Achieving Evidence-based Improvement and Transparency in Higher Education: The current status and challenges regarding data utilization and disclosure in Japan

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Abstract: This article reports the results of a nationwide questionnaire survey of 1,104 Japanese higher education institutions conducted in late 2015 and early 2016. Its goal was to investigate the current status and issues related to the utilization and disclosure of educational information. A total of 248 institutions responded to the survey. Based on the findings of the nationwide survey, this article examines an initiative at Ritsumeikan Asia Pacific University as an emerging case of the preparation of infrastructure and the utilization of educational information. Discussed is how information on higher education is collected and utilized to improve its quality and to promote internal quality assurance. Also examined is the maturational status of the institutional research (IR) function in terms of data utilization in Japanese higher education with reference to the maturity model for IR.

Keywords: evidence-based improvement, information system, institutional research, internal quality assurance, learning outcomes assessment, maturity model for IR, transparency

1. Introduction

On an international basis, there has been growth in the transparency of educational information and student learning outcomes as universities demonstrate their capacity to attract prospective international or domestic students and to prepare value-added graduates in a growing, diverse, and global society. As such, institutional research (IR) and learning analytics (LA) have attracted enormous attention as support functions for evidence-based educational enhancement in recent years. Institutional research is defined as research that has been conducted within an institution of higher education to provide information to support institutional planning, policy formation, and decision making (Saupe, 1990). The practice of IR and planning is an important part of the decision support process in higher education across the globe (Webber & Calderon, 2015). Universities all over the world are currently

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developing forms of IR, driven by pressure from government and/or increasing marketization (Taylor, 2015). With support from IR, universities and colleges promote LA; the disclosure of information; and the use of educational data strategically in various manners. Although not referred to as institutional research at the time, IR began to emerge more clearly in Japan during the 2000s.

National common databases or national statistics on higher education can be a prominent pathway for distributing educational information to the public. In Japan, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) conducts the School Basic Survey (*gakko kihon chosa*) every year in order to obtain fundamental statistics. The survey, which contains statistical research on education expenditures, has been implemented continuously since 1948. The School Basic Survey considers not only all primary and secondary schools but also universities and colleges. However, according to Hayashi (2014), Japan lacks a common database to be used for IR or LA (similar to the Integrated Postsecondary Education Data System (IPEDS) in the United States and the database provided by the Higher Education Statistics Agency in the United Kingdom). The IPEDS helps users to perform benchmark analysis by employing a common dataset and providing institution-specific information (Ida, 2005; Hayashi, 2014). Furthermore, in Australia, the Quality Indicators for Learning and Teaching (QILT) system, funded by the Australian Government Department of Education and Training, was recently developed. The QILT website helps prospective students and their guardians make informed choices regarding their higher education options by bringing together survey data from all Australian universities with respect to students' experiences and graduate job outcomes (Department of Education and Training, n.d.). Thus, these advanced common databases display the character of consumer-conscious systems as transparent information tools in the global student market.

From the perspective of institutional effectiveness, it may also be said that the demand for evidence-based educational improvement based on learning outcomes assessment is extremely closely related to information disclosure and IR in terms of quality assurance. Yamada (2014), for instance, explored how the global trend of quality assurance in higher education is related to the boom in measuring learning outcomes in Japan, focusing in particular upon how the forces of globalization have resulted in Japanese universities emphasizing student learning outcomes. She reported the overall status of IR and information disclosure in Japan. The fact that many institutions do not have IR offices means that such data are not actually utilized in an effective manner. Moreover, she also reported that existing databases are subject to limitations insofar as they are not able to be utilized for assessments or for publicly disclosing the information that society now often demands of universities (Yamada, 2014).

