



The scholarly influence of Heinz Klein: ideational and social measures of his impact on IS research and IS scholars

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Abstract

Heinz Klein was a fine scholar and mentor whose work and life have inspired us to explore the notion of 'scholarly influence' which we cast as 'ideational' and 'social influence'. We adopt a portfolio of measures approach, using the Hirsch family of statistics to assess ideational influence and Social Network Analysis centrality measures for social influence to profile Heinz Klein's contribution to information systems (IS) research. The results show that Heinz was highly influential in both ideational terms (a significant body of citations) and social terms (he is close to the heart of the IS research community). Reflecting on the major research themes and scholarly values espoused by Klein we define a 'Kleinian view of IS research', grounded in Habermas' Theory of Communicative Action, and use that to frame four affirmative propositions to address what we observe to be a distortion and attenuation of the academic discourse on the evaluation of scholarly production. This paper argues that focus should be shifted from the venue of publication of the research to the uptake of the ideas contained in it, thus increasing the openness of the discourse, participation in the discourse, truthfulness, and reduction of the inequities in power distribution within academia.

European Journal of Information Systems (2011) 20, 422–439.

doi:10.1057/ejjs.2011.16; published online 10 May 2011

Keywords: Heinz Klein; scholarly influence; Hirsch statistics; social network analysis; lexical analysis; critical social theory; ideational influence; social influence

Introduction

This paper is a continuation of a stream of research examining the construct we call simply 'scholarly influence'. This work began as a direct offshoot of the 'Festschrift' for Heinz K. Klein that we quickly organized on May 18 and 19 2007 in Atlanta upon learning of the status of his health. One goal of the event was to identify research themes in Heinz's work, which many of us had shared, to explore intellectual themes of common interest, and to imagine a trajectory of those themes in future work. In our work of categorizing the themes and periods in Heinz's work and in preparing to summarize the impact of Heinz's work and in hearing from the many people who responded to the invitation to participate in the May 2007 event, we identified a set of issues and formulated research questions that fuel our work to this day. In one sense, this paper is a homage to a mentor, a close friend, an important and we believe influential if quixotic, figure in the information systems (IS) research community. But in a much more important sense this research is an exploration of a notion of scholarship, which epitomized the intellectual focus of Heinz Klein's life.

Received: 31 July 2010
Revised: 8 February 2011
Accepted: 17 March 2011

Heinz was a prolific writer, a formidable scholar, and an excellent mentor to students and junior colleagues. He established a circle of loyal and respected friends.

Prima facie, there is a large amount of evidence of Klein's influence on IS research: he was awarded honorary doctoral degrees by the University of Oulu (Finland) and the University of Pretoria (South Africa), received the IFIP Outstanding Service Award (1995), received an MISQ Best Paper Award (with Michael Myers in 1999) and has published some of the most highly cited works in the IS literature. However, this anecdotal information does not give us a complete picture of his influence in the IS field. The aim of this paper is therefore to explore Klein's scholarly influence. To assess his influence, we must ask a number of other questions: what is scholarly influence, how is it manifested in both intellectual and social terms and how can it be measured and valued?

Accordingly we have a three-fold purpose in this paper. First, we examine the components commonly thought to be essential to garnering influence as a scholar and how that influence might be measured. This examination leads us to cast scholarly influence as comprising: (1) ideational influence, that is how a scholar's ideas, as published in various forms, are taken up and impact other scholar's ideas; and (2) social influence, that is how a scholar influences other scholars by means of social interactions (Takeda *et al.*, 2010). Second, we analyze Heinz's academic contribution through the lens of ideational and social influence. Third, we reflect on Klein's espoused values and published principles on the conduct of research to frame what we call a *Kleinian Approach to IS Research* that we then use to critique and to offer four affirmative positions in response to what we consider to be a systematically distorted discourse on the matter of evaluating scholarly productivity.

Why the term 'influence' rather than 'quality'

While the literature notes its importance, there has not been an agreed upon definition of 'quality' in terms of journals (Locke & Lowe, 2002) nor is there yet a theory of scholarly quality that might be applicable to papers, journals or an individual scholar. To us, the practice of determining quality seems largely an implicit one based on the collective assumptions of those assessing the paper, journal or scholar. The approach used to define quality seems similar to that used by U.S. Supreme Court Justice Potter Stewart in approaching obscenity: '... I know it when I see it' (Stewart, 1964). Journal lists and rankings have traditionally been developed based on opinion using implicit definitions which then leads to a subjectivity in rankings (Walstrom *et al.*, 1995; Chua *et al.*, 2002; Podsakoff *et al.*, 2005; Serenko & Bontis, 2011). In these studies a higher ranking is taken to mean 'higher quality' and that papers published by these 'higher quality' journals are therefore of high quality. But, there is evidence that 25% of the papers that these higher ranked journals publish are not ultimately well cited by the field; moreover 63% of the most highly

regarded papers are published by lower ranked journals (Singh *et al.*, 2007). Truex *et al.* (2009) argue that not all articles published in top-tier journals qualify as top articles, that 'top management journals are not the sole venue, nor even the majority venue, where these so called top articles are published' (p. 587). This suggests that the notion of quality is problematic and that if the concept 'quality' is to be used, there is a great need to define and operationalize it in a context of assessing journals, papers, and scholars. As of yet, this definition and operationalization has not been developed. Lacking a metric for quality, we turn to the concept of influence instead. As will be seen below, there is a long literature stream on the assessment of influence in the information sciences field. This literature will provide us with definitions and operationalization of the construct as well as metrics by which to measure it.

How is scholarly influence evaluated?

We define scholarly influence as the ability of a scholar to have his/her ideas considered by others in the course of their own research. This concept is distinct from the notion of quality in that no assessment is attempted as to whether it is 'good' or 'bad' research. Rather, the question is whether the ideas generated by the research are used, considered by, or at least known to other scholars. We argue that this is an important consideration in the evaluation of a scholar. If a scholar's research is rigorously executed and flawlessly written but is unknown, then it is as if the research were never done. In contrast, how much a scholar's ideas are taken up by the field is a key pointer to the direction of the field and what it considers to be important. Further, we view the process of research as a collaborative and communal endeavor rather than the work of individual (lone) geniuses. Therefore, with whom a researcher works is an important aspect of influence. Of course, influence can come in many forms. Appearing in a top-ranked journal may influence those who read it but not necessarily be translated into a citation, as may a late night discussion between academics at a conference dinner. However, our concern is with tracing or measuring visible expressions of influence, especially where the measurement process is transparent, replicable, open to all, amenable to being automated, and uses public data. We identify two forms of influence: ideational influence (who is using your work?) and social influence (who are you working with?). We consider each form in turn.

Ideational influence

Ideational influence may be defined as the uptake of a scholar's ideas by the field. The concept is that if a scholar's research is influential, then we will see it being used in many other scholars' research. In the IS field, citation counting is the primary way influence is measured. Using citation data allows us to create a proxy for the uptake of ideas from the scholar in the field. In essence, citation data allow us to make an assessment of the influence of a scholar. Of course, having been

published (i.e., productive) is a necessary prerequisite to being cited. A scholar's productivity can also be measured in terms of how many papers they publish. The scholar's influence derives not just from their ideas alone, but also from having a continuing stream of ideas published and available to others.

The assessment of ideational influence has been an ongoing project in the information sciences field for over 80 years. Beginning in 1926, there has been a stream of investigation to 'determine, if possible, the part which men of different caliber contribute to the progress of science' (Lotka, 1926, p. 317). This stream, the so-called Lotkian scientometrics, has led more recently to the development of what has been termed the Hirsch, or h-family, statistics. The h-indices balance the productivity of the scholar against the citations to those publications thus providing a metric that demonstrates *both the productivity and uptake* of the scholar's publications (Hirsch, 2005; Cuellar et al., 2008).

