

# University Website Optimization and Google Scholar for Academic Recognition

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## 大学とその学者の認知度を同時に高めるためのウェブサイト最適化と グーグル・スクolarの活用

マッカーティ・ステイブ

### 抄 録

この論文は、大学のグローバル・ランキングと研究を発表する学者の認知度を同時に高めるために、大学の諸ステークホルダーが何を達成できるか明示してみる。大学のあらゆる学界・社会への貢献を最大限認められるために、ウェブサイトの最適化、研究リポジトリ、グーグル・スクolarのプロフィールを活用させる具体的な作戦をすすめる。主なグローバル・ランキングの組織とグーグル・スクolarが明確にした基準を応用する上に、効果的なウェブサイトの作り方と学界の開放的な倫理も議論する。京都、大阪、神戸の私立大学8件の例を取り上げ、国際化と研究業績によって比較した結果で、ほとんどの大学のランキングの上がる可能性が大きいと結論する。

**キーワード：**グローバル・ランキング、グーグル・スクolar、大学、ウェブサイト、最適化  
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### Abstract

This paper shows what individual stakeholders can do to raise the global rankings of their university along with the academic profile of scholars who publish. In order to receive due recognition, many specific strategies for optimizing university Websites, research repositories, and Google Scholar Profiles are recommended, according to the stated criteria of global university ranking organizations and Google Scholar, along with generally effective Web practices and an ethic of openness. The rankings of eight leading private universities in the Kansai region of Japan (Kyoto, Osaka, and Kobe) are compared and analyzed in terms of internationalization and publications, showing where universities are outperforming their peers (in one case) or underperforming (in most cases), which indicates great scope for improvement in world rankings. However, this is shown to be best achieved by involving all possible stakeholders in the public face of the university on the Web, and by treating their teachers well.

**Keywords:** global rankings, Google Scholar, university, Website, optimization

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## **University Website Optimization and Google Scholar for Academic Recognition**

While Google Scholar is useful to find reliable research sources, it is increasingly used also to evaluate the academic output of individuals (Rice, 2013) and higher education institutions (Webometrics, 2013). McCarty (2013) investigated the criteria utilized by eight prominent higher education ranking organizations. Online factors, providing data that are convenient and economical to gather, were found to play a growing role in the ranking criteria. This paper will therefore argue that when institutions underperform in national and international rankings, they could benefit from optimization strategies to align their Web presence with the algorithms by which their academic output is measured.

The Japanese education ministry will be shown to recognize this issue, offering incentives to help leading universities rise in the global rankings (MEXT, 2013). Then cases of specific universities will be presented, comparing the domestic reputation of eight leading private universities in the Kansai region with their academic performance as measured by four global university ranking organizations. One university is found to surpass its regional reputation compared to the other seven, so specific evaluation criteria are analyzed to account for the results, and also to indicate areas where most universities have room for improvement in their rankings.

Moreover, Google Scholar has the added dimension of data on individual authors who can, in the aggregate, contribute to the rankings of their institutions. Citations in particular, the gold standard of peer recognition, are utilized in rankings as counted by Google Scholar, but its automatic algorithms may find only a fraction of the citations to the publications of individual authors. To remedy what individuals can affect, certain online document formats, research repositories, and Google Scholar Profiles will be recommended. This paper will thus provide detailed optimization strategies that all university stakeholders can implement. The purpose is to achieve not an unfair advantage but due academic recognition both for individuals and their institutions.

The conclusion will observe that a university is interdependent with all of its stakeholders and affiliated scholars. A mutual commitment is therefore needed, where universities that treat their teachers and stakeholders better will tend to rise higher in the global rankings.

### **Japanese Education Ministry Initiatives**

Japanese businesses are expanding abroad, and government policy is moving in the direction of educational reforms, as per a recent proposal to the Cabinet of the Prime Minister

("University Education and Global Human Resource Development," 2013). English education is to be strengthened, and particularly to attract more foreign students (which is a common criterion in university rankings), financial support is being provided to leading internationally oriented universities to offer degree programs taught entirely in English (About Global 30, 2013; "Global 30 Universities," 2013).

