

## A Case Study of the University-wide Effects of e-learning Promotion Activities

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*Despite a growing trend to incorporate e-learning into higher education in Japan, a challenge facing the promotion of e-learning is the transience of such programs, which rapidly stall. We developed a new support system that includes an Instructional Design Office for faculty who require support in utilizing e-learning. The support system aims to accommodate diverse learning activities and all types of classes. We investigated our e-learning promotional measures over a 3-year period from 2013 to 2015, and made immediate improvements to increase the reach of e-learning. Achievements include an increase in the number of learning management system courses from 410 to 1004 and an increase in the number of teachers who applied to offer e-learning courses from 123 to 408. A questionnaire survey asking for feedback on the promotional measures demonstrated the validity of the measures and the suitability of the support system.*

*Keywords: e-learning, faculty development, Learning Management System,*

### Introduction

The rapid globalization of higher education over the past 20 years has seen a dramatic expansion of the use of information and communications technologies (ICT). As such, sophisticated e-learning continues to be emphasized as a learning method (Shimizu, 2006; Shigeta, 2013). However, a shared challenge facing universities attempting to introduce and promote e-learning is that such initiatives are often transient in nature and stall after their initial application (Iiyoshi, 2014). In addition, some reports have indicated faculty resistance to online education as being among the largest impediments undermining the advancement of such initiatives (The Open University of Japan, 2011). Furthermore, in view of the current situation of initiatives at individual universities, another factor that has been brought to light is that promotion efforts remain one-sided on the part of the university, with implementation left to the individual efforts of interested faculty members (Yoshida, Taguchi, & Nakahara, 2005). Because of this impasse, many universities are expected to benefit from measures that elicit the true value of systems and personnel devoted to the implementation of e-learning initiatives, as well as those that facilitate more effective e-learning use (Assareha, 2011). There is one previous study on the direction of e-learning promotion, but it does not discuss practical content in detail (Casanovas, 2010). In terms of other cases outside of Japan featuring situations in which utilization has fallen off after introduction, we also find reports that widely acknowledge the value of the Learning Management System (LMS), but state that it is largely under-utilized (Dutton, Cheong, & Park, 2004) or else utilized in few classes (Green, 2003), which echoes the Japanese experience. Moreover, there have also been reports of skepticism concerning the impact of the introduction of e-learning systems on teaching methods (Carmean & Heafner, 2002). In other words, these reports share the common theme that the spread of such systems is difficult

and not something that is achieved merely through their introduction. Clarifying measures to promote the spread of e-learning may therefore be said to hold promise for universities facing similar challenges in Japan and overseas. Ehime University has for the last several years convened training sessions on e-learning and instructional improvement, and faculty interest has been keen. Nevertheless, in practice, incorporating e-learning as a method of instructional improvement has proven to be a time-consuming and psychologically challenging task for faculty. Consequently, this apparent interest has not led to any concrete educational improvements (Nakamichi & Suzuki, 2013). Therefore, as a solution, an Instructional Design Office (IDO) was set up to support instructional design and promote e-learning, thereby establishing a university-wide promotion system for e-learning (Nakamichi & Suzuki, 2013). In this paper, since it is our aim to promote the spread of e-learning as a learning environment, we will advance our discussion by defining e-learning as “educational activities taking advantage of LMS” as a first step in e-learning activities. In addition, we focus on the efforts made to promote the university-wide spread of e-learning in connection with the implementation of an institutional system to support instructional design. In addition to presenting the results of faculty evaluations of these promotional measures from interviews and questionnaires, we also summarize their effects.

## Methods

The educational institution investigated in this study was Ehime University, a national university comprised of seven faculties, and seven graduate schools, employing 855 faculty members (excluding the university hospital) and 432 staff (total number of administrative and technical staff excluding those employed by the university hospital) with a student enrolment of approximately 10,000 (as of May 1, 2015). The IDO at the heart of the present initiative commenced activities in 2012 on the basis of a pilot e-learning promotion initiative (Nakamichi, Matsuba, Ekawa, Ohmori, & Suzuki, 2009), and was officially launched in 2013. Based on a theory (Rogers, 2007) holding that a penetration rate of 16% will serve as an indicator of progress, the operational target for the university was to bring the percentage of faculty members making use of e-learning activities to over 16%, to which end the following four promotional measures were put into practice.

