

# Jump start of knowledge management and e-learning system using multimedia contents

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**Abstract:** The importance of a knowledge management attracts attention in recent years, and many researches have been done. At present, in the consulting group to which I belong, the consultants are working in the mesh type formation which consist consultant of two axes of a type of industry and competency. Various type-of-industry expertise and consulting methodologies are accumulated with an individual and the group member, it ripens, and the actual condition goes. Consequently, achievements presentation, a study meeting, community activity, etc. planned various types of events to share the know-how and expertise. Furthermore, the structure of knowledge management is improved and positive practical use is promoted. However, the present outputs are a text and data (PowerPoint, PDF, etc.). Therefore, I would like to present the approach of knowledge management and e-learning system using multimedia contents. And this approach is started since last year. In addition, in this experiments, practical use of the high productivity multimedia-contents creation tool "LiveCreator4" developed by Rail Corporation is tried.

## 1 Introduction

In this approach, "media mix knowledge" was called, images, such as achievements presentation and a study meeting, were formed into Web contents, and it tried sharing in our group. This approach is regarded as communalization (acquisition of tacit knowledge) of knowledge, and the grope to the production of structure of effective consulting training. Furthermore, this approach is the approach to "visualization for human being" which man's activity is made to be seen as anyone can see.

In order to increase the opportunity of communalization of knowledge, positive holding of achievements presentation, a study meeting, a school, etc. is promoted by the knowledge team. However, it is about only 20-30 people at once. Then,

it was required to offer the place of the information sharing for rest of 200people.

Thus, we formed a presenter's presentation into Web contents, and tried construction of the structure "media mix knowledge" for realizing information sharing and consultant training. We use LiveCreator4 for contents development.

The first challenging in "media mix knowledge" development was how to create the contents with short term and low cost. In this measure, it groped for the procedure of contents creation, several sorts of templates were created, and the effect was verified.

Next, the second challenging was how to product of structure for opening these contents to this group member by Web, and doing dispatch and sharing of know-how, expertise, and information. In this process, the security level was set up and it became a subject how the member who can peruse is filtered.

Now, although it is the effect expected to "media mix knowledge", it is offer of the learning environment for consultant training including a newcomer the first. We are promoting image contents-ization of the school and study meeting at which a professional consultant takes charge of a lecturer including an external lecturer, and when required, we are concentrating on substantial contents immediately for the purpose of construction of the environment which can be learned by this "media mix knowledge."

Also, in this system, as explained earlier, library-ization of image contents, such as a result exhibition and a case exhibition, is also promoted, and the consulting case which matched the contents currently learned can be perused timely. Furthermore, if required, it will also be possible from image contents to contact directly the consultant who is telling hotly, and promotion of the further understanding and sharing of know-how will be realized.

Thus, when the advanced case is being accumulated as image contents, in a mere study system, there is not only structure of this "media mix knowledge", but also develop

into an educational course and the structure of the knowledge management which can perform the link of the newest case dynamically.

Next, the second expected effect is support to organization administration. In consulting group, there are many turn over of members. It is necessary to have orientation to introduce office rules and procedures to new comers. In the past, business support group held face-to-face orientation to notify office rules and policies to these people. But this approach needs lots of time and energies. Then, we made this orientation to image contents and made it accessible to improve efficiency. This approach is activity aiming at the improvement in high reliability of day-to-day operation the increase in efficiency of organization administration.

Finally, the third expected effect is increasing individual skill and improvement in quality of information and knowledge.

- The contents of the achievements presentation are formed into image contents.
- The image of a lecture is exhibited by Web.

These facts bring at implicit pressure a result which requires fullness and the improvement in quality of the contents of an announcement, and improvement in presentation technology to a presenter and a lecturer.

Here, an important thing is to take a image of his presentation again at once and to provide the service made contents when the person in question to whom the image is open to the public hopes. As a result, offer of this service accelerates cycle of continuous skill improvement and quality assurance.

## 2 Importance and effect of the experiment in each step

The 1st step : "decision of methodology"

The freshness of information and know-how are important, and when creating the short contents of pull-date, it is important to create contents at short period and low cost.