The Japanese education ministry (MEXT) recognizes the issues detailed in this paper. Besides announcing extra funds for the top 10 Japanese universities to rise in global rankings, MEXT was cited as follows: "In order to rise in rankings, it is necessary for researchers attached to universities to do original studies, through which, among other things, their published papers will be cited by other researchers" ("Daigaku sekai ranku," 2013, author's translation).

### **What Global Rankings Indicate about Private Universities in the Kansai Region**

In the case of eight large private universities well known in the Kansai region encompassing Kyoto, Osaka, and Kobe, it is possible to compare their domestic reputation with their global rankings, which may in relative terms indicate if some universities are underperforming or punching above their weight. Their domestic reputation has been stable over many years in public perceptions. Kwansai Gakuin University, Kansai University, Doshisha University, and Ritsumeikan University, called *kankandoritsu*, are considered the first tier among large private universities in the Kansai region, while Kyoto Sangyo University, Kinki (Kindai) University, Konan University, and Ryukoku University, called *sankinkoryu*, are considered the second tier. The relative gap in prestige between the two tiers can affect the career trajectories of graduates. *Kankandoritsu* are called the "leading private universities" (Wikipedia, 2013a) in the region of 20 million people, or competitive-entry private universities in the Kansai region and Western Japan (Wikipedia [in Japanese], 2013b, author's translation). *Sankinkoryu* are known as mainstay private universities in Kansai (Wikipedia [in Japanese], 2013c, author's translation).

Next the domestic reputation of the eight universities will determine their order in the following chart. By investigating their external evaluations compared to other Japanese and Asian universities, it will be evident whether their global rankings are aligned with their domestic reputation, or whether there are divergences that need to be further investigated.

Among the major university ranking organizations investigated by McCarty (2013), three listed all eight of the universities and an Asian top 300 ranking included half of them. Other ranking organizations were excluded from this analysis because their limited world rankings did not extend to private universities in the Kansai region. The three organizations that do have rankings by country including Japan appear in the top line of Figure 1 below. They are abbreviated as 4ICU (4 International Colleges & Universities, 2013b), WM or Webometrics (Ranking Web of Universities, 2013), and SIR (SCImago Institutions Rankings, 2013). A fourth

organization, QS (Quacquarelli Symonds, 2013) goes so far as to list the top 300 universities in Asia, including four of the eight universities investigated:

	4ICU Japan	QS Asia 300	WM Japan	WM World	SIR Japan	SIR Asia	SIR World	Average Japan
Kwansei Gakuin	49	251- 300	82	1,850	151	667	2,018	94 (5)
Kansai	21		43	1,285	104	441	1,467	56 (4)
Doshi- sha	22	201- 250	39	1,210	86	367	1,257	49 (3)
Ritsu- meikan	44	181- 190	15	649	57	259	974	39 (2)
Kyoto Sangyo	38		111	2,191	215	936	2,524	121 (7)
Kinki	41	181- 190	31	1,080	38	176	738	37 (1)
Konan	130		128	2,499	189	836	2,340	149 (8)
Ryu- koku	28		71	1,690	187	828	2,327	95 (6)

Figure 1: Eight Kansai Private Universities - Domestic Reputation vs. International Rankings.