### Promotional Measures

**Institutional backing for the promotion of e-learning.** Firstly, efforts were made to establish campus regulations, rules and guidelines relating to e-learning. In addition to raising awareness on campus, these efforts were in line with university policies, which facilitated their acceptance by faculty. At the IDO, team members – including instructional design experts, technical specialists in ICT, and administrative staff – undertook activities to establish a cooperative framework that could take advantage of their individual expertise. Main activities included supporting instructional design, assisting with the development of teaching materials, and providing operational support for lessons that make use of e-learning (Csete & Evans, 2013). A proactive and collaborative stance was also adopted in the provision of support for instructional improvement, rather than a less engaged stance that simply responded to faculty members’ desires.

**Attentive support.** By taking care of copyright processing, providing support to experts in instructional design and ICT specialists, and making the necessary improvements to allow for the implementation of LMS courses, the IDO has endeavored to ease anxieties and workloads among faculty members who either lack confidence or are unfamiliar with ICT (King & Boyatt, 2015). In addition, as well as providing ongoing support for faculty members who have already begun to take advantage of e-learning, the office has enlisted their cooperation as opinion leaders in its public relations activities (Rogers, 2007).

**Leaflets featuring case studies of the use of ICT in education by familiar faculty members.** The IDO has issued leaflets as a medium for publicizing its activities to promote e-learning. These leaflets are comprised of two sections, “e-Learning News” and “Case Studies of the Use of ICT in Education.” The former section consists of articles with useful information, such as introducing the functionality of the Moodle e-learning software and providing news about the rollout of wireless Internet across campus, as well as toolbox-style articles relating to instructional improvement, including useful hints about how to use LMS software effectively. The latter section brings together examples of the efficacy of e-learning in the classroom and personal accounts drawn from experience. The leaflets are published on a bi-monthly basis, and are also used as a tool for broadcasting the results of promotional measures. Furthermore, articles in the leaflets are posted on the IDO website along with video interviews with the aim of securing even greater publicity.

**Organizing training sessions relating to ICT and instructional design.** With the objective of widely promoting the use of ICT and instructional design among faculty members, training programs have been organized

for instructors at both beginner and advanced levels. While only one course was held in 2012, since the IDO had not yet officially opened, six were held in 2013, eight in 2014, and eleven in 2015. While the courses initially targeted beginners, in response to participants' wishes, advanced courses and instructional design courses were subsequently added. In addition, beginning in 2014 a framework was put in place for these courses to be made available through e-learning.

## Data Collection and Analysis

We evaluated the results of this initiative by observing the changing trends in the number of LMS courses offered (hereinafter "number of courses offered") and the number of faculty members offering LMS courses (hereinafter "scope of faculty involvement") based on findings from a questionnaire and interview survey. Because applications to offer LMS courses were sent to the IDO by means of an online entry form, the number of LMS courses offered (as an indicator of penetration) was counted for yearly intervals as the number of courses for which applications were accepted. Also, since we counted the number of faculty members who applied to offer the aforementioned courses, the scope of faculty involvement was counted for yearly intervals not as the total number of applicants registered, but rather as the real number of individuals. This way, a faculty member who applied to offer three courses would still be counted as a single individual. The reason why the real number of individuals was counted in addition to the number of courses offered was because an increase in use by a portion of faculty members interested in e-learning alone cannot be considered to constitute university-wide spread. LMS, in which courses are offered by faculty members, is implemented on a university-wide basis, and was judged to be a valid indicator of the results of university-wide e-learning promotional measures. As for other surveys, a questionnaire survey and an interview survey were conducted. The reason for this was because in order to determine whether the four promotional measures affected incorporation of e-learning, it was necessary to know the faculty members' evaluations regarding each type of support. The questionnaire survey consisted of 20 items for quantitatively determining how evaluations changed during the two years in which promotional measures were implemented. The interview survey was conducted in order to collect more detailed reasons for the responses, and to contribute to detailed evaluation and improvement of promotional measures.