Therefore, we groped for the methodology which creates and distributes contents as promptly as possible.

The 2nd step : "making of Web contents"

As a contents creation tool, it is LiveCreator 4.

The result was satisfactory thing which goes, even though some subjects including user-friendliness occurred.

In the fact, if contents creator spend 1-3 hours, 1 hour movie can be done with very high quality.

And if the template developed this time is utilized when creating the contents on condition of learning while a student takes the synchronization of an image and PowerPoint data manually, image contents can be created in about only 10 minutes.

The 3rd step : "Web system configuration"

We utilized "shared web service" in intranet for "media mix knowledge" system.

Next, in order to an understand deeply of an educational course and the know-how to which the advanced case was made to link dynamically and which plots, that is, is learned in the process of study, the newest example registered by the result exhibition etc. was made to peruse, and the structure which raises the study effect was examined.

## 3 Outline of Experiment

The 1st step : "decision of methodology"

The general streamline of image contents creation and registration is as follows:

- (1)Photography
- (2)Encoding
- (3)Authoring
- (4)Registration of the image contents to a Web system

Moreover, as a premise, the theme of this experiment is devising work at a short period of time and low cost.

From such a background, first, the commercial micro DV camera was used for the camera. And to use it on the desk, we chose a small tripod

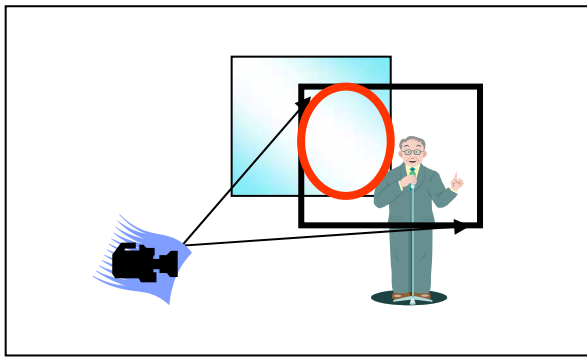
Next, the software to convert it into the form (WM9 form this time) to be able to treat the form of the image with the personal computer used Windows Movie Maker. This is software of the Windows XP standard equipment.

Furthermore, photography and encoding were simultaneously performed by taking a photograph, where a personal computer is connected with a DV camera at the time of photography of an exhibition etc. As a result, when presentation is ended, the image collected to the tape and the image data of the WM9 form are made at the same time.

The point in this photography phase is performing photography in consideration of authoring which is the following phase.

That is, the main composition element of image contents is a lecturer's image and presentation data (PowerPoint). In general, one takes a picture of lecturer's action and expression in detail by using two cameras when taking a picture. And the whole lecture scenery is taken with one more camera, and it is the following authoring process and considers as the ground for taking a lecturer's image and the synchronization of PowerPoint.

However, being conscious of low cost, as shown in Fig. 1, it is one camera, and a photograph was comparatively taken from the short distance this time.



**Fig. 1 . Taking a picture angle that values voice**

It is a point to carry out positioning so that about [of the PowerPoint image projected behind a lecturer's image] 1/3 may always be reflected at this time.

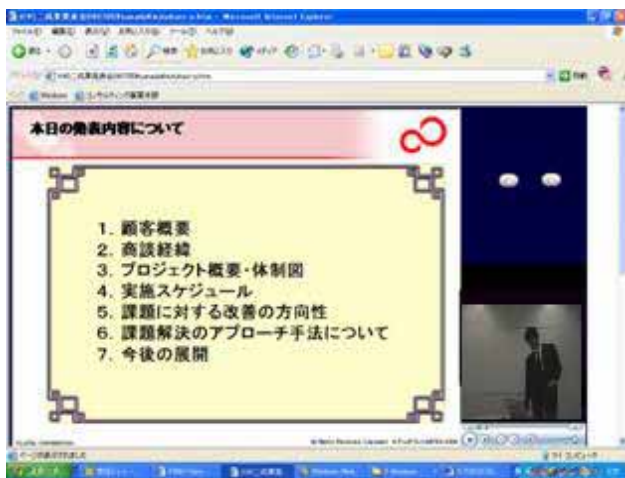
And a lecturer's image and the synchronization of PowerPoint data are taken for the image of PowerPoint recorded behind this lecturer to a hint by the following authoring phase.

