

Evaluation of the Yamaguchi University Self-Assessment and Evaluation System and Its Improvement

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Abstract

University evaluation is mandated by the School Education Act and the National University Corporation Act. Being educational organizations, universities are currently required to conduct self-assessment measures and institute upgrades. Yamaguchi University introduced the Yamaguchi University Self-Assessment and Evaluation System (YUSE) before the incorporation of national universities, and the system has been in operation and undergone improvements for over a decade. The present paper reports an overview of the portal site and the three web systems of Yamaguchi University pertaining to self-assessment. It also outlines the improvements effected to the current assessment system based on user requests. These advances will provide useful information to enhance evaluation systems at other universities. The stated enhancements can be categorized into three frameworks related to the systematic issues and that have been changed for the better: “system usability,” “links to other systems,” and “visualization functions (graphs) for analyses.” The present study will be useful not only as a fundamental material for future activities related to university evaluation and institutional research, but also as a comparative content for the evaluation support systems at other universities.

Keywords: University Evaluation, Institutional Research, Self-Assessment and Evaluation System.

1 Introduction

University evaluation is mandated by the School Education Act and the National University Corporation Act. National universities were incorporated in 2004, and since then, Japanese institutions of higher education were obliged to undertake a certified evaluation and accreditation program every seven years. They were required to conduct self-assessments and make organizational improvements. To establish internal quality assurance, many universities have introduced institutional research aimed at constructing data-based mechanisms for evaluation and improvement [1][2][3][4][5].

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For example, Yamaguchi University introduced the Yamaguchi University Self-Assessment and Evaluation System (YUSE) even before the incorporation of national universities, and this system has been in operation and has undergone improvements for over a decade [6]. A new self-assessment and evaluation system was developed during this process, and is currently being employed throughout the organization.

2 Yamaguchi University Self-Assessment and Evaluation System

2.1 System overview

This section provides an overview of the new YUSE (YUSE/TNG).

Figure 1 shows the web system that performs the self-assessment and evaluation task at Yamaguchi University and depicts the process flow [7]. The Yamaguchi University Self-Assessment and Evaluation System comprises a portal site and three web systems for the following: (1) the self-assessment and evaluation of faculty members, (2) information of the organization's activities, and (3) the self-assessment and evaluation of department chairs. In addition, we have a portal site that aggregates the three systems.

Each faculty member enters the status of their educational activities and research activities, performing a self-assessment in (1). The data entered in (1) is aggregated in (2) for each organization to clarify organizational trends and challenges. Thereafter, a comparative analysis is conducted with other departments. In (3), analyses of affiliated departments are completed with reference to the data aggregated in (2). Based on these self-assessment results, Yamaguchi University announces the state of its activities in the "Yamaguchi University Report" [8].

The self-assessment and evaluation system currently in use has been improved in accordance with the purpose of its use and in response to user requests. We explore these improvements through a scrutiny of the self-assessment and evaluation system at Yamaguchi University and an analysis of user requests. A questionnaire system was also constructed in addition to the three systems and the portal site mentioned above [9].

2.2 System for the self-assessment and evaluation of faculty members

Data input and its continuous accumulation were important functions in the old version of YUSE. However, in YUSE/TNG (the new version) the principal functions are the input of statistical values, the computation of indices, and the support of various evaluation processes using such indices. Data sources for statistical values become electronic syllabus systems and faculty databases, but a deliberate cross-system collaboration was not conducted in the first year of the implementation of evaluation. In other words, a link to the data reading screen of the other system was presented and the statistical values were entered one by one. We considered changing the processing method so that for some statistical values the calculation of the items from the faculty database is accomplished from the raw data dumped in the CSV format. In addition, it became possible to check an instructor's lecture information by linking it with the course evaluation system (IYOCAN) (link function). These functions were developed in the new system (Figure 2, Figure 3).