The application of the Hirsch statistics to the assessment of scholarly influence in the IS discipline has been advanced elsewhere (Serenko & Bontis, 2009; Truex et al., 2009) and the calculation of the indices is described there. In this paper, we used three of the Hirsch family indices to assess the ideational influence of a scholar. The first h-statistic proposed is what we will refer to as the 'native h-index' or simply 'h-index'. The h-index has been developed with the goal of 'quantify[ing] the cumulative impact and relevance of an individual's scientific research output' (Hirsch, 2005).

Although promising, a naïve use of the 'native-h' statistic is problematic. The index has been challenged as being 'biased' in several ways. For example, consider a scholar who produces a paper, which garners a large number of citations, but his other papers are not highly cited. The native h-index is insensitive to the number of citations to a work once the paper has received a number of citations higher than the h-index itself. The question asked is: when given two scholars with the same h-index, does not the one having a higher number of citations to her papers have greater influence? To address this concern and adjust for this difference, Egghe has proposed the 'g-index' (Egghe, 2006). The g-index gives greater weight to highly cited articles. Another criticism of the h-index is that it favors older publications. Articles that have been in print for a longer period of time have had more of a chance to gain citations. Newer articles may be as influential or become more influential than older articles given sufficient time. To address this concern, the contemporary h-index or hc-index has been proposed (Sidiropoulos et al., 2006). The hc-index weights citations to more recent articles more highly. By using the hc-index, we can compensate for the effects of time and create comparability between papers of different ages.

It is our position that by using these three indices together h, hc, and g, we can *build a profile* of the ideational influence of scholars that can be used to compare their relative influence. These profiles can be used for a

variety of purposes, for example promotion to full professor, hiring decisions for full professors, or as in this case demonstrating the influence of a scholar (Truex et al., 2009). Ideational influence is, however, only one form of influence.

Social influence

The development of scientific knowledge is well recognized as being a social activity (Pinch & Bijker, 1984; Latour, 1987; Bhaskar, 1997). As researchers work together, they interact with each other to help flesh out theories and test these theories either formally through the publication process or informally through interactions at conferences and other meetings or through media such as telephone and email. These interactions mold and shape the ideas of those interacting and eventually help foster the consensus that determines what the field regards as 'truth'. Such interactions help develop understanding and sometimes in building trust and greater social connectedness between scholars. And, at a minimum, they put a human voice or face on ideas. As these interactions take place, the informal interactions sometimes lead to formalization of relationships: becoming a doctoral student-advisor, joining a faculty and becoming co-workers on the same faculty, forming research teams, co-editing conference proceedings, co-authoring research papers, and the like.

In this process of interaction, some scholars are more persuasive than others, in terms of influencing others as to the validity of their ideas. The differences in these levels of influences arise through differential social skills, varying comfort levels in social settings, affinity between scholars, commonality of thought and so on. This ability to influence others through the processes of social interaction we term '*Social Influence*'. On the one hand a scholar may be said to have higher social influence if he/she is able to have their ideas considered by other scholars through their social interactions with them. Ideational influence, on the other hand, is in view when the influence is exercised strictly through their published works, that is through the force of their ideas without their social interaction.

Since social interaction takes place in largely informal situations, operationalization would seem to be difficult – we cannot observe directly changes in thought. However as this interaction often formalizes into partnerships, we can use these partnerships to assist in operationalizing the concept of social influence. These partnerships such as doctoral student-advisor and co-researchers are also often difficult to collect data on. Therefore, we suggest that both academic collaborations will likely be manifested in co-authored and citable resources, such as journal and conference papers, edited collections, special issues, and conference panels. As advisors take their students through the process of learning how to conduct research, the advisor teaches the student accepted methods and also introduces them to the field's literature and interprets it with him/her.

This is a position of great influence (Avison & Pres-Heje, 2005). The student often shows the advisor new streams of literature or performs innovative research that contributes new knowledge. Thus the student is reciprocally influential to the advisor. Similarly, the relationship between research partners is one in which exists a significant communication between them exchanging ideas and interpreting the findings. Thus each exerts influence on the other. One of the results of these processes of interaction is the production of citable academic artifacts (e.g., jointly produced papers, edited collections, and panel discussions) that document and report their collaboration. These citable artifacts, therefore, represent the result of academic collaborations and can serve as a proxy for the social influence that occurred between them.

Klein's influence as a scholar

To build a profile of Heinz Klein's scholarly influence we sought to apply our formulations of ideational and social influence to Klein's publication and academic collaboration record. We generated a profile of Klein's Hirsch statistics and social network (Social Network Analysis (SNA)) centrality measures and then compared his profile against the profiles of other scholars within the IS field.

Klein's ideational influence

Initial work on Heinz Klein's influence started with gathering his publications. We started with his Curriculum Vitae, and then added searches of various bibliographic databases such as EBSCOhost, Academy of Science, ACM electronic library, and the IEEE electronic library. Some of the problems in acquiring all of Klein's data included the lack of electronic versions of the research, language problems, and author identification. We had problems of finding electronic versions of research, especially when the research was published prior to 1992. The date of 1992 seems to be close to the cutoff of where bibliometric databases started to emerge and thus electronic versions of research started to appear. While we find more and more examples of new research since the early 1990s that have been both published in electronic and paper form (or just electronic form) the conversion of paper-only research prior to 1992 is a time-consuming project. This has meant that electronic versions of research prior to 1992 were either missing, or hard to find. However in recent years, we have seen a rush by electronic databases to provide older, paper-only era research in electronic form and these data are increasingly becoming available online.

A second problem was that Klein started his academic career in Germany, which meant that there were some German texts that appeared in his list of publications. The third problem was that there are other researchers sharing similar names, for example Karlheinz Kautz, or sharing a set or subset of Heinz K. Klein's name, for example Gary Klein, Hans K. Klein, or the physicist also named H.K. Klein. The data cleansing in our search of

Heinz K. Klein required disambiguating from the 'Klein' alternatives.

The search yielded a total of 161 publication entries that included: journal papers, books, book chapters, conference proceedings, special journal issue calls, and published presentations.

The current Klein data reveal that he has an h-index of 27, g-index of 72, and an hc-index of 16. To place Klein's scores in a larger context, we examined 448 prominent IS researchers identified by Clark *et al.* (2009) and computed their h-index, g-index, and hc-index scores and rank-ordered this list. Klein's position in this ranking was 48 according to the h-index, position 31 according to the g-index, and position 93 according to the hc-index. The H-statistics were computed in early June 2010, a relevant point because the H-stats change over time. The h-indices peer group (Table 1) shows a list of the scholars surrounding Heinz Klein for comparison.