The 2nd step: "making of Web contents"

Although it was authoring that combines the image and PowerPoint data. LiveCreator 4 was used as previously mentioned this time as an authoring tool.

This software provides various functions. However this time, we did to make the image contents of the presentation type simply and quickly, and developed two kinds of templates.

The first template is "PowerPoint initiate template" shown in Figure 2. This template is effective in the formation of image contents of the presentation which uses PowerPoint which described comparatively fine information and is developed focusing on explanation of the contents.



**Fig. 2 . PowerPoint initiate template**

The composition of this template consists of two, the object for images, and the object for a data display, greatly. And, it is

a simple composition only to insert two objects of "Sending button" and "Return button" to operate the PowerPoint data. Here, by what operation, an image and PowerPoint are taken in and easy explanation of the image of whether to take a synchronization is given.

First, the image has set the object window of WM9 form as the portion of the image at the lower right of Fig. 2. A mouse is set by the portion, a right click is carried out, property is chosen, and taking in of an image is completed by the easy operation said that it is to choose the image file name which you wanted to display.

Next, it is import of PowerPoint. When the mouse is matched to the object window at the left of the template shown in Figure 2, the PPT import is selected from the property of right-clicking, and the file name is specified, HTML is converted into PowerPoint.

It is total to this operation and it does not take 10 minutes.

In a word, after taking a picture (encode) ends, the image contents will be completed in only ten minutes when assuming that the learner operates "Following" button and "Return" button without taking the synchronization of the image and PowerPoint.

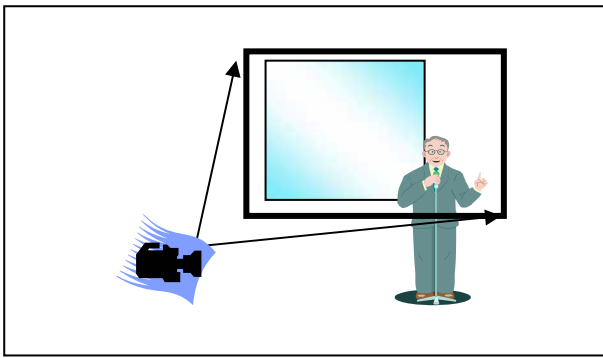
However, it is LiveCreator 4 after image taking in of the above when you want to take an image synchronization, to be automatic and to move PowerPoint data, and about its image. It is necessary to add a mark and to go by making into a ground the image of 1/3 previously stated to the change of PowerPoint data, reproducing. Furthermore, the inserted mark and the work which performs correlation of PowerPoint data occur.

That is, in creating automatic synchronous image contents, it needs about 1 hour. Moreover, when performing fine compensation of adjustment of the animation effect of PowerPoint etc., it may be needed for about 3 hours.

When using the "PowerPoint initiate template" explained above, fine data are displayed in many cases and it is made an automatic synchronous type in many cases as a result.

It introduces "Presentation initiate template" as the second template. This is effective to the image contents making about the course on which lecturer's action has effectively acted.

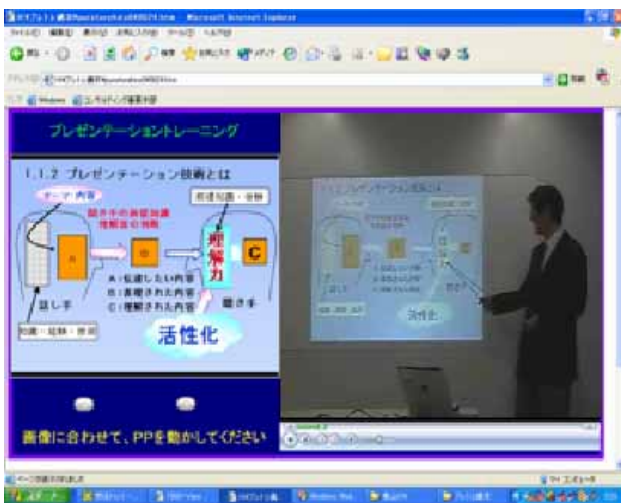
The photography in this case devises an angle with which all the projected PowerPoint data is reflected with a lecturer, as shown in Fig. 3. And the "Presentation initiate template", shown in Fig. 4 is utilized.