University-wide PDCA system in Yamaguchi University

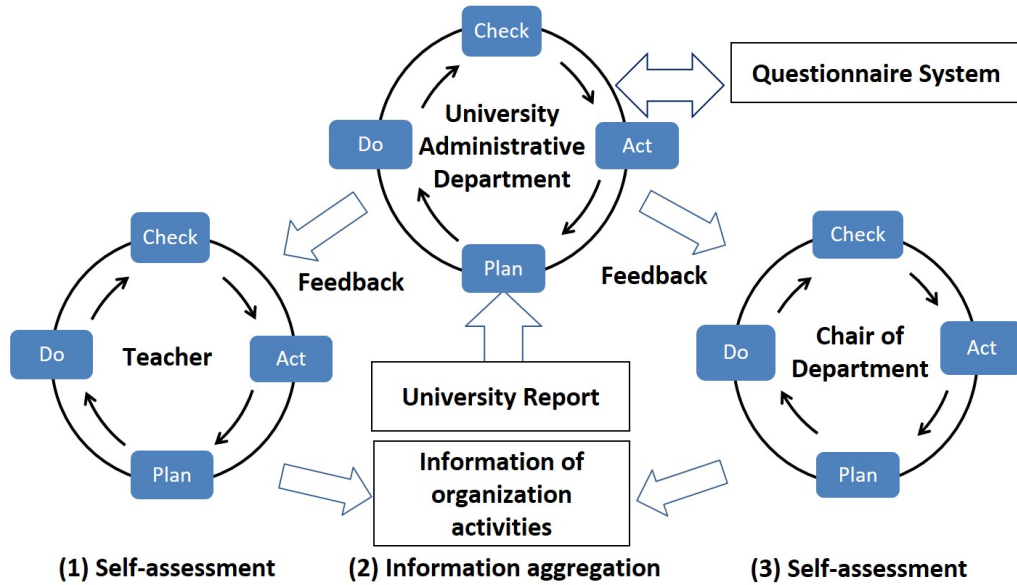


Figure 1: Flow of self-assessment and evaluation at Yamaguchi University [7].

目次

登録項目	登録数	合計額
e1_1 担当科目	0	
r1_1 雑誌論文	1	
r1_2 著書	0	
r1_3 解説・事例報告・プロシーディングス等	0	
r1_4 学会等発表	1	
r1_5 受賞	0	
r1_6 知的財産の形成	0	
r1_7 その他、研究・創意に関する活動	0	
r2_2 科学研究費獲得	1	14,700,000
r2_3 その他の外部資金獲得	0	0
r2_4 寄付金	0	0
r3_1 (a) 共同研究	0	
r3_1 (b) 受託研究	0	

e1_1 担当科目
データ登録がありません。

r1_1 雑誌論文
1件あります。

著者	論文名	雑誌名	Vol.	No.	出版年月	pp.

r1_2 著書
データ登録がありません。

Figure 2: Data reference screen from the faculty database.

教育関係の活動状況を入力してください。

評価指標 (E1 以降を入力してください。自動で計算されます)

担当科目数指標: 2
 担当単位数指標: 3
 担当学生数指標: 0
 一般教育活動指標: 4
 教育活動時間指標: 10

E1. 授業活動

担当科目数: 2
 担当単位数: 3
 週平均活動時間(週数): 10

入力上の留意点
 【担当科目数】
 本学専・学部・大学院で担当した科目と単位をすべてカウントしてください。また複数の教員で担当する科目も入れてください。ただし、他大学で担当する授業科目は含めないでください。
 【担当単位数】
 表示されている担当科目名ごとの確認の上で、担当単位数を算出してください。
 【週平均活動時間(週数)】
 「週平均活動時間(週数)」の算出は、授業を行った期間で行ってください。また、授業準備や採点・成績管理、他地区への移動時間など、業務として、授業のために費やした時間も入れてください。1週間(日・夜時間+24時間)とし、そのうちの活動時間を入力して下さい。

対象となる活動例
 【担当単位数】
 形式1) 形式で講義(2単位)を1回分担当した場合、2×15=0.13単位としてカウントしてください。

参考: シラバス検索結果 (左の文字をクリックして、別のウィンドウもしくはタブでシラバスを表示することができます)

2013年6月13日 14:21:32

山口大学
Yamaguchi University

シラバス検索結果

2013年度シラバス検索結果の表示

E2. 学生指導活動(クリックで開閉します)
 E3. 一般教育活動(クリックで開閉します)

Figure 3: Data reference screen from the course evaluation system.

Figure 4 (a, b, c, and d) shows a part of the self-assessment and evaluation screen. It is not merely a display of index data, and if available, it also makes comparisons with the previous year's organizational values and index data. The organizational definition for the purpose of comparison is prepared in (a). It is possible to define values by taking the academic department or subject as the base, and by arbitrarily combining the union and intersection of sets with the difference set. In addition, there is a questionnaire screen to fill in opinions addressed to the university evaluation department and to the head of the department.