Against this background, College Portrait (*daigaku poutoreito*) was launched in early March 2015 in Japan. Although multilingual websites of College Portrait have not yet been developed, College Portrait covers almost all Japanese university sectors: national university corporations, prefectural and municipal universities, and private universities. College Portrait enables prospective students and

their guardians to access wide-ranging information on individual institutions; regarding institutional history and organizational characteristics; features of teaching and learning; career destination; other student support systems, including scholarship programs; and so on. At this stage, College Portrait is partially lacking in further information and data on student learning outcomes.

However, in contrast with common databases developed previously in other countries, College Portrait does not implement the functionality of cross-institutional comparison (Hayashi, 2014; Mori, 2015). A system having such specifications cannot meet the expectations of prospective students and their guardians who need a way to compare institutions as well as potential users of the database such as institutional researchers interested in benchmark analysis (Mori, 2015). Overseas, a similar trend appears to be emerging. For example, Zhang & Chen (2015) noted a lack of a unified data platform as one factor limiting the development of IR in China. Consequently, universities cannot obtain comparative data or information regarding peer institutions.

In this condition, despite efforts to develop a common database in Japan, at present students and other stakeholders must access the individual website of each institution in order to obtain comparable data or further information. Thus, individual institutions have to disclose information and appeal to the public in their own unique ways. In today's ranking-oriented international environment of higher education, Japanese universities, in particular, are forced to demonstrate their own strength of academic capacity as well as their global-mindedness as determined by the Top Global University (*suupa guroubaru daigaku*) Project.[1] Under these circumstances, institutional research is expected to play a leading role in supporting transparency of information.

2. Maturity model for IR and research questions

Regarding IR and information systems, Taylor (2015) reported that IR is closely associated with the formation of information systems and with decision support systems. According to him, an information system seeks additional inputs in order to identify and analyze problems that lead to decisions. Institutional research spans this entire process, from initial data collection to final decision making (Taylor, 2015).

It is useful to consider the current situation of an information system in a certain region/country using a model with relevance to the evolution of IR. Taylor el al. (2013) discussed a model that describes organizational maturity and proposed a comprehensive maturity model for IR. Although their model does not reflect the global IR landscape, they noted that the application of their model in a global context might reveal patterns between jurisdictions where IR practices in one country may tend to focus on one or more dimensions at the expense of others (Taylor et al., 2013).

[1] The Top Global Universities Project is a funding project by the Japanese government that was started in 2014. This project aims to enhance Japanese universities' presence in the international environment.(MEXT, 2014)

Table 1. Maturity model for institutional research and the development of a profession

	Routine Institutional Management	Strategy Formulation	Quality Assurance and Enhancement	Marketing and Competitive Analysis	Independent Research and Study	Areas of Interests
Level5: Mature	Academic management processes monitored Mature predictive analytics Extensive dashboarding and visualization	Collaborative international process benchmarking	Institutional QM Framework adopted (e.g., Baldrige, TQM EFQM)	Staff, alumni, stakeholders contribute to CI Systematic customer experience marketing International competitors' analyzed	Broadly based, integrated, self-directed research program	IR embraces analysis of all functions and outputs (not necessarily with direct responsibility)
Level4:	Interactive online reports Strong data governance Ongoing investment in BI	Outcome benchmarking Scenario planning refines formative strategy	Feedback loops between institution, students, and staff Evidence repository for profession and regulator accreditation	International competitors' analyzed	Integrated research program, leading to publications	Includes detailed financial analysis, estates management, and overall management performance
Level3: Semi-mature	Integrated data-warehouse and BI Competency Centre Analytical reporting calendar Longitudinal studies	First generation predictive analytics Institutional performance analysis drives strategy choice/review	Lifecycle approach to student and stakeholder feedback Multi-dimensional reporting of course/program quality	Global rankings analyzed and modeled Some customer experience marketing	Occasional self-directed, integrated research	Broad range areas, including staff and students, teaching, research, management, and service
Level2:	External/internal reporting from discrete functions and systems	Institutional KPIs defined and tracked	Some student feedback mechanisms Staff and student satisfaction surveys Limited course quality measures	Competitor student market share analysis Global rankings monitoring	Occasional function-specific independent research Occasional papers for conferences and meetings	Primarily student and staff based
Level1: Immature	Static ad hoc reporting Non-integrated data	Strategy unquantified and/or indistinctive	Nil	National rankings monitored	Nil	Primarily student based

