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Title

PlumX: A Tool to Showcase Academic Profile and Distinction

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Abstract

Purpose - Saint Mary's College of California (SMC) Library plays an integral role in supporting one of the goals in the College's Strategic Plan: "Raise the Academic Profile and Distinction." This case study aims to assess the effectiveness of PlumX as a tool to showcase the academic profile and distinction of SMC. The Library recognizes the importance of capturing impact of non-traditional creativity and engagement in addition to just traditional impact metrics of research.

Design/methodology/approach - This case study describes the collaborative effort of the College and the College's library to identify faculty scholarship, creativity, and engagement and collect data demonstrating the impact of the works. Traditional metrics, like citation counts, do not do SMC faculty justice because faculty scholarship comes beyond just books and articles. To more fully document the intellectual corpus the College, the Library is working with a new system-- PlumX-- to collect web-based information about both traditionally and non-traditionally-published work.

Findings - The collection of metrics across five categories (citations, usage, social media, mentions, and captures), and the flexibility of displaying on screen or downloading for use in other analytic reports made possible through PlumX proved to be a start towards demonstrating the academic distinction of College's faculty population. SMC will continue to partner with PlumX to assess and improve its usability and effectiveness.

Originality/value - This paper outlines how altmetrics can be used to measure and share the impact of faculty research at a liberal arts, teaching-focused college in ways reflective of the unique intellectual contributions.

Keywords

Altmetrics, Bibliometrics, Plum Analytics, PlumX metrics, Research impact, Faculty scholarship output

Paper type Case Study

The Library at Saint Mary's College of California (SMC) plays an integral role in supporting one of the goals in the College's Strategic Plan: "Raise the Academic Profile and Distinction." While faculty publications have always been an important part of SMC library collection development, the Library also recognizes the importance of capturing the research impact of faculty members. Traditional metrics, such as citation metrics, are not always adequate to represent the true impact of faculty scholarship. Faculty works come in various forms, and their social presence on the Web is often not recorded. To more fully document the intellectual corpus of SMC, the Library has been experimenting with PlumX. This new altmetrics tool collects web-based information about traditionally and non-traditionally-published works, for example, interacting with community groups, giving interviews, and producing creative works. This case study looks at how a liberal arts college has used altmetrics to help address a campus initiative to better report the impact of faculty research, creative works, and engagement in the world.

Bibliometrics and Altmetrics

The Organisation for Economic Co-operation and Development defines bibliometrics as "a statistical analysis of books, articles, or other publications" (OECD, 2013). Bibliometrics such as citation counts and journal impact factors have long been used as traditional measures of scholarship. The discussion of their true representative value is also longstanding. A concern with citation counts is that it takes time for articles to be written, reviewed, and published, as well as to be read and cited. For some sciences in some publications, the turnaround can be quick; for humanities, social sciences, and business, the scholarly review process can take longer (Harley, et al, 2010). With journal impact factors, many studies, including Seglen's (1997) much cited criticism, lay out reasons why the metric posed trouble when used to evaluate research.

To counter some of the shortcomings of those traditional metrics, new impact calculations have been explored, and new metrics in general are gaining favor. Quantitative measures, such as use and social media sharing and saving were assumed, and now demonstrated, to predict eventual citation (Eysenbach, 2011; Thelwall & Wilson, 2016). Gathering these kinds of statistics can be a difficult task for many individual scholars and larger library science vendors.

In “Altmetrics: A Manifesto,” the term “altmetrics” was coined as “the creation and study of new metrics based on the Social Web for analyzing, and informing scholarship” (Altmetrics, 2010). Proponents of altmetrics claim that altmetrics data are generally available more quickly than traditional metrics. In addition to scholarly publications, other types of research outputs can also be tracked for their social impact as soon as they are published on the Web. On the other hand, critics argue that the value of altmetrics is overstated due to its lack of credibility and foundations. Still a developing trend, altmetrics cannot replace traditional metrics entirely (Tattersall, 2016).