組織の選択

「組織の選択」では、どの母集団のなかで自分の活動を評価したいのか選択して下さい。
 以下で、母集団を計算するための操作を選択してください。和集合、共通集合、差集合演算が使えます。

GROW SHRINK ● 学部 ● 大学院前期 ● 大学院後期 ● 共同利用施設 大学情報機構

組織を確定
 共同 大学情報機構 全て選択

(a) Definition of organizations to be compared for self-assessment.

評価指標及び組織平均との比較

現在のあなたの評価指標は次の通りです:

担当授業科目数指標 E1a	1	成果公表指標 R1	7
担当単位数指標 E1b	1	競争的資金導入指標 R2	3
担当学生数指標 E2	7	研究連携指標 R3	7
一般教育活動指標 E3	3	研究経費総額 MONEY	500000
教育活動総合指標 E	12	研究・創造活動総合指標 R	17

全学運営活動指標 M1	2	社会連携指標 C1	7
部局運営活動指標 M2	3	学術等連携指標 C2	10
一般運営活動指標 M3	3	社会貢献活動総合指標 C1C2	17
運営活動総合指標 M	8	診療活動総合指標 C3	0

研究・創造・社会貢献・診療活動総合指標 RC34

※ 研究・創造・社会貢献・診療活動総合指標 (RC) は各指標の合計値です。(RC = R + C1C2 + C3.)

自己評価対象組織における昨年度の平均値及びあなたの昨年度の評価指標との比較は次の通りです:

活動指標	組織平均値		個人		増減
	前回	増減	前回	今回	
教育活動総合指標	13.70	↓	10	12	↑
運営活動総合指標	7.40	↑	9	8	↓
研究創造活動総合指標	9.60	↑	6	17	↑
社会貢献・連携総合指標	2.80	↑	1	17	↑
診療総合指標	0.00	—	0	0	—
研究・創造・社会貢献・診療活動総合指標	12.40	↑	7	34	↑

(b) A comparison of own evaluation index value for this year and own evaluation index value for the previous year.

評価グラフは次のようになります:

評価グラフには活動件数と活動時間に関するものがあります。評価ウェイトにしたがって、これらの評価グラフは変化します。ご自身の活動実感と差異がある場合には上記の評価ウェイトを変えて、活動実態と合うように調整して下さい。また、評価しない項目には評価ウェイトに0を入力して下さい。ウェイトを更新した際には「重みに従ってグラフを更新」ボタンを押して下さい。

個人評価結果 (活動件数)

■ 教育 ■ 運営 ■ 研究・創造

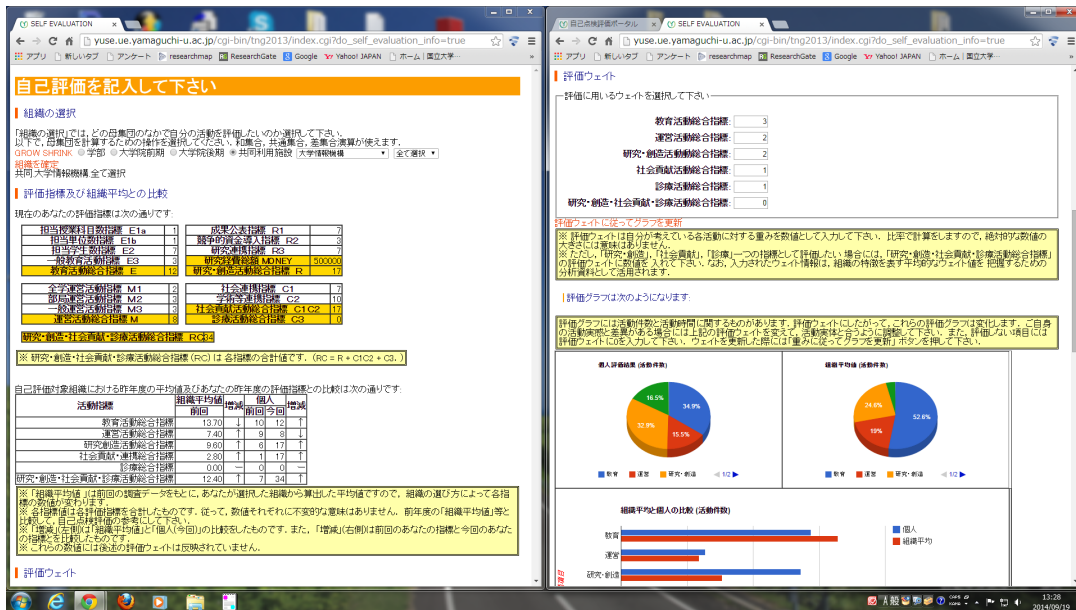
組織平均値 (活動件数)

■ 教育 ■ 運営 ■ 研究・創造

組織平均と個人の比較 (活動件数)

■ 個人 ■ 組織平均

(c) A comparison between own evaluation index value and the organizational average.