Source: Taylor et al. (2013)

As can be seen in Table 1, the maturity model has five levels with six aspects concerning IR and the development of a profession: Routine Institutional Management; Strategy Foundation; Quality Assurance and Enhancement; Marketing and Competitive Analysis; Independent Research and Study, and Areas of Interest. Interestingly enough, they reported that "Level 5 maturity" is still an aspiration for all institutions (or at least for their institutional research groups) or has actually been attained in some cases (Taylor et al., 2013). In order to promote the strategic development of evidence-based improvement and transparency in higher education, it is necessary to examine and understand the current status of IR and information systems in Japan with reference to the maturity model.

In this regard, in a previous nationwide survey that was conducted as a commissioned project to promote university reform by MEXT (Tokyo University, 2014), an implementation management system of IR and the implementation status of each practice regarding IR were investigated in detail. The results of the survey revealed that a number of Japanese institutions recognize the necessity of the

IR function for institutional management, whereas approximately 70% of institutions have not prepared an integrated IR system in which case the IR has been implemented in a dispersed manner throughout the institution. However, the implementation status of evidence-based educational improvement and disclosure of educational information have not been examined.

Research on the current status of and issues related to the utilization and disclosure of educational information in higher education in Japan is limited. Therefore, two main research questions are investigated herein: 1) What are the crucial issues related to data utilization and disclosure of educational information at the institutional level? 2) How should we promote evidence-based improvement and transparency in higher education in Japan?

In order to answer these questions, both quantitative and qualitative analyses were conducted. First, in late 2015 and early 2016, a nationwide questionnaire survey of 1,104 Japanese higher education institutions (756 four-year universities and 348 two-year junior colleges) was administered. A total of 248 institutions responded. The goal of the nationwide survey was to investigate the current status of and issues related to the utilization and disclosure of educational information. A survey request form was sent to the provost of each institution requesting that the person responsible for the utilization and disclosure of educational information answer a questionnaire. It was conducted online using the real-time evaluation assistance system (REAS), which is available through the Open University of Japan (*housou daigaku*). The following information was collected through the questionnaire survey: the characteristics of the institution, the infrastructure of data utilization, and data utilization and disclosure. Based on the survey, the extent to which utilization and disclosure of educational information have been implemented was examined, as well as the extent to which infrastructure for data utilization has been prepared in Japanese institutions. Moreover, discussed is the maturational status of the IR function in terms of data utilization in Japanese higher education with reference to the Maturity Model for IR and the Development of a Profession (Taylor et al., 2013).

Second, based on a quantitative analysis of the survey responses, an initiative at Ritsumeikan Asia Pacific University (APU), a private university in Oita Prefecture, to utilize and disclose educational information in Japan is examined. APU has developed a data warehouse (DWH) as the first step toward obtaining a real understanding of international and domestic students and their learning outcomes in terms of internal quality assurance. The university is also active in public relations based on data or information in consideration of the growing global higher education market. Discussed at the end of this study, is how information on higher education is collected and used to improve the quality of education and to promote quality assurance in the wave of globalization. It is expected that this article will provide valuable insights into preferable utilization and disclosure of educational information in terms of achieving evidence-based improvement and transparency by clarifying trends and challenges in Japan.

3. Main findings based on a nationwide survey

First described is the extent to which utilization and disclosure of educational information have been implemented in Japanese higher education institutions. Figure 1 presents the results of the aggregation of items concerning the utilization and disclosure of educational information. The results indicate that institutions tend to utilize educational information within the institution rather than to make information available to the public. Japanese institutions appear to be weak in terms of benchmarking and advertising their advantages and are more concerned with educational improvement within the institution.