To collect opinions about e-learning promotion strategies and the IDO's initiatives, we conducted anonymous online questionnaire surveys in 2014 and 2015. In terms of content, the surveys involved a total of 20 items, some of which related to the content of the four promotional measures and others that were expected to change according to the results of those measures. The reason why the questionnaire survey was conducted online was because it was easier to respond to than paper-based surveys, and could be expected to reduce costs and improve response rates. Responses were solicited using a five-point scale of "Agree," "Somewhat agree," "Neither agree nor disagree," "Somewhat disagree," and "Disagree." The connection between The four promotional measures and the questionnaire items is as follows. Institutional backing for the promotion of e-learning: 1) to 3), Attentive support: 4) to 7), Leaflets featuring case studies of the use of ICT in education by familiar faculty members: 8) to 10), Organizing training sessions Relating to ICT and instructional design: 11) & 12), other items after 13) are others that were expected to change according to the results of those measures. Furthermore, respondents were asked to give free-description responses of their impressions and opinions of the four promotional measures. To eliminate biases of opinion, semi-structured interviews were conducted with three faculty members who had offered courses for the first time in the 2015 academic year and three faculty members who had offered courses continuously since 2013, when they were introduced as a measure to promote the spread of e-learning. The interview survey was conducted in April 2016. Interview data was recorded either using a digital recorder or written notes and when the interview was complete, the recorded contents were checked by the faculty member who was the subject of the interview to identify and address any discrepancies. Data falling into the category of free descriptions obtained during the questionnaire and interviews was revised only to correct misprints or omissions (i.e., spelling errors), and data for which the meanings of words and phrases was essentially identical (differing only in terms of word endings for example) was consolidated. Otherwise, descriptions were as much as possible left as originally given.

## Results

University-wide measures to promote e-learning were carried out from 2013 to 2015. Between 2013 and 2015, the number of courses offered increased by 594, from 410 to 1004 courses (an increase factor of approximately 2.5), while faculty involvement rose from 123 teachers to 408 (a factor of approximately 3.3) (Figure 1).

Questionnaire surveys were conducted in 2014 and 2015. As shown in Figure 2, when the number of positive responses (the aggregate of “Agree” and “Somewhat agree”) was tabulated for the 20 questionnaire items, three items were found to have increased by 20% or more over the previous year. First, the increase in “(3) A department specializing in instructional design is necessary to provide quality assurance in university education” suggests an

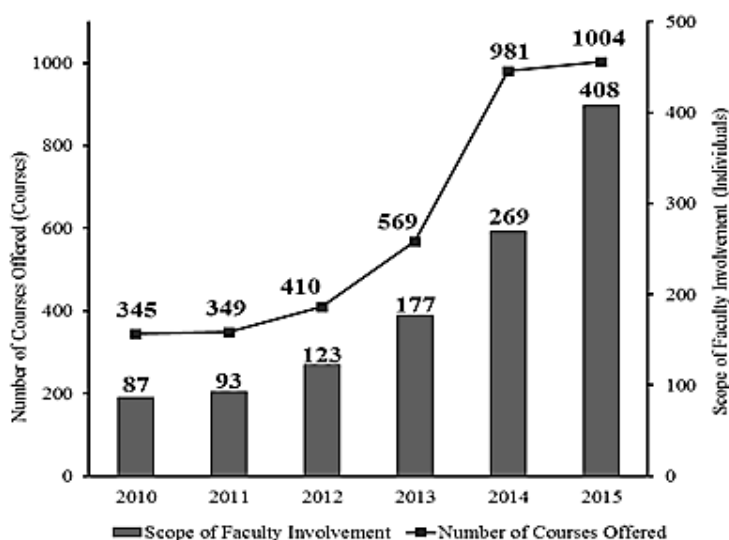


Figure 1. Annual trends in the number of courses and scope of faculty involvement.

understanding that such support is involved with education at a university-wide level and that it also carries organizational significance. In addition, from responses to the effect that “(7) Without the support of the IDO, I do not think I would have engaged in instructional improvement on this occasion” and “(4) Instructional improvement was simpler than I initially thought,” we find that the provision of fine-tuned support has the effect of alleviating the daunting perception associated with e-learning. Items that increased by 10% or more included “(2) I feel that the IDO is necessary as a place to seek advice about instructional improvement,” “(1) I feel the IDO is meaningful with regard to the preparation of teaching materials as well in supporting instructional design,” and “(11) I would like to know more about theories and methods of instructional design in order to revise my lesson structure.” In addition, positive responses also increased for the item associated with “(9) The e-Learning News leaflets published by the IDO are a useful reference with regard to instructional improvement,” showing that the leaflets were proving useful as a source of information. In this way, we find that positive evaluations of the promotional measures and activities of the IDO increased, as did positive views toward lesson improvement.