How can these results be interpreted? The rankings of the eight Kansai universities are listed, with lower numbers meaning higher rankings. In the Average Japan column on the right is the average of the universities' numerical rankings according to 4ICU Japan, Webometrics (WM) Japan, and SCImago (SIR) Japan. These averages are ranked in order in parentheses, with (1) meaning the best average rankings among the three prominent international organizations that rank Japanese universities. This order is nearly in accord with their domestic reputation: *kankandoritsu* as the first tier and *sankinkoryu* as the second tier. They are all ranked lower nationally by SIR because it includes research centers, even those of corporations, but the relative rankings are still similar to those of 4ICU and WM. All eight rank in the top 20% of Japanese universities and are generally ranked above other Kansai private universities, which is consistent with their domestic reputation. Moreover, three of the four *kankandoritsu* universities are ranked among the Top 300 universities in Asia by Quacquarelli Symonds, and the rankings by QS are fairly consistent with the rankings for Japan by the other three organizations. Therefore it would be difficult to dismiss the domestic reputation of the eight Kansai private universities as out of date or fossilized. However, there is one remarkable disparity in the results. Kinki University (Kindai), one of the second tier in terms of domestic reputation, outperforms all of the other private universities in the Kansai region in average rank among the three lists for Japan, and it is listed immediately above Ritsumeikan University

in the QS Asia Top 300. Therefore the hypothesis would be rather that Kinki University is engaged in effective practices according to the criteria of global university ranking organizations, whereas the *kankandoritsu* universities are underperforming and thus have considerable scope for improvement in their national and international rankings.

To test this hypothesis and pinpoint the factors involved, Figure 2 compares Kinki University (Kindai) with Ritsumeikan University, the second ranked Kansai private university in the Figure 1 results. The QS Asia Top 300 lists Kindai immediately above Ritsumeikan (Quacquarelli Symonds, 2013), although some imprecision is acknowledged with similar 181-190 rankings in Asia. Helpfully for this analysis, QS provides a breakdown of most of its criteria, by which the strengths and weaknesses of Kindai and Ritsumeikan relative to each other and to other leading Asian universities can be compared. However, precise data are not provided for two of the criteria, Academic and Employer Reputation, and the weighting of each criterion is not indicated, as most university ranking organizations do not completely disclose their proprietary formulae.

	QS Asia top 300 rank	Faculty-student ratio	Citations per paper	Int'l faculty	Int'l students	Papers per faculty	In-/Out-bound exchange students	Advantage
Kinki (Kindai)	181-190	63.3	90.4	37.1	5.3	22.2	4.4/1.2-	Publications
Ritsumeikan	181-190	24.9	34.5	71.5	30.3	14.9	4.9/16.5	Int'l-ization
Relative to each other & Asia 300	Same	Kinki good, Rits weak	Kinki excels, Rits weak	Rits good, Kinki weak	Rits better, both weak	Kinki better, both weak	Rits better, both very weak	Kinki overall advantage

Figure 2: Comparison of two universities according to QS Asia Top 300 Criteria.

With 181-190 rankings, both Kindai and Ritsumeikan are below average overall in the Asia Top 300, which includes flagship public universities, but their scores on specific criteria are strikingly different from each other. In the bottom row under the figures, their performance is termed excellent, good, weak, or very weak relative to the Asia Top 300, and they are compared to each other as well. Kindai has a numerical advantage overall in the available criteria.

Aside from Academic Reputation, Employer Reputation, and the scores for Faculty-Student Ratio, the other six criteria are characterized in Figure 2 as Publications (Citations per Paper and Papers per Faculty) or Internationalization (International Faculty, International Students, In-Bound and Out-Bound Exchanges of Students). Regarding the weighting,

although the categories related to internationalization are more numerous, the criteria related to publications may be inferred to carry more weight. For the *Times* of London, although it lists only a global top 400 (Times Higher Education, 2013), discloses that the “biggest proportion of a university’s ranking - a third - comes from how frequently its research is cited by academics” (Bushra, 2013), a point echoed by the Japanese education ministry (“Daigaku sekai ranku,” 2013). The above Figure 2 suggests that publications and particularly citations gave Kindai the advantage. While both universities were rated below average among the Asia Top 300 in most categories, Ritsumeikan was rated above average only in International Faculty, while Kindai, though weak in the number papers faculty published, outperformed in Citations per Paper. This supports the contention, developed further in this paper, that if higher global rankings are the aim, the issue is not the output of publications so much as the recognition they receive.