A review of enrollment policy was regarded as being relatively important in terms of the utilization of educational information within the institution. Enrollment policy can be considered to have a significant influence on the student recruitment, and it has been pointed out that student learning outcomes differ according to the path of enrollment (Okada & Torii, 2011). Approximately 60% of institutions have implemented evidence-based improvement at the classroom level. The class evaluation survey, which is conducted in most Japanese institutions, has prompted evidence-based improvement. For improvements at the faculty and program levels, more than 50% of institutions reported a lack of evidence-based improvement, which indicates an inability to sufficiently develop a framework to assess practices at the faculty and program levels.

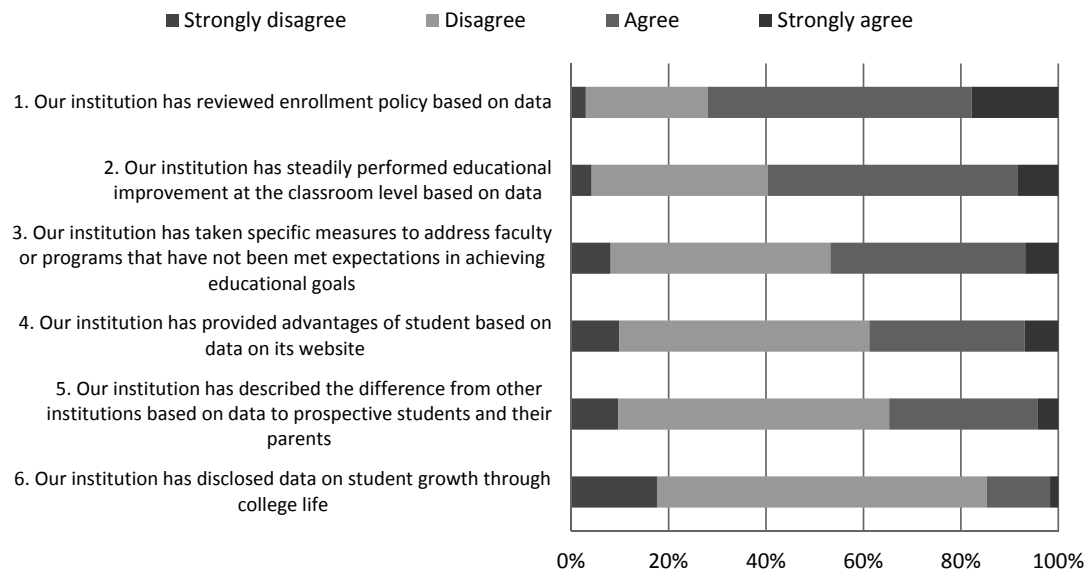

Figure 1. Implementation of the utilization and disclosure of educational information

Next the extent to which Japanese institutions have prepared infrastructure for the utilization and disclosure of educational information was investigated. Concretely speaking, the following aspects were examined: the awareness of the importance of data utilization; the formulation of guidelines concerning data utilization; the development of an integrated database; and the introduction of the IR function. Table 2 shows the correlation between the infrastructure for data utilization and the current situation of utilization and disclosure of educational information, and well-prepared infrastructure was confirmed to be able to prompt data utilization.