As can be seen, Klein has an over-all influence rating roughly equivalent to such well-known scholars as Enid Mumford, K.K. Wei, Suzanne Rivard, and Joey George. Recalling that the g-index gives greater weight to highly cited articles, we note that Klein has the highest g-index in this peer group indicating that his most cited papers tend to be more highly cited than the others in the peer group. The hc-index compensates for the effects of time and creates comparability between papers of different ages by increasing the weights of more recent citations. We note that his hc-index scores were slightly lower than the median of this peer group. This may indicate that his ideas were not immediately recognized or taken up. We interpret this as evidence of his status as a 'critical

Table 1 List of scholars with similar h-indices to Klein (ranks in parenthesis)

<i>Scholar last</i>	<i>Scholar first</i>	<i>h-index</i>	<i>g-index</i>	<i>hc-index</i>
Rai	Arun	28 (43)	55 (68)	21 (31)
Sahay	Sundeep	28 (43)	51 (77)	19 (46)
George	Joey	28 (43)	66 (38)	18 (60)
King	John	28 (43)	56 (63)	18 (60)
Wei	Kwok-Kee	28 (43)	53 (73)	18 (60)
Irani	Zahir	27 (48)	42 (120)	20 (38)
Rivard	Suzanne	27 (48)	56 (63)	19 (46)
Briggs	Robert	27 (48)	55 (68)	19 (46)
Rafaeli	Sheizaf	27 (48)	58 (58)	18 (60)
Han	Ingoo	27 (48)	44 (110)	18 (60)
Love	Peter	27 (48)	40 (137)	18 (60)
Klein	Heinz	27 (48)	72 (31)	16 (93)
Mumford	Enid	27 (48)	48 (89)	13 (146)
Varshney	Upkar	26 (56)	49 (85)	20 (38)
Siau	Keng	26 (56)	46 (100)	19 (46)
Chau	Patrick	26 (56)	61 (48)	18 (60)
Tam	Kar Yan	26 (56)	59 (54)	18 (60)
Gupta	Alok	26 (56)	44 (110)	18 (60)
Swanson	Burton	26 (56)	69 (34)	17 (77)
Krishnan	Ramayya	26 (56)	44 (110)	16 (93)

Table 2 Scholars near to Klein in g-index

Scholar last	Scholar first	h-index	g-index	hc-index
Chen	Yen-Liang	50 (4)	76 (26)	30 (7)
King	William	41 (12)	76 (26)	24 (23)
Smith	Michael	38 (16)	76 (26)	28 (9)
Watson	Richard	38 (16)	75 (29)	25 (18)
Wigand	Rolf	22 (94)	73 (30)	17 (77)
Keil	Mark	34 (23)	72 (31)	25 (18)
Baskerville	Richard	33 (26)	72 (31)	22 (29)
Klein	Heinz	27 (48)	72 (31)	16 (93)
Avison	David	26 (56)	70 (33)	15 (110)
Clemons	Eric	34 (23)	69 (34)	19 (46)
Swanson	Burton	26 (56)	69 (34)	17 (77)
Sambamurthy	V.	32 (32)	67 (36)	24 (23)
Rees	Jackie	24 (71)	67 (36)	21 (31)
Shaw	Michael	40 (15)	66 (38)	23 (26)
George	Joey	28 (43)	66 (38)	18 (60)
Gurbaxani	Vijay	21 (109)	66 (38)	15 (110)

outsider' who advanced ideas and critiques of extant dogma before others, a point we discuss more fully in the reflections portion of this paper.

Table 2 shows a section of the table sorted by g-index and then h-index, presenting Klein's g-index peer group.

When re-sorting and ranking by the g-index Klein ranks very well even though most of his neighbors have higher h-indices than his. Once again, this shows that his highest cited papers are equivalent to those produced by other well-recognized and well-established scholars of high overall influence in our field. Klein's hc-index ranks at the bottom of this peer group indicating again that ideas took longer to catch on but are acknowledged eventually and become highly cited. We interpret this as evidence of his outsider status as a critical social theorist who as a researcher/author was introducing the field to the principles and values of an unfamiliar theory.

Klein's social influence

To assess social influence we use the methods commonly used in SNA. In SNA, formal (e.g., such as the co-authoring relationship described above) and informal (e.g., who you have dinner with when attending conferences) relationships between researchers exist. Some of them can be mapped (Vidgen *et al.*, 2007). Formal relationships are easier to map, as co-author information is readily available from public information. Data on informal relationships are harder to mine – it is neither easy nor appropriate to map who had dinner with whom at a conference. We will, therefore, focus on academic collaborations that result in a co-authored, citable research artifact: conference and journal papers, edited collections (such as a special issue of a journal), and panel discussions.

By examining the *centrality* measures of the academic collaboration network we can arrive at a profile of measures that assess the social influence of the members

of a research community. Proper comparison of these profiles allow evaluators to assess the *social* influence of the scholar and along with the *ideational* measures provided by the Hirsch indices can be combined to create a fuller assessment of the scholar's intellectual contribution. The common unit of currency for evaluating ideational and social influence is a citable research artifact.

SNA provides three primary measures of centrality – *degree*, *betweenness*, and *closeness* (Freeman, 1979; Wasserman & Faust, 1994) – to analyze the aggregate distances between one academic and the rest of the network.

Degree centrality indicates how many times a particular academic has collaborated, indicating the number and intensity of collaboration relationships a researcher has. Degree is a measure of the level of activity of a scholar.

Betweenness centrality indicates how many paths linking academics intersect an individual academic, or put differently, how many connections either originate or pass through a given academic, thus indicating that he/she is a 'hub' for social influence. The higher this measure is then the higher the scholar's power in the network and the greater their social influence.

Closeness centrality indicates the average number of links when connecting to other people in the network. A larger closeness score indicates that this person has a shorter distance in terms of academic collaborators. This means that the academic is more central to the flow of ideas and is well-placed to learn about new ideas quickly from others and can spread their own ideas through their local network.

Klein's direct co-authorships To explore Klein's academic social network, we collected the co-authorship data from Klein's work. This resulted in a list of co-authors and a co-author matrix for Klein. The number of co-authors that Klein worked with totaled 99 over a period of 35 years. From Klein's collaborations there were 235 pairings of authors. This included pairings of other authors when they worked with Klein. For example, if Klein worked with Rudy Hirschheim, Kalle Lyytinen, and Duane Truex on one paper, then there were six pairings (Klein-Hirschheim, Klein-Lyytinen, Klein-Truex, Hirschheim-Lyytinen, Hirschheim-Truex, and Lyytinen-Truex).

The most frequent co-authors are shown in Table 3. There were 11 others with two co-authorships, and 66 others with one co-authorship.

For the purpose of data analysis we identified the close knit researchers as the top 10 researchers that Klein worked with. We identified them as the 'Kleinian' ten and they are: R. Hirschheim, K. Lyytinen, D. Truex, H. E. Nissen, J. Iivari, K. Kumar, O. Ngwenyama, M. Myers, P. B. Andersen, and E. Monod. The h-indices of the Kleinian ten are shown in Table 4.

Table 3 Klein's most common co-authors

Co-Author	Number of time co-authored
R. Hirschheim	58
K. Lyytinen	18
D. Truex	12
H. E. Nissen	9
J. Ivari	9
K. Kumar	9
O. Ngwenyama	8
M. Myers	7
P. B. Andersen	5
E. Monod	5
B. Holmqvist	4
G. Fitzgerald	4
N. Findler	4
R. Alvarez	4
W. Kirsch	4
D. Avison	3
J.L. DeGross	3
J. Venable	3
M. Newman	3
R. J. Boland	3
R.J. Welke	3
R. Posner	3
T. Wood-Harper	3
Z. Asif	3

Table 4 h-indices of the Kleinian 10 (in alphabetical order following Klein)

Researcher	h-index	g-index	hc-index
Heinz Klein	27	72	16
P. B. Andersen	18	32	12
Rudy Hirschheim	41	87	24
Juhani Iivari	20	42	15
K. Kumar	15	50	15
Kalle Lyytinen	42	80	26
Emmanuel Monod	7	12	4
Michael Myers	29	84	22
Ojelanki Ngwenyama	15	35	12
H. E. Nissen	7	15	4
Duane Truex	14	31	9

Thus it can be seen that Klein's co-authors include three of the highest-ranking scholars in the IS field.

The Kleinian direct co-authorship network (Figure 1) is realized in the network mapping tool, *Pajek*. The frequency and strength (repeated co-authorships) are taken into account for the Cartesian distance in the network. The more co-authorships a researcher has with Klein, the closer to the center the researcher will appear. Also the more frequently a set of co-authors work with Klein the closer the set of co-authors will appear in the network. We see that the Kleinian ten appear centrally in this figure.