In the interview survey and the free-description responses to the questionnaires, responses such as “Having institutional support put me at ease, and I felt that e-learning did not have a high threshold” and “It was easy to make use [of e-learning], since they worked together with me on content development and I was able to receive operational support” indicated that involvement with e-learning was associated with higher levels of anxiety than expected for faculty members, and a correspondingly high demand for support (Table 1). As a result of the promotional measures, a significant increase was observed in both the number of courses offered and the scope of faculty involvement, while the utilization of e-learning expanded dramatically. The target of 16% identified in 2012 represented 137 faculty members, which was successfully surpassed when faculty involvement reached 177 after the implementation of the promotional measures in 2013. Furthermore, from 2014 to 2015, the number of courses offered increased by 23, while faculty involvement increased by 139, reaching totals of 1004 courses and 408 faculty members. The scope of faculty involvement represents the number of faculty members who applied to offer courses through the LMS, while the number of courses offered represents the number of LMS courses that were actually offered. In other words, these numbers can be presumed to indicate the presence of a large number of faculty members preparing to offer LMS courses. From the increased proportion of positive feedback on the questionnaire, it seems highly likely that the number of courses offered will continue to increase in the future.

As discussed earlier, the questionnaire survey soliciting responses regarding IDO support indicated that instructors feel that e-learning is necessary; this suggests that the increase in the number of courses offered and the scope of faculty involvement was a result of the promotional activities.

