



ON THE ROLE OF CITATIONS IN THE SOCIAL SCIENCES AND HUMANITIES

Wolfgang Glänzel

KU Leuven, ECOOM & Dept MSI, Leuven (Belgium)

Antwerp, November 2011

ECOOM

Structure of presentation

1. About Bibliometrics
2. Bibliometrics in the social sciences and humanities
3. The notion of citation
4. Citations in the social sciences and humanities
5. Book Citation Indexes: New horizons?
6. Concluding word

- ▶ Bibliometrics measures dissemination and flow of scientific information in the framework of documented scholarly communication.
- ▶ Bibliometrics does primarily not provide measures of quality of publications.
- ▶ These statements define the scope of evaluation using bibliometrics as well as opportunities and limitations of bibliometric applications.

Sciento-/Bibliometrics was developed for use in basic research of the life and natural sciences.

Characteristics of scholarly communication in the sciences

- ▶ Scientific journals are the main forums.
- ▶ Scholarly communication (in terms of information sources and targets) takes generally place within the scientific community.

Bibliometrics in the social sciences and humanities: *What is different?*

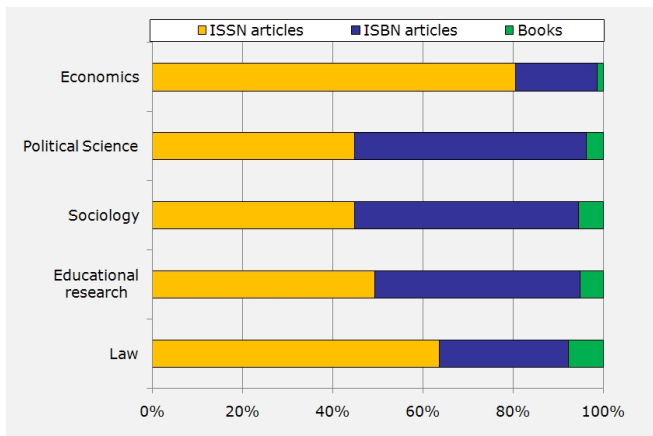
Extension of bibliometrics to SSH is confronted with the following issues:

- ▶ publication type
- ▶ journal coverage
- ▶ editorship vs. authorship
- ▶ national representation
- ▶ language representation
- ▶ role and interpretation of citation
- ▶ information source and target

Remark

Differences in *publication type*, on one hand, and *age* and *structure* of references, on the other hand, are the main characteristics of sciences and SSH.

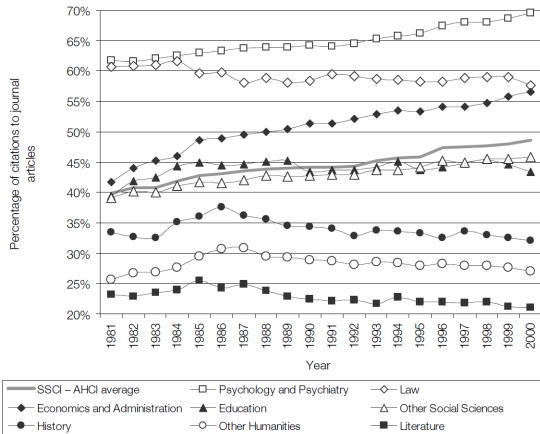
Publications according to discipline and publication type (FRIDA)



Source: SIVERTSEN, *Data sources for bibliometrics in the humanities and social sciences*, 2010

Bibliometrics in the social sciences and humanities

Evolution of the percentage of references to journal articles in different disciplines