Klein's centrality within the IS field The SNA centrality measures used in this research were calculated from a large set of citable research artifacts from a wide range of IS venues. This set of 30 different publication sources included eight of the major IS journals and all the major annual AIS-affiliated IS conferences from inception (Table 5). We eventually extracted roughly 18,000 research artifacts – these include conference papers, journal papers, edited collections, and panels – and 5000 unique researchers for the database. To reduce the amount of data analysis required, we again selected the list of 448 scholars identified by Clark *et al.* (2009) as scholars who published over three articles in the AIS 'Basket of 8' over the period 2003–2007. The connections through co-authorship were then calculated for each of these researchers using the centrality measure calculations described above. The main component used for the SNA contains 391 academics connected by co-authorship relationships – the reduction from 448 is due to authors who only sole authored in the database or were part of separate collaboration networks that were not connected to the main component.

Klein's SNA centrality

The centrality measures computed for Klein were as follows: degree (23), betweenness (0.40), and closeness (31.86). With these numbers Klein ranks 50th (degree), 155th (betweenness), and 55th (closeness) among the top 448 IS researchers identified by Clark *et al.* (2009). The data tell us that Klein had many connections and worked with many people during his career, as evidenced by his high ranking in degree. We also see that Klein's closeness ranking was relatively high which meant that he was a mainstream player in the IS community and not the maverick outsider that we might have thought. Finally his betweenness ranking is still close to the top third, meaning that he was more likely than average to serve as a link through whom one IS researcher is connected to another IS researcher in the 488 Clark *et al.* IS researchers. Table 6 illustrates the scholars who had similar degree centrality to that of Klein.

When looking at the *degree centrality* we see that Klein shares a score similar to Salvatore March, Claudia Loebbecke, Dan Robey, and William King. Note, however, that if there are researchers that tend to single author more than co-author, their degree centrality will be 'hurt' due to the fact that a single authored research artifact receives no connection through a co-authorship relationship. Table 7 shows the scholars close to Klein in terms of closeness centrality.

Looking at the '*closeness centrality*', Klein ranks higher than other well-recognized IS scholars. Note also that in this group Klein ranks relatively high in degree centrality as compared to his neighbors. This suggests that Klein was more open to collaboration than his peers with whom he shared similar closeness scores in the IS research network.

Table 5 Publication sources used in the social influence analysis publication

	Dates included
ACIS	2001–2008
AIS Transactions on Human-Computer Interaction	2009
AMCIS	1998–2009
BLED	2001–2009
Communications of the Association for Information Systems	1999–2010
CONFIRM	2008
DIGIT	2001–2009
ECIS	1993–2009
EIS	2008
European Journal of Information Systems	1993–2007
GlobDev	2008
ICDSS	2007
ICIS	1994–2009
Information Systems Journal	1991–2010
Information Systems Research	1990–2009
International Research Workshop on IT Project Management 2006 – 2009	2006–2009
Internationale Tagung Wirtschaftsinformatik	1999, 2001, 2003, 2007
Journal of Information Technology Theory and Application (JITTA)	1999–2010
Journal of Management Information Systems	1984–2009
Journal of the Association for Information Systems	2000–2010
MCIS	2007–2008
MG	2009
MIS Quarterly	1977–2010
Pacific Asia Journal of the Association for Information Systems	2009
PACIS	1993–2009
Revista Latinoamericana Y Del Caribe De La Asociacion De Sistemas De Informacion	2008–2009
Scandinavian Journal of Information Systems	1989–2009
SIGHCI	2003–2009
The Journal of Strategic Information Systems	1991–2009
Wirtschaftsinformatik	2005

Table 6 Scholars near to Klein degree centrality

Scholar last	Scholar first	Degree	Between	Closeness
March	Salvatore	27	1.85	38.27
Gupta	Alok	26	2.29	32.34
Pan	Shan	26	1.04	30.90
Avital	Michel	25	0.70	34.18
Loebbecke	Claudia	25	1.41	34.73
Klein	Gary	24	0.33	28.02
Rai	Arun	24	1.51	31.53
Agarwal	Ritu	23	1.56	31.99
Klein	Heinz	23	0.40	31.86
Sharman	Raj	23	0.03	23.10
Wigand	Rolf	23	0.03	30.85
King	William	22	1.59	31.81
Liang	Huigang	22	0.13	27.78
Robey	Daniel	22	1.80	32.77
Teo	Hock Hai	22	0.52	28.24
Xue	Yajiong	22	0.13	27.78

Table 7 Scholars near to Klein closeness centrality

Scholar last	Scholar first	Degree	Between	Closeness
Chen	Hsinchun	19	3.93	32.28
Te'eni	Dov	19	0.91	32.28
Courtney	James	18	2.92	32.26
Lucas, Jr	Henry	13	0.84	32.20
Carte	Traci	21	0.53	32.07
Avison	David	17	0.42	32.05
Agarwal	Ritu	23	1.56	31.99
Bharadwaj	Anandhi	12	0.80	31.94
Klein	Heinz	23	0.40	31.86
Mukhopadhyay	Tridas	15	2.35	31.86
King	William	22	1.59	31.81
Porra	Jaana	13	0.20	31.78
Majchrzak	Ann	14	0.56	31.73
Slaughter	Sandra	20	0.73	31.66
Gregor	Shirley	12	0.58	31.55
Rai	Arun	24	1.51	31.53

familiar names to the *EJIS* and *IFIP WG 8.2* community include: K. Lyytinen, R. Hirschheim, M. Myers, A. Lee, J. Iivari, J. Bansler, J. Stage, T. Wood-Harper, D. Avison, H-E Nissen, Frantz Rowe, and J. Pries-Heje.

Klein's formal role as thesis advisor was reserved for a modest number of Ph.D. students: only 10 students over a 20-year period. The sheer number is not astounding. By comparison Colette Roland, University of Paris, has

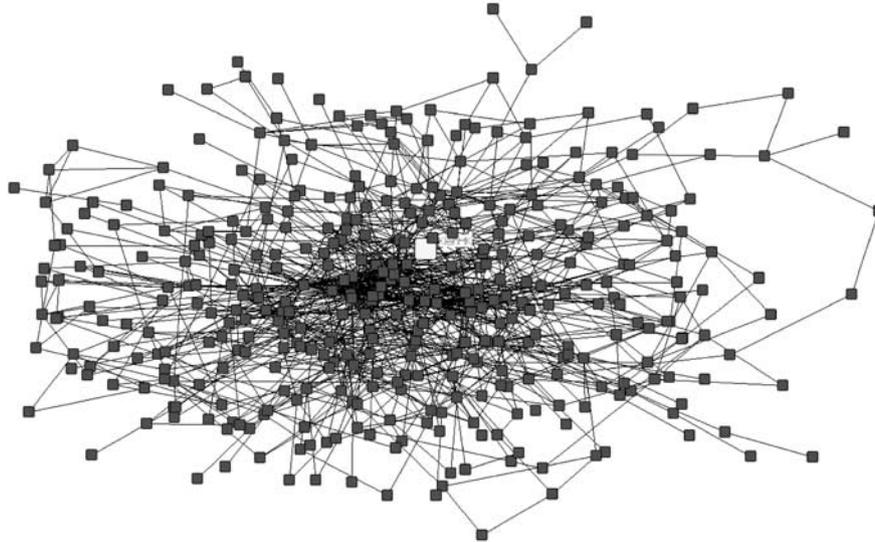


Figure 2 Heinz Klein's position in the IS collaboration network (produced using Netdraw with spring-embedding layout and Klein position highlighted).

supervised 95 Ph.D. thesis students in a 30-year career. But proportionately it compares well to the 18 Ph.D. students advised by Dan Robey, who had the benefit of working for 37 years at research-oriented Carnegie 1 designated Ph.D.-granting research universities in the U.S. Although Klein's Ph.D. advising may have been modest in number, our research discovered that even though not all of Klein's students chose to stay in academe or to work at Ph.D. granting institutions, many of the Klein students have themselves become extremely influential scholars in their own right. To date those ex-students have produced nearly 50 'Kleinian grand-baby-docs' on four continents. This suggests that, just as he chose his academic collaborators well, his influence was magnified via his choice of students.