In Figure 1, 4ICU & SIR gave Kindai the advantage, while the Web-oriented WM rated Ritsumeikan more highly. This could suggest that Ritsumeikan, which also performs better in factors related to internationalization, engages in more effective practices to enhance its Web presence. Moreover, the Ritsumeikan University motto is “Beyond Borders,” stressing the importance of English education and pan-disciplinary information in English. However, Figure 2 may indicate that there is much room for improvement in gaining due recognition for faculty publications through optimization strategies.

### **Optimizing Web Presence for Academic Recognition and Global Rankings**

For stakeholders concerned with raising the global rankings of their university, some factors are beyond their control, such as the sheer number of scholars that gives large public universities an advantage in total academic output. This paper focuses on factors that individual stakeholders can affect. Knowing that rankings are conducted mostly online, the purpose is rather to optimize the university’s Web presence to align with the media and algorithms by which academic output is now measured. The criteria disclosed by ranking organizations at their Websites make it clear that many common practices and ways of thinking of universities are out of alignment with the forward-looking openness encouraged by contemporary Web-based measurements. This in turn indicates that there are many actions stakeholders can take to bring due recognition to the university’s accomplishments.

The criteria of university ranking organizations are somewhat technical but quite explicit, including specific recommendations. This paper reflects their open Web ethic to show that the same practices beneficial to the academic recognition of individual scholars accrue to the global rankings of the university.

### ***University Ranking Organizations and their Criteria***

This section reviews criteria and technologies utilized by prominent university ranking organizations. More details are provided on Website optimization factors that university stakeholders can affect, which at the same time reflect an increasingly open ethic of scholarship.

4ICU ranks over 11,000 colleges and universities in the world. The “4icu.org University Web Ranking Methodology” (4 International Colleges & Universities, 2013a) utilizes Google Page Rank, Alexa Traffic Rank, Majestic Seo Referring Domains, Majestic SEO Citation Flow, and Majestic SEO Trust Flow. SEO ordinarily means search engine optimization. Referring domains are other sites that make links to the university domain, also called inlinks or backlinks, and the number of backlink domains provides a measure of the broad usefulness of the official campus Website.

The Times Higher Education World University Rankings, mentioned earlier for its heavy weighting of citations, places its “performance indicators” under the rubric of “teaching, research, citations, international outlook and interaction with industry” (“Asian universities,” 2012). Ranking a limited number of universities, a few wealthy organizations can send out questionnaires, but with the stakes so high, questions have been raised about the reliability of the data they receive. Most ranking organizations economize by utilizing databases available online.

The US News & World Report (2012) world university rankings, as well as Quacquarelli Symonds (QS), upon whose criteria it is based, were designed to guide international students planning to study abroad. This calls attention to the fact that universities in Japan and elsewhere that aim to attract capable foreign students cannot ignore such external rankings, which prospective foreign students may consult before deciding where to apply. Most of the Japanese universities ranked in the Asia Top 300 are large public ones, again showing the advantage of sheer numbers of scholars with ample research funds. The latest QS criteria (Quacquarelli Symonds, 2013) appear in Figure 2. Japanese universities generally score poorly on international criteria compared to other Asian universities in the Top 300, and in world rankings, which shows where much more could be done. In this sense, the goal of the Japanese government to substantially raise the number of foreign students (Global 30 Universities, 2013) could be linked not only to the need for global human resources but also to the strategy for the leading universities to rise in global rankings (“Daigaku sekai ranku,” 2013).