Source: LARIVIÈRE ET AL., *JASIST*, 2006

Example: Age and structure of references in the sciences

Conductance of crossed carbon nanotubes

Nakanishi T, Ando T

JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN

70 (6): 1647-1658 JUN 2001

Cited References

- Postma HWC, 2000, PHYS REV B, V62, P10653
Igami M, 2000, PHYSICA B, V284, P1746
Ando T, 2000, SEMICONDUCTOR SCI TECH, V15, pR13, DOI ...
Führer MS, 2000, SCIENCE, V288, P494
Maarouf AA, 2000, PHYS REV B, V61, P11156
Choi HJ, 2000, PHYS REV LETT, V84, P2917
Yoshioka H, 2000, PHYS REV B, V61, P7316
Nakanishi T, 2000, PHYSICA E, V6, P872
Igami M, 2000, MOL CRYST LIQ CRYST, V340, P719
Ando T, 1999, J PHYS SOC JPN, V68, P3994
Igami M, 1999, J PHYS SOC JPN, V68, P3146
Ando T, 1999, MICROELECTRON ENG, V47, P421
Yoshioka H, 1999, SYNTHETIC MET, V103, P2527
Igami M, 1999, J PHYS SOC JPN, V68, P716
Odintsov AA, 1999, EUROPHYS LETT, V45, P598
Nakanishi T, 1999, J PHYS SOC JPN, V68, P561
Kwon YK, 1998, PHYS REV B, V58, P16001
Hertel T, 1998, PHYS REV B, V58, P13870
Kwon YK, 1998, PHYS REV B, V58, P13314
Matsumura H, 1998, J PHYS SOC JPN, V67, P3542
Ando T, 1998, J PHYS SOC JPN, V67, P2857
Ando T, 1998, J PHYS SOC JPN, V67, P1704
Delaney P, 1998, NATURE, V391, P466
NAKANISHI T, 1998, PHYSICA B, V249, P136
Egger R, 1997, PHYS REV LETT, V79, P5082
Kane C, 1997, PHYS REV LETT, V79, P5086
Ando T, 1997, J PHYS SOC JPN, V66, P3558
Nakanishi T, 1997, J PHYS SOC JPN, V66, P2973
Tamura R, 1997, PHYS REV B, V55, P4991
Tamura R, 1997, SOLID STATE COMMUN, V101, P601
-
- Chico L, 1996, PHYS REV B, V54, P2600
Ajiki H, 1996, J PHYS SOC JPN, V65, P505
Saito R, 1996, PHYS REV B, V53, P2044
MINTMIRE JW, 1995, CARBON, V33, P893
BETHUNE DS, 1993, NATURE, V363, P605
IJIMA S, 1993, NATURE, V363, P603
AJIKI H, 1993, J PHYS SOC JPN, V62, P1255
IJIMA S, 1991, NATURE, V354, P56
DRESSELHAUS MS, 1988, SPRINGER SERIES MAT, V5
MINTMIRE JW, 1983, PHYS REV LETT, V50, P101
MINTMIRE JW, 1983, PHYS REV B, V28, P3283
SPAIN IL, 1973, CHEMISTRY PHYSICS CA, V8, P1
SLATER JC, 1954, PHYS REV, V94, P1498
IGAMI M, UNPUB J PHYS SOC JPN

Source: Thomson Reuter, Web of Science, 2011

Example: Age and structure of references in the social sciences

Perceptions of social support availability and coping behaviors among

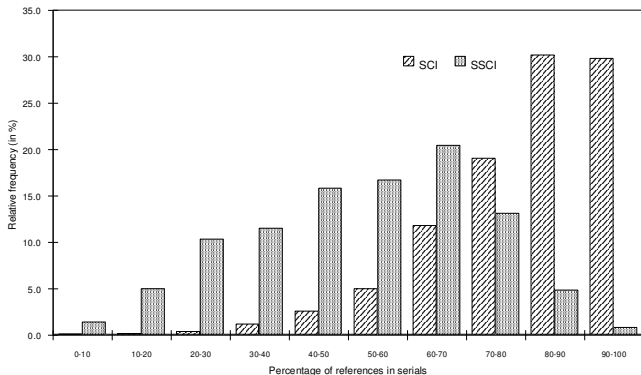
Ueno K, Adams RG
SOCIOLOGICAL QUARTERLY
42 (3): 303-324 SUM 2001