Discussion: toward a Kleinian evaluation of scholarly endeavor

Our findings show that Heinz Klein at the end of his career achieved the status of a highly influential scholar. To some readers, his case might suggest that publishing in top rated journals is the only path to influence. But the truth is that, of his 10 most cited papers, fully half were not published in what would now be considered top IS journals: the earliest four were published in IS journals such as ACM publications and the IFIP 8.2 conference series 'Research Methods in Information Systems', giving additional weight to the argument that publication in the top IS journals is not the only path to influence in the IS field (Truex et al., 2009). Klein did not stay in the conventional paradigm, which would have gotten him earlier acceptance into the establishment journals, rather he persisted in putting forward his controversial ideas and building a small following of like-minded thinkers. Initially it was a struggle for those works to gain a broader

hearing and, not being accepted at major journals, he published where he could publish, when he could get in. For example, two of his early papers, 'The Poverty of Scientism' (Klein & Lyytinen, 1985b) and 'The Critical Theory of Jürgen Habermas as a Basis for a Theory of Information Systems' (Klein & Lyytinen, 1985a) were published in *Research Methods in Information Systems*, a set of papers from an early IFIP 8.2 conference. His quirky and often intellectually confrontational nature in search of the truth probably cost him social influence and created barriers that he otherwise would not have encountered. He teamed up wisely, however, working with well-selected colleagues and Ph.D. students, had original ideas, produced quality papers and published where people would read them. Over time, he was increasingly cited and gained a larger audience. Finally, in the later stages of his academic career, he was accepted into the major journals. In the following section we suggest how Klein's intellectual persistence contributed to these achievements; how he insisted on having a voice and speaking his 'truth' until it was heard.

What constitutes a Kleinian research approach?

It would not be right to complete a contribution to a special issue on Heinz Klein without a discussion of the critical implications of these findings or to identify what we consider to be a *Kleinian approach to IS Research*. We see principal contributions arising from his embrace of the principles in the critical social theory of Jürgen Habermas among others, which led to his co-development of criteria and principles, consistent with principles of Critical Social Theory, for the conduct of research in the domains of interpretative research and IS development. His recurring and most persistent contribution was, in our view, in his introduction and espousal of Habermas's

notions of Communicative Action, which we explore more extensively in the following section.

One of his earliest contributions as a critical theorist IS researcher was a scathing critique of the dominant empirical positivist research methods and of the underlying epistemological and ontological assumptions in our own field. The gauntlet was thrown down in a 1984 paper, 'The Poverty of Scientism' (1985) written with a self-termed 'angry young man' (Kalle Lyytinen) in which they uncovered, critiqued and challenged prevailing beliefs and social practices of the extant IS research dogma and then built arguments advocating interpretative and qualitative research in the IS field. These ideas were subsequently developed via extended discussions and debates in conference presentations, panels and papers and in 1999 culminated in Klein's most highly cited paper (with Michael Myers): the *MISQ* paper titled 'A Set of Principles for Conducting & Evaluating Interpretive Field Studies in Information Systems'. This work continued and is further manifest in Myers and Klein's (2011) paper 'A Set of Principles for Conducting Critical Research in Information Systems' in which readers are reminded that three elements of critical research are 'insight, critique and transformation' (p. 24). As a critical social theorist particularly attracted to Jürgen Habermas's Theory of Communicative Action (Habermas, 1985), Heinz Klein sought to apply Habermas' ideas in the realm of IS development (Klein, 1986, 1991) and to IS research (Lyytinen & Klein, 1985a, b; Ngwenyama & Klein, 1994; Klein & Truex, 1996; Cecez-Kecmanovic et al., 2008; Asif & Klein, 2009). Over a 25-year period Klein was instrumental in shaping the discourse on what counted as admissible forms of evidence in IS research and profoundly changed our field.

In these streams of work – IS development, ISD methods, and IS research – the role of speech as a fundamental action type and as a means of uncovering and representing contextual reality, agreements, and shared 'truths' were central constructs. Moreover, in his own behavior Heinz was personally inclined to support, and expect, an open and fair academic discourse, what Habermas would call an 'ideal speech situation' and Mingers & Walsham (2010) term 'deliberative democracy'. Heinz was well read and a student of philosophy (he had studied both Greek and Latin) and was especially familiar with the work of the German continental scholars. As a native German speaker, Klein was able to read Habermas in the original language. Klein was thus very familiar with the nuances of Habermas' ideas and the arguments of Habermas' critics, all of which he read in the original language. Klein was especially interested in the debates between Jürgen Habermas and Nicolas Luhman about a theory of communication and action. Klein, like Habermas saw language as the fundamental way humans organize and coordinate and that 'the ability to communicate is grounded on the capacity to understand each other' (Mingers & Walsham, 2010, p. 840). He believed in the power of the dialectic and

that the better argument would carry more credibility than lesser arguments. And, in his own dealings with students, colleagues, or intellectual opponents, he insisted that all parties to a debate have fair and equal opportunity to present arguments and views relatively unfettered by power differentials. But Klein still reserved the right, and may have seen it as his responsibility to 'encourage' speakers to reveal their underlying beliefs and to challenge those beliefs or behaviors when he sensed deceptive (strategic) action was in play. He used to remind students that as critical theorists we had to 'eat our own dog food' and expect that others would require the same standards of us in challenging the validity claims of our arguments. That is, we had the obligation to be reflexively critical of our own ideas and beliefs. So presenting research before Klein required being prepared to defend any truth claim. Serious discussions with Klein required intellectual honesty and a large measure of personal integrity. He simply had a way to get to the crux of an argument and surface a person's underlying epistemological and ontological assumptions. A discussion with Klein could be an arduous exercise, but it was almost always one in which both parties grew in understanding and wherein the clarity of argument improved with the exercise. Often it leads to a furtherance of mutual respect as well as mutual understanding. It is in this sense of his values and his behavior that we use the term 'Kleinian'.

It is our view that Klein internalized and practiced the principles required to achieve a Habermasian ideal speech situation. Walsham & Mingers (2010, p. 840) articulate three conditions required for ideal speech, to which, following Klein's own model, we add a fourth condition:

1. All potential speakers are allowed equal participation in a discourse.
2. Everyone is allowed to
 - 2.1. question any claims or assertions made by anyone
 - 2.2. introduce any assertion or claim into the discourse
 - 2.3. express their own attitudes, desires, or needs.
3. No one should be prevented by internal or external, overt or covert coercion from exercising the above rights.
4. The participants must be truthful with each other, seeking agreement and not deception.

When these conditions are met, in Habermasian terms, there is the possibility of true argumentation, consensus, and an open discourse. Consensus is not the only presumed outcome of an open discourse, but is a goal. One may still have disagreement or dissensus, but it will have been reached openly and fairly in the realm of communicative action (Wijnia, 2004). Whether consensus or dissensus is the outcome, the communicative act has left space for continued open and fair development of the discourse at a later time.

A key aspect of Klein's worldview, and of his behavior, whether as a scholar, mentor, educator, editor, conference chair, or co-author, was his commitment to maintaining, and establishing through force of intellect and will something closer to an ideal speech situation. Indeed, the social quirkiness and quixotic behavior we alluded to earlier may be attributed to his project to assure that all parties to a discourse had open, fair, honest, and power-balanced opportunities to participate. His presumption that any academic discussion would proceed according to these values came at some political cost to him personally. But we believe that he was true to his carefully formulated and reflexively examined beliefs system.