SCImago Institutions Rankings (SIR) uses the Scopus database of peer-reviewed journals, conference proceedings, and the like. Scopus claims the widest geographical coverage and the largest number of non-English publications. SCImago data in turn are used by other ranking organizations including Webometrics (detailed next). SIR is clearly oriented toward

research institutions:

SIR Reports aim at becoming an evaluation framework of research performance for Research Organizations. The reports show indicators that will help users evaluate the scientific impact, thematic specialization, output size and international collaboration networks of institutions. The period analyzed covers 2003-2011 in five-year periods. The tables include institutions having published during the last year of the period at least 100 scientific documents of any type, that is, articles, reviews, short reviews, letters, conference papers, etc. as collected by worldwide leader scientific database Scopus by Elsevier. (SCImago Research Group, 2013, p. 1)

The Academic Ranking of World Universities (ARWU) is similarly oriented toward large research institutions, reporting a global top 500, with about 1,000 universities included in rankings also by field and subject. The main ARWU focus is on prominent journal papers and citations thereof:

[Criteria include the] number of highly cited researchers selected by Thomson Scientific, number of articles published in journals of Nature and Science, number of articles indexed in Science Citation Index - Expanded and Social Sciences Citation Index, and per capita performance with respect to the size of an institution. (Shanghai Jiao Tong University, 2013, para. 1)

A much more inclusive site, with practical advice for universities to raise their Web presence and hence their global rankings, is Webometrics (Ranking Web of Universities, 2013c). The Ranking Web of World Universities ranks the Web presence and performance of over 20,000 universities worldwide, regionally, and by country. 'Size' as a Webometrics criterion means the output of Web pages. Webometrics asserts that on-campus survey data would not be reliable, and that institutions will rapidly lose ground if they do not work on their online presence. Webometrics is a leading voice among rankings organizations in the movement toward open scholarship. The following passages, although long, show their way of thinking, which is in accord with that of active contemporary scholars who seek the widest exposure for their academic work:

The original aim of the Ranking is to promote academic web presence, supporting the Open Access initiatives for increasing significantly the transfer of scientific and cultural knowledge generated by the universities to the whole Society. (Ranking Web of Universities, 2013c, para. 4)



Today the

Web is key for the future of all the university missions, as it is already the most important scholarly communication tool, the future channel for the off-campus distance learning, the open forum for the community engagement and the universal showcase for attracting talent, funding and resources. (Ranking Web of Universities, 2013c, para. 6)

Webometrics uses link analysis for the evaluation of quality and research output, which latter includes “not only formal (e-journals, repositories) publications but also informal scholarly communication” (Ranking Web of Universities, 2013c, para. 12). Publishing on the Web can “reach much larger potential audiences, offering access to scientific knowledge to researchers and institutions located in developing countries and also to third parties (economic, industrial, political or cultural stakeholders) in their local community” (Ranking Web of Universities, 2013c, para. 14).

If the web performance of an institution is below the expected position according to their academic excellence, university authorities should reconsider their web policy, promoting substantial increases of the volume and quality of their electronic publications. (Ranking Web of Universities, 2013c, para. 14)

The technical side of Webometrics also includes useful advice for universities concerned with their global rankings. The weighting of criteria is 50% Visibility or Impact: “counting all the external inlinks (and the number of domains originating those backlinks) that the University webdomain receives from third parties. Those links are recognizing the institutional prestige, the academic performance, the value of the information, and the usefulness of the services” (Ranking Web of Universities, 2013c, para. 21). The other 50% is Activity, which is subdivided into thirds. Presence (1/3) means the “total number of webpages hosted in the main webdomain (including all the subdomains and directories) of the university as indexed by the largest commercial search engine (Google)” (Ranking Web of Universities, 2013c, para. 22).

It is not possible to have a strong presence without the contribution of everybody in the organization as the top contenders are already able to publish millions of webpages. Having additional domains or alternative central ones for foreign languages or marketing purposes penalizes in this indicator and it is also very confusing for external users. (Ranking Web of Universities, 2013c, para. 22)

Openness (1/3). The global effort to set up institutional research repositories is explicitly recognized in this indicator that takes into account the number of rich files (pdf, doc, docx, ppt) published in dedicated websites according to the academic search engine Google Scholar. (Ranking Web of Universities, 2013c, para. 23)

The final 1/3 of the 50% for Activity is Excellence, measured by the “academic papers published in high impact international journals” (Ranking Web of Universities, 2013c, p. 24). Even more specific optimization recommendations are offered by Webometrics (Ranking Web of Universities, 2013a). For further discussion of university ranking organizations and their biases, see McCarty (2013).