Table 2. Correlation between the infrastructure for data utilization and implementation of the utilization and disclosure of educational information

	1. Our institution has reviewed enrollment policy based on data	2. Our institution has steadily performed educational improvement at the classroom level based on data	3. Our institution has taken specific measures to address faculty or programs that have not been met expectations in achieving educational goals
1. The importance of using data for institutional management has been shared in executives	.34 ***	.23 ***	.24 ***
2. Guidelines for data utilization have been adequately formulated	.29 ***	.27 ***	.34 ***
3.A well-integrated cross-departmental database of information concerning student experience and educational environment has been developed	.24 ***	.19 **	.20 ***
4. An IR function that can deal with data related to student experience and educational environment has been prepared	.30 ***	.30 ***	.20 **

	4. Our institution has provided advantages of student based on data on its website	5. Our institution has described the difference from other institutions based on data to prospective students and their parents	6. Our institution has disclosed data on student growth through college life
1. The importance of using data for institutional management has been shared in executives	.31 ***	.22 **	.16 *
2. Guidelines for data utilization have been adequately formulated	.37 ***	.24 ***	.29 ***
3.A well-integrated cross-departmental database of information concerning student experience and educational environment has been developed	.37 ***	.14 *	.19 **
4. An IR function that can deal with data related to student experience and educational environment has been prepared	.29 ***	.22 **	.22 **

*p<.05, **p<.01, ***p<.001

The results of the aggregation of items concerning infrastructure for data utilization are described in Figure 2. Approximately 70% of institutions believe that data utilization is important for institutional management. On the other hand, approximately 50% of institutions have a well-developed database. Less than 40% of institutions were able to formulate guidelines for data utilization and to introduce IR functions. This suggests that the preparation of infrastructure for data utilization is still under development in Japanese institutions at this time, whereas the awareness of the importance of data utilization has been gradually expanding.

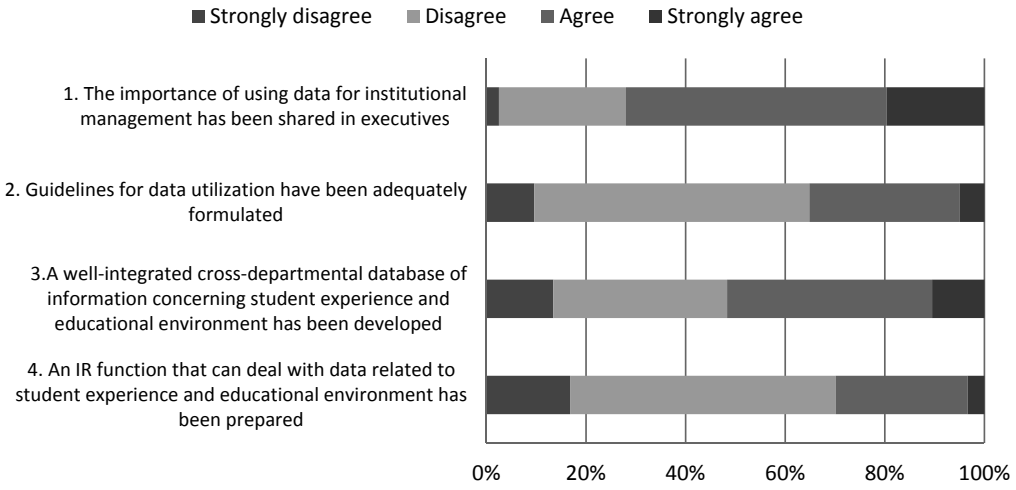

Figure 2. Preparation of infrastructure for data utilization

Based on the results of the quantitative analysis of the nationwide survey, the following findings were obtained: 1) Japanese institutions are less inclined to disclose educational information to the public as compared to use data for educational improvement within the institution, and 2) although many executives of institutions are aware of the importance of data utilization, infrastructure for data utilization such as guidelines for data utilization, an integrated database, and IR functions, have not been prepared sufficiently.

That is to say, in light of the description of the maturity level in the model (Taylor et al., 2013), the current status of IR in Japan can generally be classified as Level 1 or Level 2. In particular, from the perspective of routine institutional management, there is considerable chasm between Level 2 and Level 3 in terms of developing an integrated DWH or business intelligence in certain institutions.