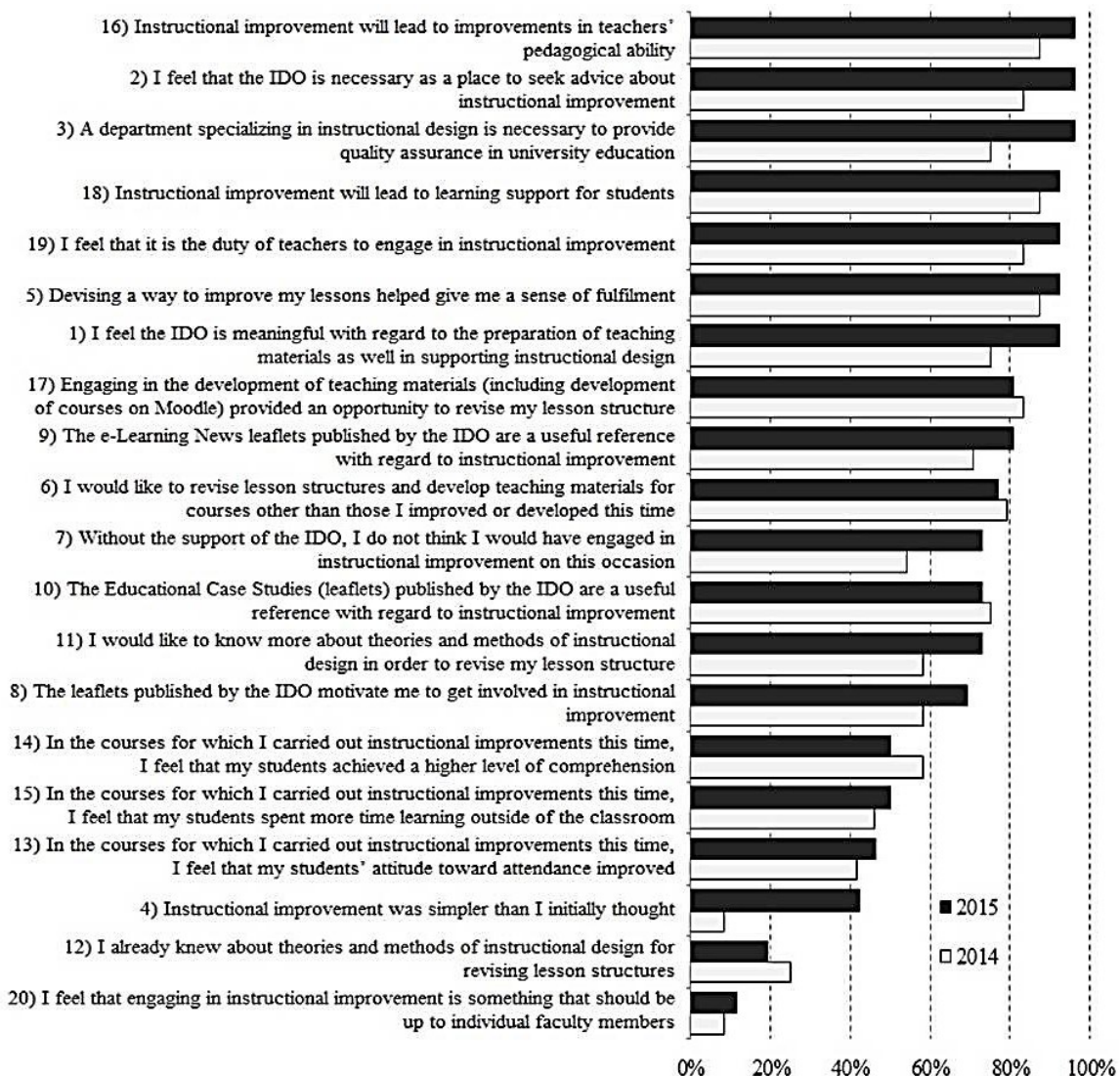


Figure 2. Changes in the proportion of positive questionnaire responses (“Agree” or “Somewhat agree”).

Table 1  
Free-Description Questionnaire Responses and Interview Survey Results

### 1. Institutional Backing for the Promotion of e-Learning

- Having content production guidelines helped get me started since they demonstrated a format to follow.
- Having institutional support put me at ease, and I felt that e-learning did not have a high threshold.
- It was easy; the entire IDO took care of the schedule all the way to the end.

### 2. Attentive Support

- The breadth of instructional design has expanded.
- Thanks to the IDO, I was able to build a lesson in only a short time with little effort.
- It was helpful to receive assistance with things like editing teaching materials
- I was happy with the advice I received on how to prepare tests and the responses to my questions about instructional design.
- It is very helpful that they provide open access to things like the template for their questionnaire function.
- They made improvements so that students could apply to Moodle course offerings with the touch of a button, making the application process easier.
- It was easy to make use [of e-learning], since they worked together with me on content development and I

<p>was able to receive operational support.</p> <ul style="list-style-type: none"> <li>• I feel that the application method is simple and convenient.</li> <li>• They worked together with me at the beginning, and by halfway through the process I was able to work on my own.</li> <li>• I was happy with how they eased my misgivings about dealing with copyright issues, tool and proposed a method of converting newspaper articles to illustrations</li> </ul>
<p><b>3. Organizing Training Sessions Relating to ICT and Instructional Design</b></p> <ul style="list-style-type: none"> <li>• I took part in an e-learning training session 2 years ago. Since I found this quite informative, I'm now trying to participate in conjunction with a training session for educational coordinators.</li> <li>• What I learned by taking part in the training session inspired me to get to work on my next batch of teaching materials.</li> <li>• I gained knowledge of ICT.</li> </ul>
<p><b>4. Leaflets Featuring Case Studies of the Use of ICT in Education by Familiar Faculty Members</b></p> <ul style="list-style-type: none"> <li>• It was useful, as it helped me understand the nature of the support they offer.</li> <li>• I appreciated the tips on how to take advantage of Moodle.</li> <li>• I file all of the leaflets, which I put to use as a tool for obtaining necessary information.</li> <li>• For the time being at least, I appreciate that the leaflets are printed.</li> <li>• I was very pleased that a student contacted me after watching the online video introduction.</li> <li>• The case studies of other teachers all have something of interest. I find them quite informative.</li> </ul>

## Discussion

Our thoughts on each of the four promotional measures are discussed below.

### **Institutional Backing for the Promotion of e-Learning**

As one factor behind the promotion of the development of rules and regulations, we may first of all cite the proposal and approval of establishing an e-learning expert committee on campus. The development of rules and regulations relating to education was carried out under the auspices of academic affairs organizations that initially lacked consultative agencies specializing in e-learning. With the establishment of a committee, however, a framework for the consideration and discussion of promotion-oriented activities was successfully secured. In addition, comments from faculty members to the effect that "Having content production guidelines helped get me started since they demonstrated a format to follow," show that the development of guidelines in addition to rules and regulations has both facilitated a broader awareness of specific procedures and functions and elicited motivation toward their utilization. However, getting to the point of setting up a committee and establishing rules and regulations required time for committee members and peripheral faculty members to understand the necessity of such rules and regulations. It was necessary that negotiations be carried out to build consensus while repeatedly requesting that e-learning promotional measures from the committee be investigated by individual faculties and then incorporating their respective opinions. Although labor-intensive, this iterative process could also be said to have had the effect of eliciting the assent of surrounding parties and giving the initiatives an institutional status. Since some feedback indicated that "Having institutional support put me at ease, and I felt that e-learning did not have a high threshold," this suggests the significance of giving initiatives institutional status, notwithstanding the time required to build consensus.