(d) A sample screen capture of the system

Figure 4: Self-assessment and evaluation system screen in YUSE/TNG (the new version).

2.3 System for information on the organization's activities

In the above-mentioned self-assessment and evaluation by individuals, it is possible to compare the index value of a specific set and the own index value. However, in the Organizational Activities Information Aggregation System, it is possible to compare the functions of each item by organization as well as between organizations in various fields. A screen aggregating the activities of a department is shown in Figure 5.

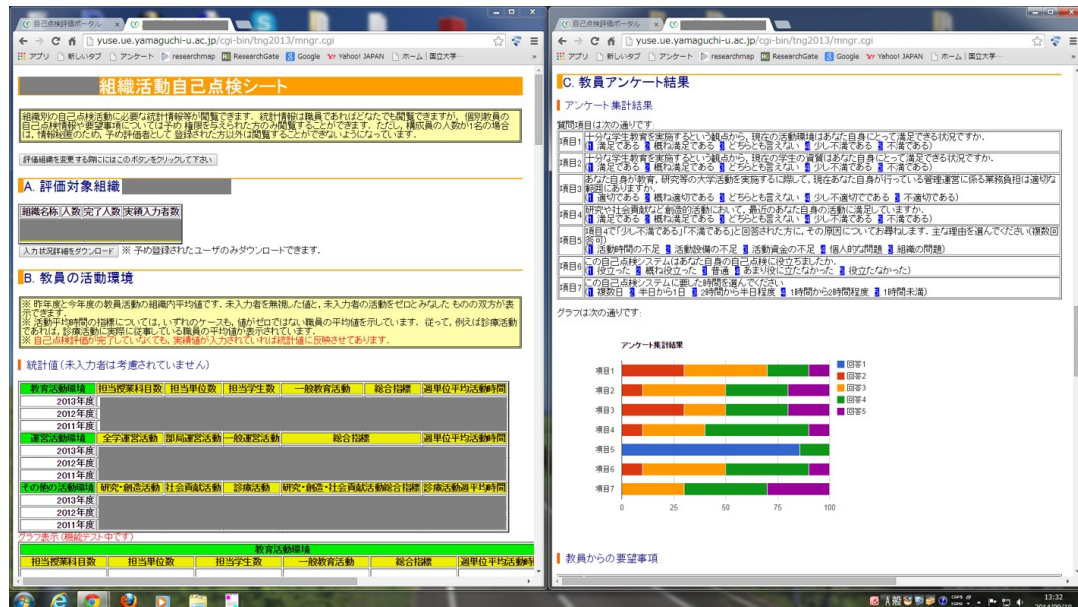


Figure 5: Screen capture of the organizational activities information aggregation system.

2.4 System for the self-assessment and evaluation of department chairs

There is no change in the self-assessment and evaluation scheme by organization scheduled to be implemented in 2012, and the evaluation items consist of items criteria from organization-wise evaluation of certification conducted by National Institution for Academic Degrees and Quality Enhancement of Higher Education, institutional thematic assessment, items of the certified evaluation and accreditation for professional graduate schools, and items for self-assessment and evaluation. However, unlike the previous assessment process, those inputs are now supported by YUSE/TNG.