4. Case study and discussion

4.1 Overview of Ritsumeikan Asia Pacific University

As noted above, a well-prepared information infrastructure was confirmed to prompt data utilization based on the results of a nationwide survey in Japan. Subsequently examine was an initiative at APU as an example of the preparation of infrastructure and the utilization of educational information in Japan. This section considers primarily an interview study conducted through the Office of the President of APU[2]. As described below, APU is a relatively small institution with a short history located in a rural area. What was the driving force behind the preparation of information infrastructure and the development of a DWH in a short time at APU?

In order to understand APU's specific characteristics, an overview of APU's profile based on information provided on the official website of the university is described.[3] APU, which has been designated as a Top Global University (Global Traction Type) in Japan, was established in April, 2000 under the principals of freedom; peace and humanity; international mutual understanding; and the future shape of the Asia Pacific region. APU consists of two colleges and two graduate schools: the College of International Management; the College of Asia Pacific Studies; the Graduate School of Management; and the Graduate School of Asia Pacific Studies.

In order to attract both international and domestic students, APU actively provides various information on admissions, curriculum, exchange programs, research, international and community service, career support, and student life on Japanese and English language websites. According to the President of the University, APU is currently home to over 5,700 students from approximately 80 different countries and regions (APU, n.d.-a).

> With 2,600 international students making up almost half of their student body, and a 50% international faculty, the multilingual and multicultural APU learning environment, combined with their students' ambition and desire to grow, is unique not only in Japan but indeed in the world. APU has adopted an educational system that is unprecedented in Japan, including a spring/fall enrollment system; a dual-language curriculum allowing students to take undergraduate courses in either Japanese or English; and a 1,300-room international dormitory on campus that also serves as a venue for international exchange. (APU, n.d.-a)

In this context, APU seeks to be a quality university that can contribute to the realization of a future in which the Asia Pacific region can develop into a peaceful and harmonious society. Moreover, in anticipation of a competitive and diverse higher education industry, as a mid-range plan, the university has APU 2030 Vision:

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[2] The interview was conducted on Monday, August 29th 2016 in Beppu, Oita. The present authors are responsible for the results of analysis.

[3] Ritsumeikan Asia Pacific University: http://en.apu.ac.jp/home/

> APU graduates possess the power to change our world. In our global society, which is made up of innumerable cultures and values, conflict and friction are bound to occur. APU strives to cultivate global citizens who will build a peaceful world through understanding and accepting cultural and historical differences. Fostering graduates with these abilities is at the core of APU's ideals of freedom, peace, and humanity; international mutual understanding; and the future of the Asia Pacific region. APU graduates will pursue freedom and peace with a deep respect for human dignity. By acting for the sake of both individuals and society, they can change the world. APU nurtures individuals who can change the world (1) to cooperate and overcome conflict through dialog for the benefit of society, (2) to tolerate cultural differences and unfamiliar challenges, (3) to create new values incorporating diverse perspectives and ideas, and (4) to envision their own goals and continue to grow as lifelong learners. (APU, n.d.-b)

In order to cultivate such individuals, APU is engaged in the following efforts: (1) to further utilize its preeminently multicultural campus to immerse students in a global learning community that provides them with opportunities to grow; (2) to create a new global learning standard by pursuing internationally compatible education and research; and (3) to strengthen ties with its invaluable stakeholders, from the local community to alumni around the world, working together to further develop the university and its educational programs (APU, n.d.-b). At the same time, APU enhances the first-year program for undergraduates through the active utilization of peer leaders, such as peer supporters for international students, teaching assistants, and tutors in writing. In the diverse learning community at APU, the peer leaders system itself can be considered to be a significant opportunity for student growth and learning (Shin et al., 2016).

Based on the above strategic institutional priorities, effort is required in order to achieve the organizational objectives and demonstrate educational outcomes. In other words, the university must carry out the objective-oriented data analysis regarding educational performance in terms of internal quality assurance.