The technology of altmetrics is far from perfect. Standards and methodologies of altmetrics should be critically assessed before adoption (Roemer and Borchardt, 2015a). The purpose and the context of how it will be used in measuring research impact needs to be clearly defined. While altmetrics seems to complement conventional metrics, critics caution that altmetrics data can be unreliable, trivial, and subject to manipulation and bias (Priem, 2014; Roemer and Borchardt, 2015).

Many organizations have begun to develop subscription or open access products that help researchers track alternative metrics. Altmetric, now a part of Digital Science based in the United Kingdom, launched early in the altmetrics movement. Impactstory is an open-source tool, funded by several large foundation grants. This resource allows for individual researchers to manage their own profiles and see data immediately.

One of the first large library vendors to get into altmetrics was EBSCO, who purchased Plum Analytics in 2014, two years after it was founded (Plum Analytics, 2016). Plum Analytics was later acquired by Elsevier in February 2017. PlumX Dashboards is one of the subscription products from Plum Analytics. Like other altmetrics tools, the growing list of data sources is sorted into simple categories which allow for similar metrics to be grouped to show more meaningful statistics: citation data from various sources is grouped into one data point, social media likes and shares in another, and so on. While much of the data are collected from many of the same freely available web APIs that other altmetrics resources use, PlumX’s relationship with its larger parent company allows for it to include additional proprietary data, including usage data from EBSCO’s large body of academic research databases.

Despite concerns expressed of altmetrics and the newness of these tools, advocates are optimistic about the future of altmetrics in examining research impact. During an interview with the *Chronicle of Higher Education*, Jason Priem predict that altmetrics would be fully assimilated into metrics studies in the next five years (June, 2016). The recent PlumX initiatives at the University of Pittsburgh (2016) and Georgia Southern University (2016) are excellent examples of two academic institutions successfully highlighted their faculty scholarship with altmetrics.

Library Initiatives to Implement PlumX

Distinctive Excellence: Saint Mary's College Strategic Plan

Rooted in its liberal arts, Catholic, and Lasallian traditions, Saint Mary's College of California (SMC) launched its five-year Strategic Plan (also nicknamed as "Distinctive Excellence") in 2015. One of the primary initiatives under the first strategic theme of the Plan, "Raise the Academic Profile and Distinction," is to be "nationally recognized for academic excellence." One key metric for achieving academic excellence is showcasing faculty achievements and publications. (Saint Mary's College of California, 2015). Under the direction of the Provost, and in collaboration with the newly established Office of Research, the SMC Library has embarked on a two-part initiative to showcase the impact and quality of faculty teaching, their extensive scholarship, and dedicated service to the College. The first part of the plan is to implement PlumX, an alternative metrics tool for measuring the impact of faculty scholarship, creative works, and community engagement. The second part of the plan is to build an institutional repository enabling faculty scholarship to be documented, collected, and preserved properly. The PlumX pilot project was implemented in 2014-2015; the proposal to establish an institutional repository has been approved and setup will commence in 2016-2017.