Cited References

- Ingram KM, 1999, AIDS CARE, V11, P313
LIN N, 1999, HDB STUDY MENTAL HLT, P241
TURNER RJ, 1999, HDB SOCIOLOGY MENTAL, P301
COLLINS RL, 1998, HIV SOCIAL INTERACTI, P30
DERLEGA VJ, 1998, HIV SOCIAL INTERACTI
SEIDEL J, 1998, ETHNOGRAPH V5 0 USER
UENO K, 1998, THESIS U N CAROLINA
Bass LA, 1997, J SOC PERS RELAT, V14, P123
KANIASTY K, 1997, HDB PERSONAL RELATIO, P595
SEIGEL K, 1997, HEALTH PSYCHOL, V16, P230
-
- NORRIS FH, 1996, J PERS SOC PSYCHOL, V71, P489
Sarason IG, 1995, NATO ADV SCI INST SE, V80, P179
BARNES MK, 1994, COMMUNICATION SOCIAL, P175
BURLESON BR, 1994, COMMUNICATION SOCIAL
HAYS RB, 1994, AIDS CARE, V6, P379
PEARLIN LI, 1994, PSYCHOSOC REHABIL, V17, P51
SARASON IG, 1994, COMMUNICATION SOCIAL, P91
TURNER HA, 1993, J HEALTH SOC BEHAV, V34, P37
HAYS RB, 1992, J CONSULT CLIN PSYCH, V60, P463
KESSLER RC, 1992, SER CLIN C, P259
SEIGEL K, 1991, J HLTH SOCIAL BEHAV, V32, P17
WELLMAN B, 1990, AM J SOCIOL, V96, P558
HAYS RB, 1990, J COMMUNITY PSYCHOL, V18, P374
HAYS RB, 1990, AM J COMMUN PSYCHOL, V18, P743
LAKEY B, 1990, J PERS SOC PSYCHOL, V59, P337
- DUNKELSCHETTER C, 1990, SOCIAL SUPPORT INTER, P267
ECKENRODE J, 1990, PERS RELATIONSHIP, P83
CROCKER J, 1989, PSYCHOL REV, V96, P608
WEITZ R, 1989, J HEALTH SOC BEHAV, V30, P270
MATON KI, 1989, AM J COMMUN PSYCHOL, V17, P203
KURDEK LA, 1988, J PERS SOC PSYCHOL, V54, P504
ADELMAN MB, 1987, COMMUNICATING SOCIAL, P126
ANTONUCCI TC, 1986, J CONSULT CLIN PSYCH, V54, P432
SARASON IG, 1986, J PERS SOC PSYCHOL, V50, P845
WETHINGTON E, 1986, J HEALTH SOC BEHAV, V27, P78
LIN N, 1986, SOCIAL SUPPORT LIFE, P173
TAJFEL H, 1986, PSYCHOL INTERGROUP R, P7
WHEATON B, 1985, J HEALTH SOC BEHAV, V26, P352
ANTONUCCI TC, 1985, HDB AGING SOCIAL SCI, P94
COHEN S, 1985, PSYCHOL BULL, V98, P310
TARDY CH, 1985, AM J COMMUN PSYCHOL, V13, P187
THOITS P, 1985, SOCIAL SUPPORT THEOR
COHEN S, 1984, HDB PSYCHOL HLTH, V4, P253
LAZARUS RS, 1984, STRESS APPRAISAL COP
ROOK KS, 1984, J PERS SOC PSYCHOL, V46, P1097
SHINN M, 1984, J SOC ISSUES, V40, P55
SARASON IG, 1983, J PERS SOC PSYCHOL, V44, P127
THOITS PA, 1982, J HEALTH SOC BEHAV, V23, P145
KAHN RL, 1980, LIFE-SPAN DEV BEHAV, V3, P253

Source: Thomson Reuter, Web of Science, 2011

Distribution of the share of references to serials over journals in the sciences and social sciences (SSCI CDE 1993)



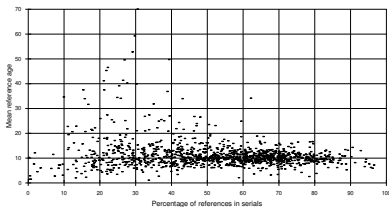
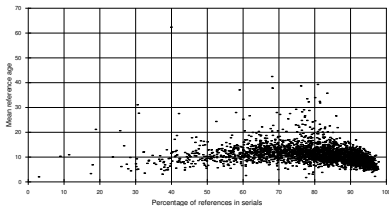
Source: GLÄNZEL & SCHOEPFLIN, *IPM*, 1999

Reference-based indicators for selected science and social science areas ranked by the percentage of serials (SSCI CDE 1993)