4.2 Information infrastructure improvement for IR development

Note that, unlike many other universities in Japan, the IR Project Team at APU, which consists only of administrative staff, played a leading role in the formulation of the DWH during the initial stage of development of the IR function. In 2012, the IR Project Team was established within the Office of the President of APU. The IR Project Team was led by an executive officer who recognizes the importance of evidence-based decision making within the organization. Prior to the introduction of IR at APU, they collected information on existing practices in terms of IR development, such as enrollment management at Yamagata University and educational improvement supported by IR at Ritsumeikan University. In particular, IR at Ritsumeikan University emphasizes dialogue between people involved in learning and teaching and is implemented based on research questions relevant to

the institution (Torii, 2015).

The purpose of the IR project at APU is to assist campus-wide decision-making based on evidence. As such, student-related processes, ranging from admission to events during their time at the university, at the time of graduation, or at a certain point after graduation, are managed and analyzed, following which the results of such management and analysis are used for formulation of policies. There are three short-term IR-related challenges at APU: 1) data and indexes that are important for APU will be collected and managed systematically, 2) significant data and indexes will be tracked, monitored, and analyzed, and 3) analytical results from data and indexes will be used for policy formulation, evaluation, improvement, and reforms (Office of the President of APU, 2014).

Considering the diversity of student profiles, APU must reflect on fundamental research questions such as: "How are our students learning?" and "How does the multiclutural learning environment impact students learning outcomes?" There are different ways of thinking about the diversity of student profiles, which can be divided by gender, ethnicity, national status, race, and learning experience, among others. At the beginning of initiative, the IR project sought to clarify the actual conditions of students at APU. In order to do so, a relational database system was constructed, enabling students' journeys to be monitored as learning processes. Linking data from separate databases according to student number (processed matriculation number) and analyzing these data should be taken to have a true figure of the individual student. Representatives from the academic office, the admissions office, and the student office initiated a series of discussions on the basic principle and framework of the concept of the DWH. As can be seen in Figure 3, information infrastructure improvement for IR development at APU has been developed continuously. In the process of DWH development, APU obtained technical support from the Information Systems Division of Ritsumeikan University, which accumulates experience and knowledge on the development of information infrastructure. (Both APU and Ritsumeikan University are administered by Ritsumeikan Trust.) The DWH is flexible, and upgrading the database requires no additional hardware costs.

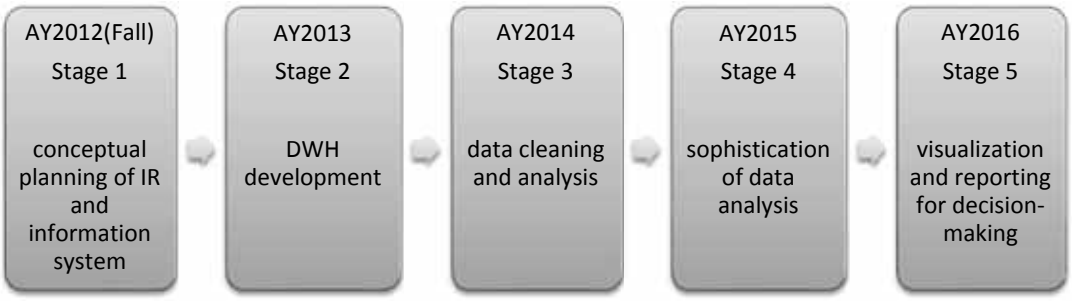

Figure 3. Development process of IR and DWH at APU

The IR project reached a milestone when the DWH was developed in March 2014. In view of the maturity model, APU overcame the chasm between Level 2 and Level 3 through far-sighted leadership and practical decision making within a year and a half. APU is notable for its rapid development of information infrastructure led by a senior administrative officer. For the most part, the APU executive meeting and senior managers discuss the broad policy of data utilization. The Office of the President at APU, the deans of different college, and relevant sections consider concrete analytical policy depending on educational issues in a collaborative and coordinated manner.