### ***Campus Website and Publishing Recommendations***

According to the criteria of the above university ranking organizations and Google Scholar (n.d.), along with effective Web practices, the following specific recommendations can be implemented for greater Website impact and due recognition of academic accomplishments, which also accrue to the global rankings of the university.

- ❖ The more content, the better, so let all affiliated stakeholders, including part-time teachers and retirees, contribute as much content as possible to the university Website.
- ❖ Campus sites should be on the open Web, not password-protected, in order to be spidered by search engines. Post at least all of the academic and publicly useful content in the main campus domain, e.g., [www.xyz.ac.jp/subdomain/article.pdf](http://www.xyz.ac.jp/subdomain/article.pdf)
- ❖ Since more academic content and links to the site from various domains are rated more highly, have versions of articles and important information in English and other languages. A bilingual abstract and keywords under articles may also attract more recognition and links.
- ❖ Interlink all Web content from `index.html` and other campus pages, otherwise *orphan* pages are not found by search engines. By the same token, have permanent links or unchanging URLs for each Web page. Changing the path to Web resources breaks any links that were made from other sites, which reduces traffic and diminishes links to the university Website.
- ❖ Standardize the exact spelling of the university’s name in all languages used, and the spelling of the names of authors affiliated with the university. Google algorithms can usually match full names with a comma and initial after a surname, but always publish under the exact same name, as search engine algorithms may miss variations and misspellings.
- ❖ In published articles on the campus server, write the university’s name in the line

below the title and author's name, all in full and exact spellings, and in two or more languages including English. An abstract, References, and other characteristics of academic papers may be necessary for articles to be recognized as academic papers by Google Scholar and other algorithms.

- ❖ The preferred file format for online publications is PDF (Google Scholar, n.d.), and other rich file formats such as .docx and .pptx (Ranking Web of Universities, 2013c). Also save presentations in PDF format for the campus site or research repository.

### ***Overall Recommendations***

- ❖ Have an open source online campus research repository, and try to get permission for as many outside publications as possible to be republished in it.
- ❖ All affiliated scholars who publish should maintain and customize a Google Scholar Profile. Start at <http://scholar.google.com> or, in Japanese, <http://scholar.google.co.jp>
- ❖ Optimize as well as maximize Web presence according to evaluation criteria of university ranking organizations, and align formats of academic articles with Google Scholar and other online algorithms by which academic output is measured.
- ❖ Have all campus Website pages interlinked, and encourage links from other domains by providing faculty homepages and useful community services. Show abundance and openness rather than controlled scarcity and exclusiveness.

### **Conclusion**

Many universities in Japan and other non-Western countries are underperforming due to a lack of citations (MEXT, 2013) and rich content including English on their Website, so there is great potential to contribute to local institutions by helping optimize academic accomplishments for fuller recognition. Taking international rankings as a given, this paper showed that they could not be ignored, for instance because the reputation and attractiveness of universities to foreign students are affected by the increasing attention to rankings.

For further details on how to establish and maintain research repositories as well as how to set up and customize Google Scholar Profiles, see McCarty (2014). Their interoperability is such that new additions to a campus repository could result in an increase of citations found by Google Scholar. Hands-on faculty development or IT staff workshops could be recommended for technical training in optimization and customization, though it is hoped that this paper and McCarty (2014) provide specific enough guidelines to make a difference in academic recognition for universities along with their individual scholars.

In summation, ranking organizations advise that all stakeholders are needed to contribute to the measured output of the institution, which is becoming synonymous with their Web presence. Universities may therefore be relegated to lower rankings by part-time hiring and

high teacher turnover. Current practices could be improved by encouraging part-time and retired teachers to use the campus domain and the university's name in their publications, because it is all counted. A mutual commitment is ultimately needed between the university and its stakeholders. Universities that treat their teachers better will improve their quality of education along with their global rankings.

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