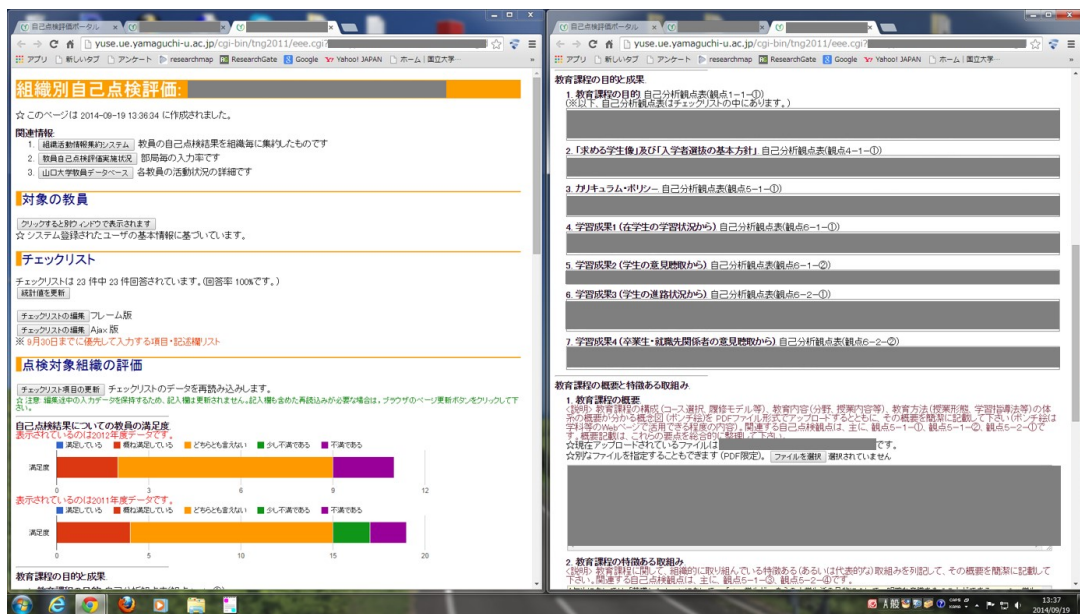


Figure 6: Organization-wise self-assessment and evaluation system input screen.

Figure 6 shows the page for organization-wise self-assessment and evaluation. The left side of Figure 6 contains basic information related to the department, such as links to the external information sources, a confirmation screen for the list of faculty members included in the department, and a link to the input screen of the checklist consisting of the table of self-analysis perspectives. In the right side, the goals of the educational curriculum are entered, and checklist contents are cited as necessary. Further, there are support functions for the sharing of entries by multiple persons-in-charge such as management functions of permissions to write, search function of editing conflicts using a time stamp, and a time warp function for editing past data.

2.5 Portal site

In the new system, it is also true that compared to the previous system, aspects such as system linkage have become clearer. However, it is also accurate that some users are of the opinion that it is difficult to grasp such mutual correlations between systems. Therefore, the creation of a “self-assessment and evaluation portal” that compiles the entrance into various systems in one place was also being considered and was developed in the new system (Figure 7). This “self-assessment and evaluation portal” becomes an entrance to various systems from one location and thus plays an important role.



Figure 7: Screen capture of portal site.

3 Requests of the System Users

Users noted that the system was generally difficult to use and that there were too many input items in place. They requested that the system be linked to other databases. Table 1 shows examples of user requests and the results of investigation into them.

Table1. Example user requests and the results of investigation into them. The category is described in Section 4.

No.	User Requests	Results of Investigation	Category
<i>(1) System for the self-assessment and evaluation of faculty members</i>			
1	I would like for you to introduce an English-language version for the non-Japanese faculty members.	To maintain both Japanese-language and English-language input windows on the website's "self-assessment and evaluation portal".	A
2	I would like for faculty members to be able to see their input history when they input data	To add a function that allows users to view data that they have input over the previous year.	A
3	Faculty members want to verify their own input.	To add a message function through which each faculty member can verify what they have or have not input. The same function was added to another evaluation system (the course-evaluation system, IYOCAN2).	B
4	Please reconsider the details of the input conditions so that each department chair can identify members who have not recorded their data.	To add a function for department chairs so they can download files from the website's "self-assessment and evaluation portal" detailing the conditions of their department's input	A
<i>(2) System for information on the organization's activities</i>			
5	The graphs of change over time are displayed in total amounts, but I would like for the average values to also be displayed.	To add a function to display average values in addition to showing total amounts.	C
<i>(3) System for the self-assessment and evaluation of department chairs</i>			
6	I would like to more easily visualize self-assessment results on the organization's activities.	To add a function to display the results of self-assessment of the organization's activities on a radar chart.	C
7	I would like to compare this year's faculty satisfaction level with those of previous years.	To add a function to display the general satisfaction levels of faculty members (in a bar chart) over a two-year period.	C

