framework for ‘modules’ working on it (Baldwin and Clark, 2000). Each module can be operated with others through the standardized interface, but it can improve its performance and value independently from other modules. It is shown that the SCORM specification has such a characteristic. In fact, as described in 3.2 and 3.3, various tools and LMSs are practically used and a variety of types of content are created with diverse media. With the SCORM specification as a common technical framework, not only commercial systems and content but in-house tools are easily introduced to meet users’ requirement.

Another interesting issue observed in this survey is network externality or the “bandwagon effect” (Rohlf, 2001). This effect is a phenomenon in which the value of the product is determined not by its own performance or quality but by the number of parties using the same type of product. It is shown in 3.4 that users use the specification since ‘the customer requires it’ or ‘LMS is already compliant with SCORM’. This implies that there is a network of SCORM products that exists between the vendor and client which work as a ‘bandwagon’. This effect can be also seen in the observation in 3.1 which shows that lots of custom-made and in-house content are created with the specification. These types of content were not necessarily created with SCORM since they are not intended to be distributed. Nevertheless, as they were built with SCORM, it brings some benefits as a result of the bandwagon effect.

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