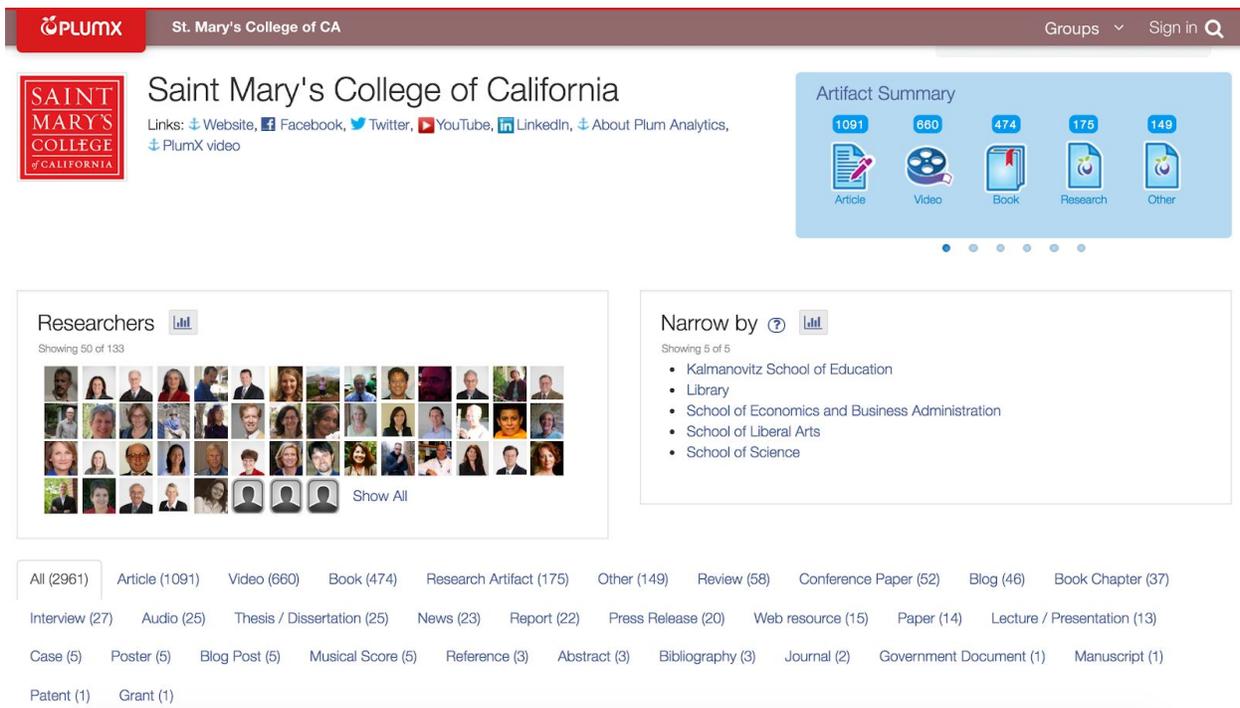
SMC and PlumX

SMC began a relationship with PlumX with a trial in July of 2014. What drew SMC to PlumX as an altmetric tool was the scope of collected "data exhaust," or the trail of interaction, review, and usage reports online artifacts collect. PlumX was presented to the Council of Deans in 2014-2015. After a successful trial when the School of Economics and Business Administration (SEBA) became the early adopters, funding was continued by the Office of the Provost. In 2015-2016, the Library extended the invitation to join to all faculty in the other three Schools: School of Science, School of Liberal Arts, and Kalmanovitz School of Education.

During the first two years of PlumX at SMC, two library staff members dedicated approximately five hours each per week to the project. Additionally, a temporary intern for this project was also funded for 300 hours, from summer 2015 through spring 2016. Staff time was dedicated to collecting and correcting faculty curriculum vitae, creating new profiles and communicating with Plum Analytics to fine-tune data in PlumX. An individual researcher profile was assigned to each faculty participant. These profiles were then placed into one of the four Schools and one of the Departments within each School. Each participating faculty member's scholarly output, creative works, and community engagement were added to the College's PlumX database.

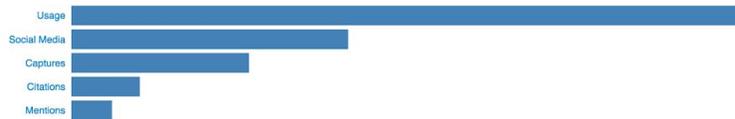
The SMC PlumX Dashboard collects all of the metrics data in one place. Each School, Department, and Researcher is summarized and can be viewed individually (Saint Mary's College of California- PlumX, 2016). As of December 2016, 133 researchers and a total of 2961 research output (known as “artifacts”) were added to SMC PlumX. The SMC researcher artifacts range from traditional articles and books to videos, interviews, conference proceedings, musical scores, patents and more. Any research product with a web presence is a potential artifact that can be tracked.