### **Attentive Support**

With regard to systems involving the provision of e-learning utilization support by experts in LMS course design and other ICT specialists, it is essential to bear in mind that these parties also serve as partners in the improvement of courses, as readily seen from comments such as "It was helpful to receive assistance with things like editing teaching materials" and "They worked together with me at the beginning, and by halfway through the process I was able to work on my own." Rather than simply undertaking tasks such as the production of videos, their orientation towards trying to understand why these instructors want to take advantage of e-learning, and what effects they hope to achieve, may also have encouraged instructors' motivation. In other words, building an effective support system, in addition to staff size, expertise, and developing personnel who are able to adopt a supportive attitude while

providing consultation, proves highly effective (Al-Busaidi & Al-Shihi, 2012). Moreover, it is thought that the inclusion of instructors with actual LMS course experience in the provision of support will facilitate the elicitation of what it is that instructors actually require.

### **Leaflets Featuring Case Studies of the Use of ICT in Education by Familiar Faculty Members**

As a strategy for heightening the publicity effect of promotional leaflets, we can mention the listing of “e-Learning News” and “Case Studies of the Use of ICT in Education” as complementary content. As suggested by faculty members’ positive feedback with respect to “e-Learning News” for instructors who would like to receive support in future, it may be that this section of the leaflet is used as a tool for obtaining introductory information. On the other hand, comments with respect to “Case Studies of the Use of ICT in Education” to the effect that, “The case studies of other teachers all have something of interest. I find them quite informative” show that this section is informative for those who are already taking advantage of this technology, and it is apparent that the interests, knowledge, and usage level vary widely among instructors who see the leaflets. For this reason, when thinking about the configuration of the leaflets, it would seem that incorporating content targeting different interests and levels of engagement could be effective in stimulating interest. Furthermore, because the interviews for these articles are conducted by technical specialists and instructors who support the use of e-learning on a daily basis, it is easier to draw out the hardship and ingenuity that go into the shaping of e-support initiatives, giving the content an air of credibility. From comments such as “I was very pleased that a student contacted me after watching the online video introduction,” we can see that diversifying media for posted content also leads to a heightened perception of the leaflets’ significance.

### **Organizing Training Sessions Relating to ICT and Instructional Design**

In terms of the content of training sessions, holding courses at a certain time every year featuring set content is an effective way to handle skills training for newly appointed staff. As suggested by one faculty member who stated, “I took part in an e-learning training session 2 years ago. Since I found this quite informative, I’m now trying to participate in conjunction with a training session for educational coordinators,” convening such courses regularly enables coordination with other initiatives. In addition, it contributes to e-learning becoming more widely utilized; therefore, there will naturally be increased demand for more advanced course content. Responding flexibly to such changes and supporting further skills training will eventually swell the ranks of faculty taking advantage of e-learning as a first step to realizing a mechanism of mutual learning.

Course content should be reviewed annually based on insights drawn from questionnaire surveys of participants as well as the needs of instructors who have come into view through the provision of support on a daily basis. Furthermore, since it became possible to enroll in e-learning courses in 2014, opportunities have also arisen for instructors to experience LMS courses from the perspective of learners, which has contributed to a deeper understanding of the e-learning approach.

## **Conclusion**

The period from 2013 to 2015, during which four measures to promote e-learning were implemented at Ehime University, saw a dramatic expansion in the utilization of e-learning. From the number of LMS courses offered, the scope of faculty involvement in offering these courses, and the results of feedback interviews and questionnaires, it has become clear that these four promotional measures are effective as strategies for achieving continued penetration following the introduction of e-learning. This measure is effective when it is necessary to disseminate e-learning at university. As a future challenge, it will be necessary to clarify the reasons why e-learning has been underutilized so as to explore the possibility of its further promotion.

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