In Klein's last published work, in the *MIS Quarterly* (Myers & Klein, 2011), he and Michael Myers lay out a set of principles for critical research which might be regarded as a follow-on or companion to the earlier and highly cited 1999 *MIS Quarterly* paper providing principles for conducting and evaluating interpretive field studies. Because they were aware that the 1999 paper has been frequently (and sometimes inappropriately in their view) used as a kind of rubric for interpretive work, in 2011 Myers and Klein are careful to caution against providing a single set of principles for conducting critical research. However, they also say 'it is better to have some principles than none at all' (p. 18). In the 2011 paper

Myers and Klein focus on the last two of the three 'key' elements of critical research – 'Insight', 'Critique', and 'Transformation' – arguing that the 1999 paper covers the first element sufficiently. From a study of both manuscripts it is plain that Klein had a clear set of insights guiding his work and view of research as a critical theorist. The principles enumerated and discussed in the 1999 and 2011 papers (see Table 8) provide a clear sense of what we would also incorporate in our view of a Kleinian research perspective. This is particularly true when understood in concert with Klein's views towards achieving, to borrow the term from Walsham and Mingers (2010), a 'democratic discourse'. Table 8 frames the balance of this paper, and with our knowledge of Heinz Klein and his published work, aids us in defining what it means to take a '*Kleinian perspective on information systems research*'.

We define a Kleinian Research Perspective as: a composite attitude and behavior toward the process of scholarly inquiry in which the researcher seeks to further communicative understanding and shared contingent truths by exposing and critiquing distorted truth claims with the goal of emancipating people and organizations from unwarranted power abuse.

This means that as IS researchers, we cannot simply measure, describe, and explain phenomena. In addition

Table 8 Summary research principles (Klein & Myers, 1999; Myers & Klein, 2011)

The Element of Insight

Concerned with interpretation and gaining insight.

Seven tenets of critical systems theory (CST) articulated in Klein and Myers, 1999

(1) The Hermeneutic circle; (2) contextualization; (3) interaction between researchers and subjects (4) abstraction and generalization; (5) dialogical reasoning; (6) multiple interpretations, and; (7) suspicion of biases and systematic distortions.

The Element of Critique

Concerned with critique, the genealogy of knowledge and the social practices of control and reproduction. Goes beyond interpretation to focus on power structure lying behind accepted interpretations.

Principle 1: using core concepts from critical social theorists

Organize data collection and analysis around core concepts and ideas from one or more critical theorists

Principle 2: taking a value position

Advocate values such as open democracy, equal opportunity or discursive ethics – drives for principles 4–6 of Insight.

Principle 3: revealing and challenging prevailing belief and social practices

Critical researchers should identify important belief and social practices and balance them dialectically

The Element of Transformation

Concerned with suggesting improvement to the conditions of human existence, social arrangements and social theories with theories seen as fallible lenses through which people instigate change.

Principle 4: individual emancipation

All critical theory is "...oriented towards facilitating the realization of human needs and potential, critical self reflection and self-transformation."

Principle 5: improvements in society

Improvements in society are believed possible; hence the goal of CST research is not just critique but propositions for overcoming unwarranted power abuse.

Principle 6: improvements in social theories

All CST researchers understand that theories are fallible and improvements in theories are possible; that there are always competing truth claims to guide analysis, understanding and interventions.

to the identification of the nature of an IS-related phenomena, we must make an evaluation of that IS from the standpoint of creating or impeding an ideal speech situation, critique it and then offer proposals for improvement in the social environment which would lead to individual emancipation from unjust/oppressive situations and contribute to a more ideal speech environment and, if possible, extend theoretical development. Such a philosophy informs not only Critical Social Theory, but also Critical Realism (Bhaskar, 1998). A critical IS researcher is not satisfied with a detached understanding of the phenomena, but rather views the IS field for what it is: an inherently social science in which he/she is passionately and personally engaged. He/she seeks to look with eyes steadfastly open on the phenomena seeking to know it as it is. He/she then evaluates it from the standpoint of how truth is obscured or revealed to privilege or oppress. With that insight, he/she then seeks to find ways to liberate individuals from structures and ideologies that limit their knowledge of the truth, thus helping them in achieving their potential. We believe that this is how Heinz Klein viewed his role in the academy. The quixotic project that informed his life was nothing more or less than his living out this critical approach or as he would put it 'eating his own dog food'. His 'Heinzing' of students, colleagues, and presentors was part of his passionate pursuit of the truth. This passion is also reflected in his willingness to take on and challenge anyone who referred to the academic life as mere 'game-playing'. We can only imagine his response to Peng & Dess' (2010) analogy that academic life is nothing more than a set of mental Olympic games irrelevant to real life. Much of his work involved articulating critical theory and how it applied to our field; a good bit of his published work was theoretical. Yet in his work on ISD methods and in his proposals for the renewal of doctoral studies (Klein & Rowe, 2008) we can see his concern for emancipatory action. In the next section we take the 'Kleinian approach to IS research' and use it as a lens to examine the existing system for the evaluation of scholarly output.

A Kleinian analysis of extant approaches to evaluating scholarly endeavor

In conducting a program of research exploring the nature of scholarly influence, initiated for the Klein Festschrift in 2007, we have grown to believe that (cf., principle 1 – taking a value position)¹ the characteristics of the present academic discourse about scholarly influence, the evaluation of researchers and of journal outlets has become systematically distorted in several important ways (cf., principle 3 – revealing and challenging prevailing

beliefs and social practices). We articulate and support this position through the lens of the ideal speech situation or democratic discourse (cf., principal 1 – using core CST concepts) and only have space in this article to describe the arguments we have fleshed out in other works published, in press, under review (Cuellar *et al.*, 2008; Truex *et al.*, 2009; Takeda, 2011).

- First, parties *do not* have equal access to participation. The gate keeping functions in the reviewing process restrict access to those in general conformance to dominant paradigms and research topics. For reason of politics, resistance to change and potential loss of power and of market failure, dominant views and beliefs hold top billing (Easton, 2007; Segalla, 2008). 'They [publishers] are unlikely to take risks in this process and will mainly support new journals where they can be shown to be conformist. This is clearly a market where competition is at best constrained, at worst a case of market failure. Put bluntly, what is occurring is economic (self?) exploitation of the academic community and possibly stagnation in terms of the creation of new and important knowledge' (Segalla, 2008, p. 634).
- Second, there are distinct power differences present throughout the academic assessment and publications process (cf., *principle 3*). These power distances in creating, reviewing, editing, and evaluating publications, bias the production toward the standards and topics of those reviewing, editing, and evaluating publications (MacDonald & Kam, 2007; Mingers & Walsham, 2010).
- Third, there is evidence suggesting that the 'truthfulness and agreement conditions' of an ideal discourse are marred by the 'gamesmanship' described by Macdonald & Kam (2007) and Peng & Dess (2010). This distortion extends to the peer-reviewing process. For instance, in the realm of peer-reviewing Mahone (1977) determined the presence of confirmatory bias, the tendency to emphasize and believe experiences which support one's views and to ignore or discredit those which do not, wherein reviewers were strongly biased against manuscripts which reported results contrary to their own theoretical perspective (cf., *Principle 3*).

Space forbids a fuller development of this argumentation here. But if the reader is willing for the sake of argument that the discourse on the evaluation of academic productivity *might* be systemically and systematically distorted then this begs the questions: How might we change conditions such that they lead to the possibility for the creation of more ideal speech situations? How do we improve the discourse for both individuals and for our communities of research and of practice (Principles 4 and 5 – 'individual emancipation' and 'improvements in society')?