Subject area	Number of papers	Mean number of references	Percentage of serials	Mean reference age
<i>Immunology</i>	23396	29.6	94.3	6.9
<i>Research medicine</i>	24369	25.9	92.1	7.9
<i>Solid state physics</i>	28466	23.6	85.2	10.1
<i>Analytical chemistry</i>	9605	20.9	83.8	9.4
<i>Mathematics</i>	11987	16.2	64.4	11.3
<i>Psychology & psychiatry</i>	11886	31.0	64.0	11.4
<i>Electronic engineering</i>	19222	15.0	62.2	8.6
<i>Business</i>	3663	20.8	56.0	10.9
<i>Economics</i>	7959	21.6	48.7	10.6
<i>Information & library science</i>	2128	14.9	47.6	9.1
<i>Sociology</i>	3675	32.7	40.4	12.5
<i>History & philosophy of science and social sciences</i>	658	48.7	34.7	38.8

Source: GLÄNZEL & SCHOEPFLIN, *IPM*, 1999

Scatter plot of share of references in serials vs. age of references (top: sciences, bottom: social sciences)



Source: GLÄNZEL & SCHOEPFLIN, *IPM*, 1999

Diana Hicks distinguishes four literatures relevant for SSH:

1. international journals
2. national journals
3. books
4. non-scholarly press

📖 Hicks, *The four literatures of social science*, 2004

Remark 1

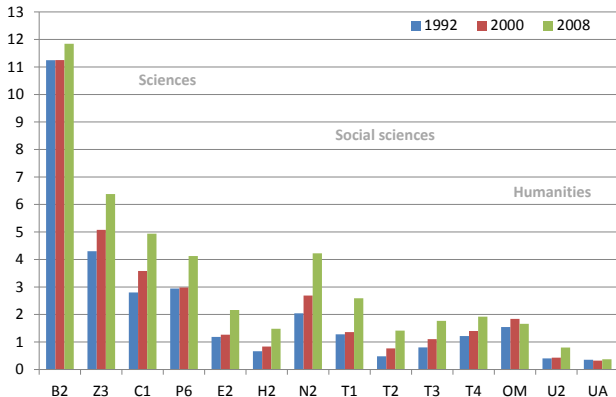
Although these four literatures are used in the sciences as well, the distribution of these types differs in the sciences and SSH.

Remark 2

Communication behaviour in SSH perceptibly changed in favour to journal literature during the last decade.

Bibliometrics in the social sciences and humanities

Evolution of the Mean Observed Citation Rate in different disciplines (based on 3-year citation windows)



Legend: B2: cell biology; Z3: microbiology; C1: analytical, inorganic & nuclear chemistry; P6: physics of solids, fluids and plasmas; E2: electrical & electronic engineering; H2: pure mathematics; N2: psychology & behavioral sciences; T1: business, economics, planning; T2: political science; T3: education & information science; T4: sociology & anthropology; OM: law; U2: language & culture; UA: philosophy

Several disciplines in the social sciences reflect some similar communication patterns as are characteristic for the sciences.

- ▶ Relatively high citation impact, shorter reference lists, faster ageing.
- ▶ Unlike in the sciences, the share of periodicals in references is low.

Examples: psychology & behavioral sciences; business, economics, planning and education & information science

Other disciplines (above all in the humanities) do not share these characteristics of the sciences:

- ▶ Those are not frequently cited, but have long reference lists.
 - *So what happens?*

Even in the sciences, citations are not primarily a measure of quality although they significantly correlate with other quality measures.

📖 HOLMES & OPPENHEIM, *Information Research*, 2001

From the viewpoint of science, citations are

“... signposts left behind after information has been utilized.”

📖 SMITH, *Library Trends*, 1981

“... frozen footprints in the landscape of scholarly achievement ... which bear witness to the passage of ideas,”

📖 CRONIN, *Journal of Documentation*, 1981

“... give a formalised account of the information use and can be taken as a strong indicator of reception at this level.”

📖 GLÄNZEL & SCHOEPFLIN, , *Information Processing & Management*, 1999

From the perspective of sociology of science, citation is

... part of the reward system in science, atoms of peer recognition.

📖 MERTON, *Science*, 1968

📖 MERTON, *ISIS*, 1988

... only secondarily a reward system. Primarily, it is rhetorical-part of persuasively arguing for the knowledge claims of the citing document.

📖 COZZENS, *Scientometrics*, 1991

One can distinguish four citation types relevant for SSH:

- ▶ *research work* (own or by others)
- ▶ *subject of study* (see also TR “implicit cite”, i.e. subject of articles without being formally cited)
- ▶ *external data or figures* (‘hard facts’)
- ▶ *events, phenomena, stories, cases reported in various sources* (‘soft facts’ or fiction)

Remark

Although these reference types occur in the sciences as well, the distribution of these types dramatically differs in the sciences and SSH.