**Fig. 3 . Taking a picture angle that values presentation**

These image contents contents-ize the school of "a presentation training to which I am taking charge of a lecturer. I have 24 years of lecturer experience, and I think that the most important point is control of a participant's look for a lecturer from the experience.

The lecturer develops the lecture while controlling whether to make the participant see lecturer's face or to make projected PowerPoint seen or to make material on the desk seen to put it briefly. The control of this line of sight is an important point that controls the education effect.



**Fig. 4 . Presentation initiate template**

That is, this template usually projected a lecturer's figure and the image of PowerPoint data on the big area of a right half, was guided to a lecturer's art of conversation, and the gesture, only when a participant wanted to check the fine portion which deepens an understanding and cannot distinguish with an image, operated left-hand side PowerPoint and assumed the study style referred to as checking the contents.

At this time, as shown in Fig. 4 and the lower left, it writes "please move PP according to a image" clearly, and specifies that a student needs to operate it manually.

Pushing a "next" button, this will require action referred to as that the student itself has to take the synchronization with an image and PowerPoint, and thinks that there is an effect to

which the positive participation to study is urged.

Next, LiveCreatorV4 can display the controller of WM9.

The learner came to be able to study only a necessary part by using fast-forwarding and the rewinding function by this function.

It introduced two templates above. It will be thought that making the image contents that more and more do high performance, and the learning effect is high became possible by maintaining the template that added a more necessary function in the future.

The 3rd step : "Web system configuration"

Although it was the production of structure of Web for exhibiting the created contents at the end, the structure of the "shared web service" which can be used in the company was utilized this time.

Although this structure was very convenient, the structure which restricts a user was not offered on the character. Then, the local attestation function was added, the user was restricted and public presentation of "image knowledge" was enabled.

However, how is the following important themes achieved, and still trying and erring is a current state.

- An educational course and a case are made to link dynamically.
- Growth of an individual is traced by "image knowledge".
- Comparison study of the same theme is carried out by explanation of two or more lecturers.

#### 4 Conclusion

Outcome of this experiment are the following 8 points.

- (1) Sharing of knowledge, and develop learning system.
  - The knowledge shared opportunity was expanded to the member who has not participated on the day by forming a result exhibition etc. into image contents and opening to the public by Web.
  - The custom of doing the effort of the quality improvement of the content and the presentation of the announced document was established of the speaker by the fact said it was made to the image contents, and it was open to the public.
  - When joining a company, the mechanism that tracks of the growth of the individual were able to be traced by the image was constructed.
  - The base of the learning environment that was able to be studied was able to be constructed with the image contents at what time where.
  - More effective study was enabled by making it link with the Consul case as knowledge in the process of study.

- It contributed to efficiency improvement and a highly reliable improvement of the organizational operation by offering the image contents that supported the business in daily life.

(2) Making of image contents and learning system

- The procedure and the template of making the image contents that were able to be developed for a short term low-cost were settled on.
- The foundation of the structure of the educational system in “shared web service” in consideration of security was built.

Next, I want to continue a continuous approach as a problem in the future centering on the following six points.

- Improvement in quality of contents
- Optimization of talented-people image and a skill system
- Maintenance and fullness of an educational system
- Study navigation interlocked with the career path
- Use promotion of "image knowledge"
- Fixed quantity evaluation in effect.

The method that a knowledge management and the structure of e-Learning could be built comparatively easily was tried utilizing common service in the company for the last in this measure.

In this thesis, the methodology that was able to construct the multimedia contents easily, and low-cost was settled on. In addition, the mechanism of Web that generally became it was used and the image contents were delivered. It comes to be able to make the multimedia contents easily at last on the personal computer, the environment of Web advances, too and the environment of e-Learning can be easily constructed or it is becoming an age now.

It is thought that it became an age when it can enjoy the effect by exactly depending, and using the multimedia near oneself now in study and the business, etc.

## References

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