¹We are testing our analysis, beliefs and positions against the set of principals set forth by Klein & Myers (1999, 2011). We do this by explicitly identifying the principle we believe is present in our narrative.

Four affirmative propositions for creating a more ideal speech situation in the discourse on evaluating scholarly endeavor (cf., Principle 6 – improvements in social theories)

In the spirit of Heinz Klein, we propose a set of principles of our own to be considered by the field (cf., Principle 5 – improvements in society). To reiterate, the four conditions required in an ideal speech situation are:

- (1) 'openness' – any party to a discourse must have an equal opportunity to start a discourse;
- (2) 'participation' – any party may participate in a discourse;
- (3) 'coercion and power' – internal or external, overt or covert coercion and differences in power between the participants should not prevent participation; and finally;
- (4) 'truthfulness' – the participants must be truthful with each other, seeking genuine agreement and not deception.

(1) *Openness*. We seek to open the discourse about alternative methods for judging scholarly output. We advocate a movement away from an evaluation of the venue of publication to the reception of a publication itself by an interested and informed audience; the scattering of many seeds on the ground to let the field sort out the wheat from the chaff and to let many flowers bloom (Walsham, 2005). In short, the process could become more democratized (cf., Principle 2). Under this proposition 'The Wisdom of Crowds' (Surowiecki, 2005) is in effect the collective wisdom of the field unbounded by limits on which publications may be admitted to the discourse and hence be cited (cf., Principle 4). The current 'authority-view', focused on the venue itself, is not democratic because it limits the discourse to those who pass the gate keeping of journal editors. If the system is more democratized, it would also begin to respect the affordances of the Internet technologies now in hand which did not exist when the current system of evaluation was created. Technologies such as Google Scholar allow for fuller and more complete searches of topics, ideas, and authors in print broadening and changing the nature of the discourse itself and fosters a climate wherein more parties have the opportunity to enter the discourse on a given topic.

The openness notion also addresses the controversy over whether to count only academic citations vs practitioner and popular press citations. We argue that all forms of influence are important not just those where academics speak to other academics. As business school faculty whose positions exist in part to help improve business practice (Klein & Rowe, 2008), it seems that when our ideas are taken up by practitioners and the popular press this should count as much as when an academic takes up an idea. The relative importance of our ideas is filtered out by whether they endure in the

discourse. As Cronin *et al.* say: '... one needs at the very least to distinguish between, on the one hand, enduring scholarly impact, as suggested by a cumulating citation record—and, on the other hand, Web-based measures of "street cred" or transient group interest ... a digital equivalent of Andy Warhol's fifteen minutes of fame ...' (Cronin & Shaw, 2002).

(2) *Participation*. With greater openness (as described in point 1), equal participation in creating discourse is enabled. To provide openness to participation in the discourse, evaluation systems must shift from evaluation based on venue to evaluation based on citation and collaboration. With the use of Google Scholar and the Hirsch family of indices, SNA and other possible extensions, this becomes possible (Truex *et al.*, 2009; Takeda, 2011). Google Scholar and Hirsch-family statistics and social network analysis are egalitarian; anyone can speak because these measures and tools can include all venues, not only those tightly 'gate kept' journals. Using the Hirsch family statistics removes the elites from positions of determining what is good and bad research leaving that to the judgment of the field as a whole. It is more democratic and it acknowledges current suggestions that knowledge resides in networks of many people, not in the few. Indeed, we may see 'crowdsourcing' developments (Howe, 2008) where research problems are proposed by industry and proposals and solutions are then offered by members of the research community (e.g., the InnoCentive scientific community, www2.innocentive.com) who may then work collaboratively to investigate problems and research questions of relevance to business (cf., Principle 5).

(3) *Coercion and power*. The movement away from recognizing and counting only publications in selected venues as the principle means of evaluation towards the use of the Hirsch family of indices and SNA centrality measures also helps level the power differences in the evaluation process. By de-centering the venue from the evaluation process in favor of influence measures, it removes the power of those who would block dissident discourse in the journal venues. It also puts the power in the hands of the field to determine how important some research is rather than in the hands of administrative decision makers.

It is therefore our proposition that the evaluation of scholarly production should not be predicated upon publication in an exclusive and limited set of journal venues, but rather based on a more open and egalitarian set of measures of scholarly influence (cf., Principle 4). Firstly, those measures should properly include measures of productivity and published participation in the scholarly discourse in places and ways that are meaningful to scholars and others. Secondly, the set of measures should include ways of examining the degree to which a scholar contributes to the 'tending of the commons' by working with Ph.D. students, junior

scholars, as well as knowledge and reputation building activities in the discipline. And, finally, the set should of course consider some consideration of the merit of the ideas and topics one is investigating. These informal modes of influence would be expected, ultimately, to be manifested in tangible form through collaboration and citations. Influence, based on citation and collaboration, removes the prejudice toward establishment and opens the discourse to dissident and counter-cultural ideas and arguments. We need also to consider influence not just from the academic's but also from the practitioner's point of view. This leads us to the concept of open publication standards (Easton, 2007). As Cronin and Shaw say:

The world of citation is the closed world of the clerisy; we trade citation with other scholars, not with the public at large. The world of the web, by contrast is more open and egalitarian in character (equal opportunity invocation ...) here we are linked to, mentioned by our peers, but also, on occasion, by practitioners ...and sundry others who may have a special or passing interest in the issues we address as academics and/or public intellectuals. The web extends the discursive space within which scholars operate. (Cronin & Shaw, 2002, p. 69)

It is our vision that we pay less attention to the venue of publication and move toward truly open publication where the discourse is open and unfettered and the conversation joined by any and all who have an interest in it (Howe, 2008). We do not believe that scholars need to be 'vetted' by 'gatekeepers' but rather through the use of critical thinking and judgmental rationality (Archer *et al.*, 2004) that a true progression toward discovery of aleithic truth can be made (cf., *Principle 2*).

We are aware that our proposed notions of scholarly influence as ideational and social and their associated measures of citations and network centrality will be subject to performative issues, just as journal rankings are. Thus, if P&T decisions are to be based on citations and network position then new ways of game-playing will emerge as academics trade citations with others and peripheral players court powerfully positioned players to co-author with them (cf., *Principle 6*).

(5) *Truthfulness*. By this we mean open, transparent, reproducible. Evaluation systems should be open and visible to all parties. Today small groups make subjective judgments based on criteria not known to all parties or even to themselves. The evaluation for academic rewards such as tenure and promotion is based on publication in selected venues selected by surveys of people using disparate, often contradictory thoughts whose criteria are unknown. The movement to the use of citation statistics creates an open, known, reproducible standard that lets all parties to the discussion understand the criteria. We advocate the use of the Hirsch family of statistics and the SNA measures of collaboration for this

purpose since they are public, accessible, stable, and reproducible (Truex *et al.*, 2009) (cf., *Principle 2*). In effect they are transparent unlike other measures, such as journal influence factors, which, being based on a limited set of publication venues, are unstable, are not transparent and may be amenable to manipulation (Gallivan, 2009).

Recognizing the limitations of these analyses approaches

We note of, course, that all measures are performative and that the consequences of adding new performance measure are unpredictable. Once any performance measure is adopted and recognized as having the potential to impact one's career and paycheck, people will work to perform to, and sometimes play games with, that measure. So, we must again reflect critically on how our own preferred 'basket of measures' approach to the analysis of scholarly influence might be gamed or manipulated.