Example: Information source outside scholarly communication

Working the Waiting Room: Managing Fear, Hope, and Rage at the Clinic Gate

Strathmann CM, Hay MC

MEDICAL ANTHROPOLOGY

28 (3): 212-234, 2009

Abstract

In this article, we outline the contrasting perspectives of patients and receptionists and the different ways they experience waiting rooms in three U. S. medical clinics. We are doing this to show that a consideration of waiting rooms and the receptionists who work there is an important step in understanding the patient care-seeking experience. We describe the kinds of conflicts that emerge around patient waiting and the emotional labor that receptionists perform to reduce these conflicts by managing patient feelings. By doing this we expand the frame of the clinic visit to include the emotionally important space of the waiting room and revisit the concept of "emotional labor" as a way to understand non-medical care giving in clinic settings and the cultivation of emotions in others. In doing so we show the important role that clinic receptionists may play in shaping how and when patients receive health care.

Source: Thomson Reuter, Web of Science, 2011

Example: Information source outside scholarly communication (contd.)

Working the Waiting Room: Managing Fear, Hope, and Rage at the Clinic Gate

Strathmann CM, Hay MC

MEDICAL ANTHROPOLOGY

28 (3): 212-234, 2009

Cited References

- Hay MC, 2009, ETHOS, V37, P1, DOI ...
Hay MC, 2008, NEUROLOGIST, V14, P374, DOI ...
Hay MC, 2008, ARTHRIT RHEUM-ARTHR, V59, P575, DOI ...
Strathmann CM, 2008, HUM ORGAN, V67, P49
Preloran HM, 2005, HEALTH EDUC BEHAV, V32, P599, DOI ...
Larson EB, 2005, JAMA-J AM MED ASSOC, V293, P1100
Lamphere L, 2005, MED ANTHROPOL Q, V19, P3
BROWNER CH, 2005, ASS AM ANTHR M WASH
LINDHOLM C, 2005, COMPANION PSYCHOL AN, P30
SARGENT C, 2005, ASS AM ANTHR M WASH
SMITHOKA V, 2005, AM ANTHR ASS M WASH
WHITE GM, 2005, COMPANION PSYCHOL AN, P241
Dixon CAJ, 2004, FAM PRACT, V21, P137, DOI ...
BROWNER C, 2004, TRANSCULT PSYCHIAT, V41, P427
EILERS G, 2004, J AM COLL HEALTH, V53, P47
Williams C, 2003, GENDER WORK ORGAN, V10, P513
Bolton SC, 2003, WORK EMPLOY SOC, V17, P289
Browner CH, 2003, SOC SCI MED, V56, P1933
MAYNARD DW, 2003, BAD NEWS GOOD NEWS C
NASH J, 2002, FAM PRACT, V19, P504
Davidson B, 2001, ANTHROPOL QUART, V74, P170
Cohn ES, 2001, AM J OCCUP THER, V55, P167
Sass JS, 2000, WESTERN J COMM, V64, P330
KELLYDEWITT S, 2000, S KELLYDEWITT GREATE
Eisner M, 1999, BRIT J GEN PRACT, V49, P103
CICOUREL AV, 1999, TALK WORK I ORDER DI, P183
HINTON A, 1999, BIOCULTURAL APPROACH
STEINBERG RJ, 1999, ANN AM ACAD POLIT SS, P8
BRIGGS J, 1998, INUIT MORALITY PLAY
KAFKA F, 1998, TRIAL
KAFKA F, 1998, CASTLE
*MERR WEBST, 1998, MERR WEBST DICT
Akerstrom M, 1997, QUAL HEALTH RES, V7, P504
OXLER K, 1997, HOLISTIC NURSING PRA, V11, P27
Morris JA, 1996, ACAD MANAGE REV, V21, P986
GASPARINI G, 1995, TIME SOC, V4, P29
SMITH P, 1992, EMOTIONAL LABOUR NUR, P96230
SEUSS, 1990, OH PLACES YOU'LL GO
WIKAN U, 1990, MANAGING TURBULENT H
HOCHSCHILD A, 1989, THEOR CULT SOC, V6, P439
SACKS K, 1989, CARING HOUR
WOUTERS C, 1989, THEOR CULT SOC, V6, P95
LUTZ CA, 1988, UNNATURAL EMOTIONS
LUTZ C, 1986, ANNU REV ANTHROPOL, V15, P405
SEUSS, 1986, YOU'RE ONLY OLD ONCE
CRAPANZANO V, 1985, WAITING WHITES S AFR
HOCHSCHILD A, 1983, MANAGED HEART COMMER
KONNER M, 1982, TANGLED WING
HOCHSCHILD AR, 1979, AM J SOCIOL, V85, P551
LIPSKY M, 1977, STREET LEVEL BUREAUC
BRIGGS J, 1970, NEVER ANGER

