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Collection Microclimates – Citation Study of Journal Usage Differences at Department and Research Group Level

Ian McCullough, *University of Akron Main Campus*

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Citation Study of Journal Usage Differences at Department and Research Group Level

Ian McCullough, Physical Sciences Librarian, Assistant Professor of Bibliography, University of Akron, Ohio, ibm@uakron.edu

ABSTRACT

Citations from journal articles and dissertations from the Department of Polymer Science (DPS) at the University of Akron from 2006–2011 were examined and journals ranked in order of usage frequency. Journal usage of dissertations and articles was also ranked within research groups. 85 dissertations and 464 faculty publications that included 378 publications from 16 dissertation advisors were examined. Citations to 1422 journals were counted and recorded. Findings demonstrate that individual groups vary wildly in journal usage representing microclimates for collection development purposes.

METHOD

- Dissertation cited works were counted and entered into a spreadsheet manually.
- Faculty articles, proceedings, and meetings were selected for examination, with reviews excluded due to not being original research.
- Faculty cited works were gathered following the method described by Cusker (2012), with a macro used to arrange trimmed citations into columns.
- Kendall's tau-b was chosen over Spearman's rho due to the large data set and high number of ties. For tau-b +1.0 is perfect correlation, 0 is no correlation, and -1.0 is perfect inverse correlation.
- Kendall's tau was calculated using SPSS 22.0.0.0.

Table 1. Top ten ranked journals cited by category. Lab groups with 5 dissertations and 10 faculty articles from 2006–2011 shown with Kendall correlation (τb) within group

All Faculty	All Advisors	Dissertations	Rank	Group A (τb = .696)		Group B (τb = .460)		Group C (τb = .448)		Group D (τb = .476)		Group E (τb = .415)		Group F (τb = .570)		Group G (τb = .608)		Group H (τb = .463)	
				Articles	Dissertations	Articles	Dissertations	Articles	Dissertations	Articles	Dissertations	Articles	Dissertations	Articles	Dissertations	Articles	Dissertations	Articles	Dissertations
Macromolecules	Macromolecules	Macromolecules	1	J. Rheology	J. Rheology	Macromolecules	Macromolecules	Polymer	Polymer	Macromolecules	Macromolecules	Phys. Rev. Lett.	Langmuir	Macromolecules	Macromolecules	Phys. Rev. Lett.	J. Chem. Phys.	Macromolecules	Macromolecules
J. Amer. Chem. Soc.	J. Amer. Chem. Soc.	J. Amer. Chem. Soc.	2	Macromolecules	Macromolecules	J. Amer. Chem. Soc.	J. Amer. Chem. Soc.	J. Appl. Phys.	J. Appl. Phys.	J. Amer. Chem. Soc.	J. Amer. Chem. Soc.	Langmuir	Phys. Rev. Lett.	Phys. Rev. Lett.	Phys. Rev. Lett.	J. Chem. Phys.	Macromolecules	J. Polym. Sci. Part A: Polym. Chem.	J. Polym. Sci. Part A: Polym. Chem.
Phys. Rev. Lett.	Phys. Rev. Lett.	J. Chem. Phys.	3	Phys. Rev. Lett.	Rheologica Acta	Polymer	J. Polym. Sci. Part A: Polym. Chem.	NanoTechnology	J. Polym. Sci., Part B: Polym. Phys.	Polymer	Polymer	Nature	Science	J. Chem. Phys.	J. Chem. Phys.	Macromolecules	Phys. Rev. Lett.	Rubber Chem. Tech.	ACS Polymer Preprints
Polymer	J. Chem. Phys.	Phys. Rev. Lett.	4	Rheologica Acta	J. Polym. Sci., Part B: Polym. Phys.	J. Polym. Sci. Part A: Polym. Chem.	Polymer	Macromolecules	Composites Sci. & Tech	Science	J. Chem. Phys.	Science	J. Chem. Phys.	Polymer	Langmuir	Phys. Rev. B	Phys. Rev. B	Polymer	Plast. Reconstr. Surg.
J. Chem. Phys.	Polymer	J. Polym. Sci. Part A: Polym. Chem.	5	J. Polym. Sci., Part B: Polym. Phys.	Phys. Rev. Lett.	J. Rheology	Langmuir	Appl. Phys. Lett.	Adv. Mater.	Chem. Mater.	Phys. Rev. Lett.	J. Exp. Biol.	J. Amer. Chem. Soc.	Appl. Phys. Lett.	J. Amer. Chem. Soc.	J. Phys. Chem. B	J. Phys. Chem. B	ACS Polymer Preprints	J. Amer. Chem. Soc.
J. Polym. Sci. Part A: Polym. Chem.	J. Rheology	Polymer	6	J. Non-Newt. Fluid Mech.	J. Non-Newt. Fluid Mech.	J. Polym. Sci., Part B: Polym. Phys.	Adv. Polym. Sci.	J. Polym. Sci., Part B: Polym. Phys.	Chem. Mater.	Adv. Mater.	Langmuir	J. Amer. Chem. Soc.	Macromolecules	J. Appl. Phys.	J. Appl. Phys.	Biophys. J.	Phys. Rev. E	J. Appl. Polym. Sci.	Polym. Bull.
J. Rheology	Science	Langmuir	7	J. Chem. Phys.	J. Chem. Phys.	Phys. Rev. Lett.	J. Org. Chem.	Adv. Mater.	Nano Lett.	Angew. Chem. Int. Ed.	Adv. Mater.	Macromolecules	Nature	J. Raman Spectrosc.	Polymer	Science	Biophys. J.	J. Amer. Chem. Soc.	J. Macromol. Sci., Pure Appl. Chem.
Science	J. Polym. Sci., Part B: Polym. Phys.	Science	8	Langmuir	J. Appl. Polym. Sci.	Science	Prog. Polym. Sci.	Carbon	Appl. Phys. Lett.	J. Polym. Sci., Part B: Polym. Phys.	Angew. Chem. Int. Ed.	PNAS	J. Phys. Chem. B	J. Amer. Chem. Soc.	J. Phys. Chem. B	Nature	Science	Macromol. Symp.	Polymer
J. Polym. Sci., Part B: Polym. Phys.	Angew. Chem. Int. Ed.	Angew. Chem. Int. Ed.	9	Europhys. Lett.	Trans. Soc. Rheo.	Langmuir	Makromol. Chem.	Phys. Fluids	NanoTechnology	Phys. Rev. Lett.	Science	J. Chem. Phys.	Proc. R. Soc. London Ser. A	J. Phys. Chem. C	Science	J. Non-Cryst. Solids	Nature	Biomaterials	Macromol. Symp.
Angew. Chem. Int. Ed.	J. Polym. Sci. Part A: Polym. Chem.	Nature	10	J. Chem. Soc., Faraday Trans. 2	Adv. Polym. Sci.	Rubber Chem. Tech.	J. Appl. Polym. Sci.	J. Fluid Mech.	Macromolecules	J. Phys. Chem. B	J. Polym. Sci., Part B: Polym. Phys.	Phys. Rev. E	J. Phys. Chem.	Langmuir	Phys. Rev. B	Phys. Rev. E	J. Non-Cryst. Solids	J. Macromol. Sci., Pure Appl. Chem.	Biotechnol. Bioeng.
									Carbon									Biomacromolecules	