Citation manipulation: there are several ways an author or groups of authors, or journal editors and publishers might attempt to manipulate citation counts. Journals or editors might require or strongly 'encourage' authors of submitted papers to add citations to papers in their own journal. This has been the subject of discussion in recent ISWorld threads but no systematic indications of the practice have yet been uncovered. Given the transparency of the process we believe that if the practice became widespread it would be reported and those participating would be shamed back in line. We acknowledge that the possibility of abuse in the short run however does exist. Authors might attempt to manipulate citation counts by creating direct and indirect citation 'rings' wherein authors make implicit or explicit agreements to simply cite one another's work specifically for the purpose of increasing citation counts. Self-citation is a legitimate practice that might be abused if the works being cited have no direct bearing on the paper topic at hand. Co-authorship networks and citation counts can be simultaneously enhanced if one were to simply add authors to a paper even if those persons added had nothing to do with the production of the research and the manuscript. These possibilities for abuse having been acknowledged, it is our opinion that these behaviors would have little effect for several reasons. Building meaningful counts via self-citing requires a lot of work, for example actually getting publishing and only adds one citation count per paper. Our own analysis and other unpublished work suggest that self-citation does not materially impact the H-family stats. Moreover, there are techniques and tools that look for and exclude self-citation from analysis. There are also pragmatic issues to consider. These techniques are visible, bold, and risky in that they are likely to be found out, and they require a lot of coordination. Also clearly they represent a violation of the fifth principle we have proposed, that of truthfulness.

We tend to give the academic community and academics in general the benefit of the doubt. Given the relative risk of damage to one's reputation and the limited benefit of these behaviors we doubt these behaviors will become a major threat to the basket of measures we have recommended. This is not to say other issues do not still loom and that other unintended and unforeseen consequences won't ensue. One of those issues discussed in the method discussion above remains problematic; namely the problem of *data quality*. The citation counts needed to compute the ideational and social measures require that the researcher or the tool (such as *Publish-or-Perish*) has access to reasonably accurate and 'clean' data. But as we discussed earlier data sources such as Google Scholar are assembled by reference to the bibliographies of the many papers being indexed. If the creators of the bibliography make an error, in author name spellings for instance, a citation count will be diminished. We have experienced this problem recently with our own work. Our JAIS paper (Truex et al., 2009) has been cited incorrectly in three recent, and relatively high profile papers. Thus, because of these bibliographic errors, citations to our own work do not show up in a perfunctory search of Google Scholar. This is not fatal of course, because after a certain point the H-stats are self-correcting. Once the h of h cites is achieved one more or one fewer citation adds or detracts very little. The techniques we favor adhere to our first principle, that of openness or transparency, and data quality errors are quickly and readily apparent to the attentive researcher and can be corrected, albeit with some effort.

Finally, there is one other concern we should note about the whole notion of citation counts. That is *what do citations actually mean or connote?* This is a point raised implicitly by Hansen et al. (2006) in a paper in which they examine how one of the field's better known works, Markus' 1983 *Communications of the ACM 'Power, Politics and MIS Implementation'* (Markus, 1983) was used in seven different streams of IS research over a 22-year period. Hansen et al. show that citations serve different functions and may be 'enrolled' to serve different ends. Of course one never knows the purpose of the citation simply counting mentions when tabulating bibliographies. Takeda (2011) reminds us that, within any paper, citations can be used as positive or as negative evidence of a point, a warrant to a claim made in a paper, a homage to important figures in a field, or to important papers on a topic, or simply as a defensive reference to avoid the admonition of reviewers. Our own position has been, that in the calculation of the notion of *scholarly influence* any of these reasons are an indication that a work and/or a scholar has received recognition in the mind of a writer such that she/he feels obliged to make reference to the work. Of course we would hold for the standard set forth in the debate by Karl Weick (1995) and by Sutton & Staw (1995) on how to properly (ethically) use citations. Our more charitable spirit trusts that an honorable scholar does not knowingly misuse a citation. And we hold that

the process of apprenticeship typical of Ph.D. training and that of mentoring, senior to junior scholar, will reinforce the appropriate standard of citation use.

Conclusion

In this paper we explore a set of constructs leading to a description of a notion we call scholarly influence. We examined the influence of Heinz Klein in the academic community and demonstrated that in terms of *ideational influence* he is the equivalent to many well-known and highly regarded scholars. In terms of *social influence*, he collaborated with many very highly respected scholars and is central to the social network of the IS field. In the network of IS scholars, he was in the most central 12% of the 448 scholars on the Clark et al. (2009) list. We then defined the notion of a Kleinian research perspective. We noted that Klein was open and allowed different discourses. He never constrained his students to topic or theory. He listened, admitted, and then challenged other positions. From his earliest work Klein posed uncomfortable questions, challenged the *status quo*, and, in pursuit of a fair and more ideal communicative environment, contested taken-for-granted assumptions to better test the mettle of an argument – and sometimes the person making it.

Our deliberations lead us to believe that none of the extant dominant approaches toward assessing the quality of a scholar's output are sufficient to the task. We therefore argue that by using the concept of 'influence', the uptake of ideas by the field, those needing to evaluate scholarly output can measure its perceived quality. This yields an evaluation by the entire field (and this can include industry and practitioners) and not just by a handful of scholars.

This research is therefore aimed at identifying and developing a composite (multi-dimensional) set of measures allowing a transparent, fair, replicable, and comparable indication of scholars' influence. To date we have identified two classes of measures those we call *ideational influence measures*, that represent a scholar's productivity of published works and the uptake of those works by the community of scholars and *social influence measures*, representing the extent that a researcher participates in academic collaborations that lead to the production of citable research artifacts. Using citations contributes to the democratization of research and using social network position promotes research collaboration. However, the measures are not independent: the 'quality' of a research artifact can be assessed in terms of the number of citations and of the networks of the co-authors. Taken together these measures are thus closer to the ideal communicative act proposed by Jürgen Habermas (1985, 1987) and the practices of our friend and mentor, Heinz Klein. Further, we believe these measures are useful because they can be calculated automatically using data publicly available through the Internet (e.g., Harzing.com's 'publish or perish'). There are currently issues about data completeness, data quality, and the unique

identification of authors but, given time, these will be resolved.

We flatter ourselves and think that Heinz might have liked to read our proposals, particularly since they arise directly from a consideration of the role he has played in shaping a discourse in our own field and in raising in us a set of questions and a scholarly 'itch' leading us to develop a whole research program built around a critical examination of the construct of scholarly influence. We also recognize that the 'Kleinian' project is bigger than the concerns that have occupied our present interests and that Heinz would likely have challenged our own core assumptions, the quality of our narrative, and probably our understanding of Habermas' theory. He would not, however, endeavor to silence our inquiries. Thus we dedicate them to his memory.

Acknowledgements

The authors would like to thank and recognize Lynette Kvasny for her comments, encouragement and pointers to

literature addressing power imbalances and distorted communication in gender and race in the academic discourse and to Michael Gallivan for his critical insights that continue to help fuel this whole research program. We would also like to acknowledge the people who were able to reallocate time in their extraordinarily busy schedules to travel, some over great distance, to Atlanta, 18–19 May 2007 and participate in the workshop and festschrift event titled 'Beyond Singer – Kleinian Inquiry into the IS Discipline' on very short notice. In a real sense each of these persons helped shape this paper. Those attendees were: Zaheer Asif, Jayailaka Bandula, Raymond Barnes, Andrew Basden, Richard Baskerville, Richard Boland, Lisa Caldwell, Kevin Crowston, Michael Cuellar, Uldarico 'Rex' Dum Dum, Delvin Grant, Nik Hassan, Margaratha Hendrickx, Rudy Hirschheim, Heinz Klein, Munir Mandviwalla, Lars Mathiassen, Eph McLean, Ojelanki Ngwenyama, Hans Oppelland, Owen Plowman, Gabriel Ramirez, Dan Robey, Hiro Takeda, Duane Truex III, John Venable, and Richard Welke.

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