4 Systematic Improvements and Their Consideration

4.1 Systematic improvement

The present paper provides some examples of actual improvements to the system completed as a result of investigating user requests. Figure 8 shows a screenshot of the English version (Table 1 - No.1). Figure 9 shows a function to confirm input (Table 1 - No.3). Yamaguchi University owns some web systems for self-assessment; such as: the faculty database, self-assessment and evaluation system (the developed system), the course evaluation system (IYOCAN2), the personnel evaluation system, and so on. We developed a function to check whether faculty members entered their own data into each system or not. Figure10 shows a line chart function (Table 1 - No.5). Figure 11 shows a radar chart function (Table 1 - No.6). Figure 12 shows a bar chart function (Table 1 - No.7). It is possible to categorize these improvements into three frameworks, according to the problem being improved: A. system usability (Table 1 - No.1, 2, and 4), B. links to other systems (Table 1 - No.3), C. visualization functions for analyses (graphs) (Table 1 - No. 5, 6, and 7). For A and C, the university can continue to make improvements as before, but for B, links to other systems are required, and therefore between-department collaboration is necessary. Improvements are difficult to make in category B, because there are various barriers in dealing with data from other departments.

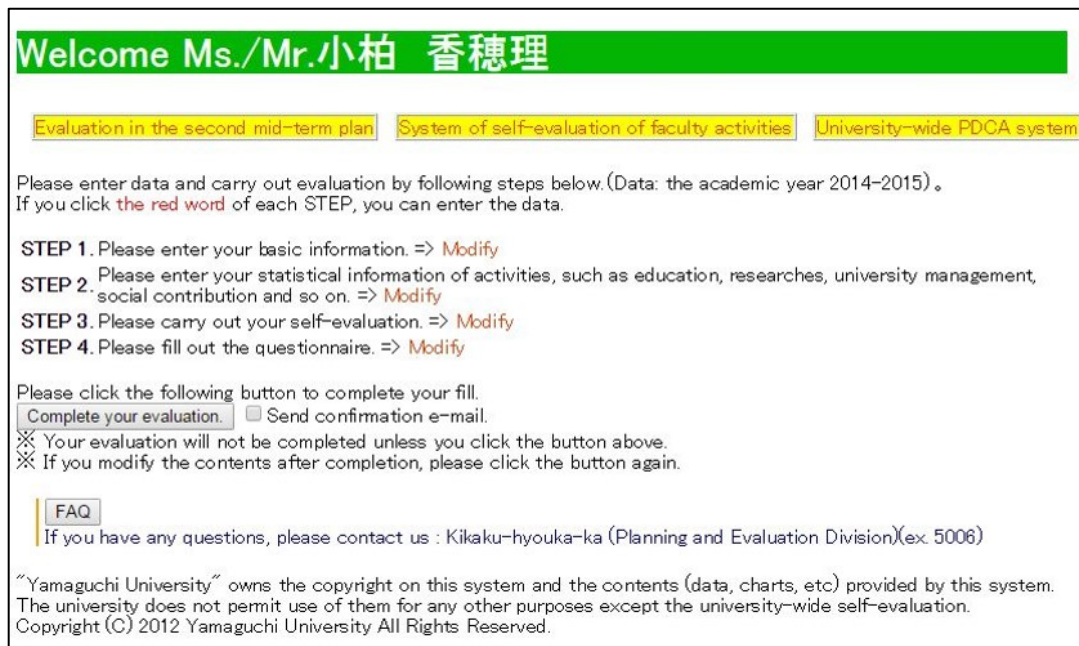


Figure 8: Screenshot of the English-language version of the system.

各自己点検評価関係システムの入力状況

	入力状況	期限	所管
教員データベース	-	-	情報環境部 情報推進課
教員活動の自己点検評価システム(日, 英)	○(確定済)	平成27年9月30日(水)まで	大学評価室
教育情報システムIYOCAN2-学生授業評価・教員授業自己評価	平成27年前期(準備中) 平成26年前期 ・全講義数:担当科目がみつかりませんでした。 ・主担当数: ・入力状況: 平成26年後期 ・全講義数:1 ・主担当数:0 ・入力状況:0	平成27年9月30日(水)まで(期限後でも未入力の方は入力して下さい) 担当講義の入力状況をご確認下さい。 複数人で授業を担当している場合は、主担当の教員が入力状況を確認して下さい。	大学教育センター
教員評価システム(人事評価システム)	-	-	総務部人事課 事務管理係

Figure 9: The function is used to confirm the input. This figure shows their own input result (○ or ×) for faculty members about each system.