Table 2. Kendall's tau-b (τb) of DPS groups with their advisees, all other advisors, all DPS faculty, and dissertations (N=1422).

Correlations..	Group A	Group B	Group C	Group D	Group E	Group F	Group G	Group H	Average
.. with their advisees	0.696**	0.460**	0.448**	0.476**	0.415**	0.570**	0.608**	0.463**	0.517**
.. with all advisors	0.306**	0.436**	0.382**	0.536**	0.338**	0.373**	0.442**	0.320**	0.392**
.. with all DPS faculty	0.265**	0.403**	0.326**	0.473**	0.287**	0.366**	0.378**	0.291**	0.349**
.. with all disserations	0.212**	0.367**	0.235**	0.348**	0.225**	0.306**	0.304**	0.246**	0.280**

** Significant at the 0.001 probability level

RESULTS

- Journals cited most frequently varied greatly between groups, but strong correlations existed within every group. Table 1 shows departmental top ten ranks on the left and group level rankings on the right.
- Table 2 shows Kendall τb correlations between advisor and advisee citations were on average +.168 above τb of individual advisors with all faculty articles.
- Some research groups in DPS had little correlation with each other's journal usage, (e.g. Group E and Group H have a τb of +.110).

PROBLEMS AND FUTURE DIRECTIONS

- There are many coauthorships within DPS that skews this data. Will isolating corresponding author papers help?
- What is the role of publication year? Are dissertation citations lagging or leading indicators of faculty usage?
- Do more traditional STEM departments have more homogeneous journal usage?
- Can you determine student journal needs by faculty publications outside of STEM research groups?

CONCLUSIONS/TAKEAWAYS

- An academic department is not a suitable sample pool for examining the journal needs of faculty in research groups.
- Faculty in the same department may have little in common with each other.
- Dissertations generally correlate to the faculty advisor's published work with regards to the frequency and title of journals cited.
- For liaison and outreach work, STEM faculty have appreciated this individualized and quantitative approach.
- When STEM faculty join your institution, examine their publication history to identify local collection gaps.

REFERENCE Cusker, J. (2012). Using ISI Web of Science to Compare Top-Ranked Journals to the Citation Habits of a "Real World" Academic Department. *Issues in Science and Technology Librarianship*. doi:0.5062/F40V89RB