Image 1. SMC PlumX dashboard



The Dashboard has extensive options to sort, filter, and display data in both practical and visually interesting ways directly on each page. The data feeding those interactive displays can also be downloaded and used outside of PlumX for other projects and analysis. Users can quickly sort by the different statistics collected into the PlumX Dashboard to see what kinds of artifacts get different kinds of attention. For instance, the most shared artifact on social media is a popular magazine source from a Biology faculty member about a unique new shark. The artifacts with the most citations are predictably the natural sciences. The artifacts with the highest usage range from scholarly articles on business ethics to athlete interviews posted to YouTube.

Image 2. Artifact data summary



Year	Title	Type	All				
			Captures	Citations	Social Media	Mentions	Usage
2016	Emerging Tools and Applications of Virtual Reality in Education	Book	11	1			282
2016	Facilitating learning with the adult brain in mind : a conceptual and practical guide	Book	6			6	128
2016	Invasive Species Aren't Always Unwanted	News			5342	2	806
2016	Mahershala Ali - 2016 Commencement Address	Video			801	6	3830
2016	A dialectic of dreams and dispossession: the school-to-sweatshop pipeline	Article	49		1		5062
2016	Component procurement strategies in decentralized assembly systems under supply uncertainty	Article	18	1			282
2016	Conservation of Freshwater Fishes	Book	5	1		2	93
2016	Existentialist thought in African American literature before 1940	Book	4			1	277
2016	Optimizing assortment and pricing of multiple retail categories with cross-selling	Article	3	2			6
2016	The Wiley Blackwell Companion to Religion and Politics in the U.S.: McGraw/The Wiley Blackwell Companion to Religion and Politics in the U.S.	Book					105
	Uncertainty or Misvaluation? New Evidence on Determinants of Meroer Activiv from the						

Showcasing Impact of Faculty Scholarship

In 2014, the College's business school was awarded accreditation from the Association to Advance Collegiate Schools of Business (AACSB). Plans for the re-accreditation visit began almost immediately. As the College had come into AACSB under the immediately past rules, new requirements that were to be addressed in the five-year follow-up became the priority to investigate. One of the new rules was demonstration of the impact of faculty research (AACSB, 2016). The SEBA administration reached out to the library for assistance in finding best practices in impact of research studies. Using the library's expertise in scholarly communication practices and available tools to measure impact (i.e., Journal Impact Factor, citation counts, journal acceptance rates), SEBA included the Business librarian in the planning and implementation of a "Impact of Research Dashboard." Different from PlumX's online Dashboard, this specialized dashboard collects and communicates multiple points of external, quantitative data and internal, qualitative data.

The approach of the dashboard was to collect data points from a variety of sources and allow flexibility to leverage traditional and recognized measures-- such as citation and Journal Impact Factor-- with measurements of actual usage and inclusion in popular and scholarly conversation, data points made possible by the College's subscription to PlumX. Additionally, mixing quantitative measures-- both traditional metrics and new altmetrics-- with internally produced qualitative narratives would provide a richer summary of research impact than just columns of collected numbers.

Providing journal level metrics such as Journal Impact Factor and acceptance rate was used to give a better idea of the platform for the research publication. Article level metrics included the traditional measure of citation count, but altmetrics, such as

social media or other mentions, were used to provide a more complete picture of how the research piece was viewed and interacted with beyond just the scholarly world. Faculty were then asked to review the data and provide qualitative feedback on which of the School's strategic foci the research relates to, whether the piece was related to scholarship, practice or teaching, or if there were other notes of interest.