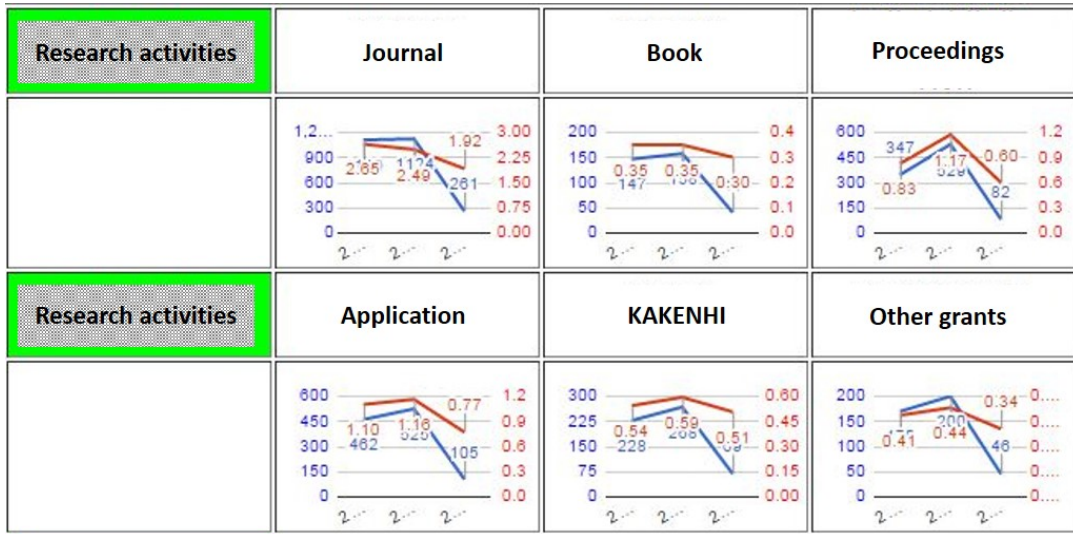


Figure 10: System function displaying average change over time (red: average, blue: total).