4.3 Strategic utilization of educational information

Regarding student profiles and their perception of learning, APU collects the following data or educational information corresponding to the degree of importance of the monitoring strategy: number of applicants; number of nationalities of current students; ratio of international students; acquisition of credits; participation in extracurricular activities; experiences abroad/study abroad; experiences of peer leaders; career after graduation; scholarship recipients; study time; use of libraries; language test score; number of friends; key factors in decision on attending the university; satisfaction with APU; sense of belonging at the university; personal development; self-perceived level of language ability; etc. Based on cross totalization analysis of these variables mentioned above, this information can clarify the tendency of certain student behaviors or attitudes toward learning. For instance, in light of achieving the goals and quantitative indicators of the Top Global University Project, APU explores a model for student success in improving linguistic competence. By understanding and promoting positive learning experiences, the university can encourage student growth through the adoption of successful models.

In August 2016, APU entered a new realm of the global higher education market through international accreditation. Both the College of International Management and the Graduate School of Management earned accreditation from the Association to Advance Collegiate Schools of Business (AACSB) for the first time (APU, 2016). The AACSB, founded in 1916, is a global membership organization of educational institutions, businesses, and other entities committed to the advancement of business education. This organization ensures the highest quality standards in business education to prepare the next generation of business leaders (AACSB International, n.d.). This means that the business degree program at APU should meet not only the criteria of domestic accreditation (Japan University Accreditation Association) but also international standards set by the AACSB, such as faculty qualifications and curricula. Therefore, as a pressing issue, APU is required to accelerate educational enhancement through international benchmarking as needed. The university, at least the business program, recognizes the necessity of assembling required data and translating these data to actionable information for use in decision making with respect to curricular reform for the coming year. In this context, the importance of strategic utilization of educational information further increases at APU.

5. Conclusion

The purposes of the present study were to identify the main issues regarding data utilization and disclosure and data infrastructure at an institutional level and to determine the conditions for promoting evidence-based improvement and transparency in Japanese higher education. The results of a nationwide survey revealed that Japanese institutions are particularly weak in terms of educational information disclosure to the public and the preparation of infrastructure for data utilization. This may reflect concerns and diffidence of institutions that disclosure of information and benchmarking might negatively impact the reputation of the institution and student recruitment. Thus, the actual condition of higher education in Japan is, in general, not sufficiently clear, especially when viewed from overseas. However, taking into account the decline in 18-year-old population in Japan and student acquisition from abroad, clearly communicating the advantages and attractiveness of Japanese universities would appear to be of the greatest importance. Overcoming these problems requires a strong infrastructure for data utilization.

In this condition, APU can be recognized as a proactive Japanese university in terms of the global higher education market. Based on the analysis of APU's initiatives on strategic infrastructure preparation and the utilization of educational information, there are a number of implications for Japanese universities and colleges in promoting evidence-based improvement and transparency.

First, regarding information infrastructure development as the initial step in evidence-based improvement and transparency, top management has played a leading role in setting up a relational database at APU. As described in the maturity model, the DWH can exponentially enhance the IR capacity to support institutional decision-making. Decisive leadership will be an indispensable factor in achieving rapid progress toward information infrastructure development in Japan.

Second, the concept of evidence-based improvement and transparency enhancement through reflecting institution-related research questions will be useful for not only efficient data collection but also effective data utilization for strategic decision making. As described above, APU is attempting to cultivate graduates who understand and accept cultural and historical differences in today's global society. Identifying positive impacts on graduates' learning experiences in terms of their global attributes could be one area of IR at APU in the very near future.

Although it is merely one example, APU's efforts to become a globally oriented institution in Japan were discussed. Needless to say, the information system and IR should reflect the character and culture of the institution, and not *vice versa*. Consequently, further case study is necessary in order to achieve evidence-based improvement and transparency at the institutional level.

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