While varied, the measures and data points collected for the dashboard are not completely in-house creations, which is important because AACSB's suggestion to "consider the balance between customization and comparability" when designing impact of research measures (AACSB, 2016, p. 28). Altmetrics immediately began to showcase measurements more applicable to SMC faculty's research. and As Altmetrics gain widespread adoption, the same data will also be increasingly understood and comparable across institutions.

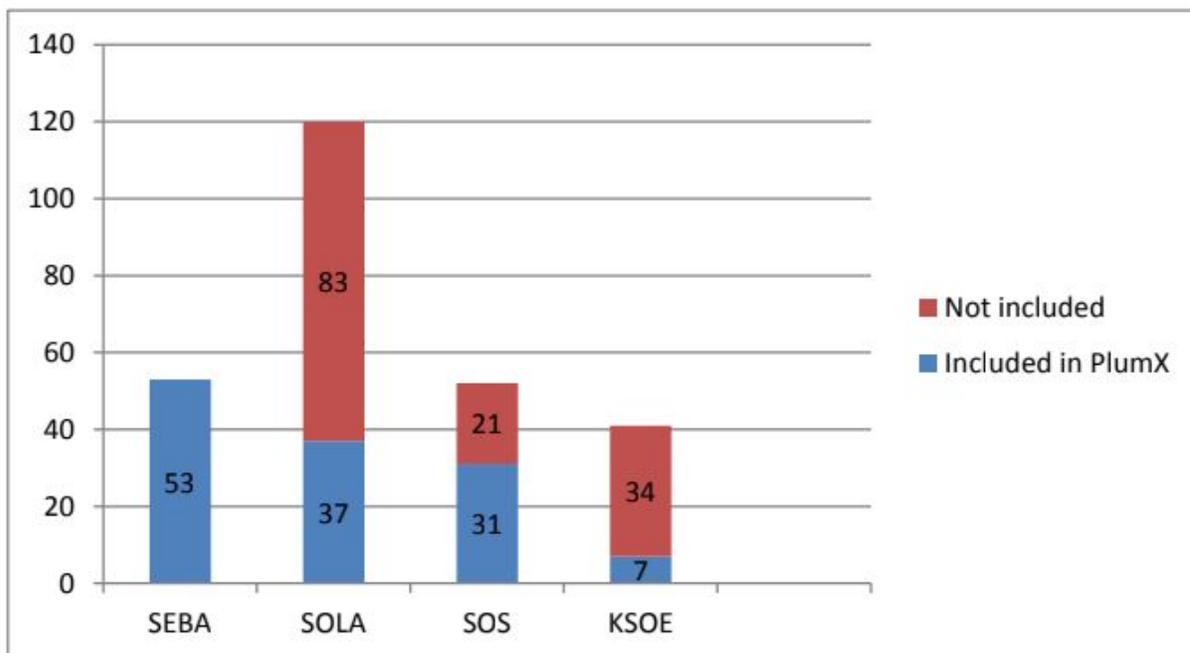
Beyond SEBA's use of altmetrics in their specialized dashboard, Saint Mary's College was able to take advantage of PlumX at an institutional level in other ways. Data from PlumX were also used by the Office of Research to produce the 2015 Faculty Research Report. The campus continues to investigate other situations where PlumX may be an effective tool to showcase the impact of SMC faculty scholarship and their activities in their professions.

PlumX: An Assessment

Faculty Participation and Feedback

After two years of outreach and publicity, 133 out of 274 (49%) SMC faculty members have profiles in PlumX. The School of Economics and Business Administration (SEBA) has the highest number of faculty participation (53 out of 53), followed by School of Science (31 out of 52), School of Liberal Arts (37 out of 120), and Kalmanovitz School of Education (7 out of 41).

Figure 1: Faculty participants in PlumX



The SMC Library did not conduct a formal survey to assess the reactions of participants towards PlumX. Throughout the recruitment process, the Library received a lot of anecdotal feedback from faculty participants, as well as non-participants. Faculty members who were reluctant to participate shared several reasons. Faculty members were skeptical that PlumX would be effective and useful in their fields and concerned the data could be used negatively in the tenure and promotion process. Also, faculty shared concerns over privacy and time commitment to learning about PlumX.