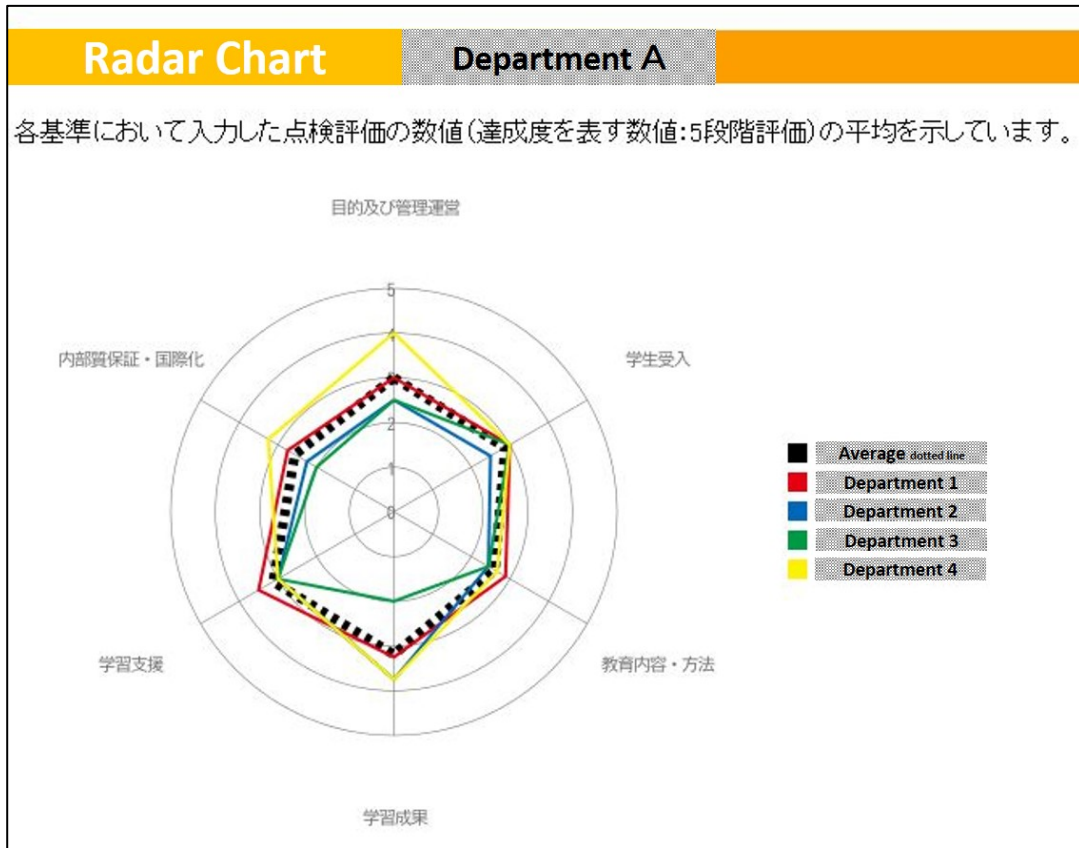


Figure 11: The radar chart function is used to compare departments. This figure shows the average of numerical input data (on a five-point scale). Each item conforms to the evaluation item (basic viewpoint) concerning institutional certified evaluation and accreditation.

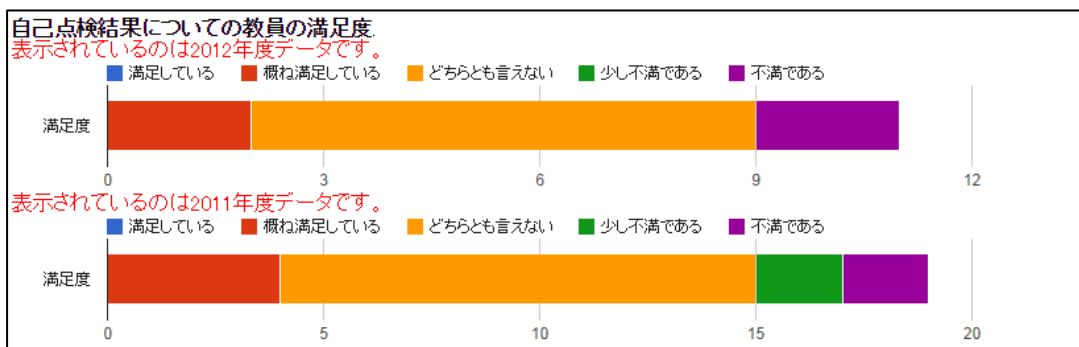


Figure 12: The bar chart function is used to compare with the previous year. This figure shows the general satisfaction levels of faculty members for the last two years.

4.2 Specific effects to university management using proposed systems

We developed the three systems mentioned in Section 2 and constructed a systematic self-assessment and evaluation system using these systems to effectively practice the PDCA cycle. From fiscal year 2013, Yamaguchi University has conducted efficient annual self-assessments with the aid of the three systems. The main results obtained from the systems have been summarized in the Yamaguchi University Report every year. In addition, Yamaguchi University reorganizes the departments and restructures the curriculum based on the issues published in the Yamaguchi University Report. The above performance was reported as an outstanding activity in the results of the evaluation related to the second mid-term goals [10].

With regard to international standards in higher education, YUSE is not universally applicable because the education systems vary for every country. However, since the proposed system is simple, it is possible to respond flexibly by changing evaluation items. In this sense, the proposed system offers flexibility. An English version of the proposed system was developed by the authors of this study for the purpose of being used by internationalization of universities.

5 Conclusion

A number of enhancements were made to Yamaguchi University's self-assessment and evaluation system based on user requests. These improvements will be useful not only for Yamaguchi University, but also for other universities wishing to upgrade their evaluation systems. In comparison with Ref. [11], it is interesting that the support system of the evaluation process is largely similar, in spite of diversity in each university with respect to university evaluation.

We note that these system improvements can be categorized into three frameworks, depending upon the problem. Questions were raised, particularly for category B which concerned links to other systems. Questions included how data scattered across universities could be collected and organized and how major problems such as the collaboration and integration of various databases could be resolved to increase input efficiency. These issues should be investigated from the perspective of university evaluation and institutional research.

Acknowledgments

The new version of YUSE was developed by Professor Yoshihiko Ichikawa, who was, at that time, attached to the Yamaguchi University Media and Information Technology Center. The present study was carried out in cooperation with the course evaluation system (IYOCAN2) at Yamaguchi University. We sincerely thank Dr. Koichi Okada, Lecturer at Yamaguchi University for his assistance. This work was supported by JSPS KAKENHI Grant Number JP15K01071. We wish to thank all members of the university evaluation department of Yamaguchi University for their support.

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