Source: Thomson Reuter, Web of Science, 2011

Example: Information target outside scholarly communication

Google scholar [Advanced Scholar Search](#)

Search within articles citing [Glänzel: Bibliometrics as a research field](#)

Scholar All anytime include citations

[The black swan: The impact of the highly improbable](#)
NN Taleb - 2011 - Random House Inc
[Cited by 1535](#) - [Related articles](#) - [LibriLinks](#) - [All 36 versions](#)

Source: Google Scholar, 2011

One should, however, resist any temptation to use the Web or the variety of Web-based evaluation tools, which are presently available and popular, for citation analysis since those do not form any serious groundwork for the evaluation of research.

Insufficient documentation, lacking information concerning coverage, insufficient disambiguation for publications and citations, partially questionable sources and insufficient possibility of data assignment are the most striking problems.

Recently Thomson Reuters announced the launch of the *Book Citation Index*. One of the main objective of this database is the enhancement of literature coverage in SSH.

Important feature: Citations from journals, proceedings and other books at the level of the Chapter and Book.

Unlike in the journal and proceedings citation indexes, several problems emerge in the context of subject classification and citation processes.

- ▶ Establishment of a categorical structure for books is not evident. “The level of granularity at which the data must be analysed is critical in establishing sensible and relevant baselines.”
- ▶ Little is known about citation processes of books, although ageing might be significantly longer than that of journal articles.

📖 ADAMS & TESTA, *Thomson Reuters Book Citation Index*, 2011

HF Moed: *Citation Analysis in Research Evaluation* as indexed in the BKCI

The screenshot displays the Thomson Reuters Web of Science search results page. The search criteria are 'Author=(Moed H)'. The results list six publications by HF Moed, all from the 'Information Science and Knowledge Management' series. The first result is 'The Citation Analysis in Research Evaluation' (Volume 9, Pages 1-347, DOI: 10.1007/1-4020-2714-7, Published 2005). The other results are: 'Title: PEER REVIEW AND THE USE AND VALIDITY OF CITATION ANALYSIS' (Volume 9, Pages 229-237, Published 2005); 'Title: DIFFERENCE'S BETWEEN SCIENCE, SOCIAL SCIENCE'S AND HUMANITIES' (Volume 9, Pages 147-152, Published 2005); 'Title: ISI COVERAGE BY DISCIPLINE' (Volume 9, Pages 116-136, Published 2005); 'Title: THE IMPLICATIONS FOR THE USE OF THE ISI CITATION INDEXES IN RESEARCH EVALUATION' (Volume 9, Pages 137-143, Published 2005); and 'Title: DOES INTERNATIONAL SCIENTIFIC COLLABORATION PAY?' (Volume 9, Pages 385-388, Published 2005).

Source: Thomson Reuter, Web of Science, 2011

The coverage of the BKCI by main subject area (in %)


Subject	Coverage
Clinical Medicine	5
Life Sciences	6
Agriculture/Biology	4
Physics/Chemistry	14
Engineering/Computing/Tech.	15
Social & Behavioral Sciences	38
Arts & Humanities	18

Source: ADAMS & TESTA, *Thomson Reuters Book Citation Index*, 2011

For the evaluation of research performance in SSH one should opt for the use of citation databases. Since references lead to further relevant publications, structural analyses can be also be included in evaluative studies.

In the development of bibliographic databases for application to SSH citations should therefore – if feasible – not be dispensed with as they form an important source of information.

“Therefore in law, the birthplace of citation study, even richer results may be possible than in other fields ...”

 SHAPIRO, *JASIS*, 1992

Thank you for your attention