Faculty participants shared mixed responses after reviewing their PlumX profiles. Positively, participants were intrigued by the extraordinary impact of their works captured by the five metrics (captures, citations, social media, mentions, and usage). They were also impressed by the data visualization functionality. Participants who responded critically were dismayed that some research output without a web presence could not be measured, or that other artifacts recorded low impact, especially in the citation metrics. Participants also questioned how their PlumX profiles could be maintained efficiently and comprehensively in the long run.

Challenges in Data Management

PlumX inherits many strengths and limitations from being an altmetrics tool. As a frontrunner in the trends of emerging metrics, PlumX features both traditional and nontraditional metrics conveniently in one place. PlumX has succeeded in capturing

data in three out of the five metrics (social media, captures, and mentions) whenever data are easily accessible. Data availability on usage and citations, however, often depends on PlumX partnerships with other data providers. Although PlumX is able to capture a majority of metrics from EBSCO databases, the data are not comprehensive, since they exclude proprietary data that PlumX is unable to access from other data providers. Consequently, metrics of many artifacts are unavailable or incomplete. To be fair, the metrics compiled by PlumX are still valuable in their own right as they contribute to a more complete equation of scholarly impact (Lindsay, 2016), not to mention that PlumX data are easily exportable and its use of data visualization is impressive.

Many technical challenges in maintaining the SMC PlumX database exist. Populating artifacts is a labor intensive process due to its awkward administrative interface. In the current configuration, the artifacts are added by links and identifiers, while the pertinent metadata (e.g. title, author, year) are populated automatically (but invisible to site administrators). In the public display, the preliminary metadata for the artifacts are often incomplete or inaccurate, and need to be reported to PlumX support. From an administrator's perspective, the inability to see or edit the metadata directly is time consuming and has resulted in some very frustrating experiences in maintaining profiles.

Library Impact and Next Steps

During the first two years, a significant amount of staff time was required to add new PlumX profiles and artifacts, as well as communicate metadata discrepancies with PlumX support. Adding new artifacts continues to be a significant undertaking. PlumX Development is currently working on a series of enhancements designed to improve the product's usability and effectiveness to solve this problem. During this transitional period, the institution-wide recruitment for more faculty participants and data entry of new artifacts have been put on hiatus. We continue to add and update profiles on request by individual faculty and departments.

SMC PlumX is now in its third year. The Library is developing a sustainable plan to move forward using PlumX to benefit SMC faculty and enhance the distinctive excellence of the College. Securing an on-going commitment to fund the PlumX subscription, improving staff workflow, and recruiting underrepresented Schools and Departments remain a priority.

Following the footsteps of the University of Pittsburgh (Miller, 2013; Barnett & Chan, 2013) and Georgia Southern University (Lowery, 2015, 2015a, 2015b), SMC plans to embed PlumX into its upcoming bepress institutional repository. The integration between PlumX and bepress will enable the College to create a vital key performance

indicator in raising the academic profile of the College and its faculty members, as dictated in the College Strategic Plan.

Conclusion

From SMC's strategic initiative to better express "Distinctive Excellence" emerged the challenge of defining and showcasing "excellence" in faculty research, creativity, and engagement. Altmetrics from PlumX has shown to be a start towards this goal. Acknowledging that altmetrics in general are a new area of scholarship, the SMC Library has worked with individual Schools and the College as a whole to harness the data and put it towards a multi-pronged approach to assessment and publicity projects. As a tool to collect unique data, PlumX has fueled the College's efforts to better see the impact and value of faculty's work on the campus and beyond. As altmetrics-- and PlumX specifically-- mature, the data will certainly become more powerful and options more limitless.

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