Publication Trade-Offs for Junior Scholars in IS: Conjoint Analysis of Preferences for Quality, First Authorship, Collaboration, and Time

Completed Research Paper

Hanna Krasnova
Universität Bern
Engehaldenstrasse 8, 3012 Bern
Switzerland
hanna.krasnova@iwi.unibe.ch

Natasha Veltri
The University of Tampa
401 W. Kennedy Blvd.,
Tampa, FL 33606, USA
nveltri@ut.edu

Tyge-F Kummer
Griffith University
Parklands Dr, Southport, QLD 4222
Australia
t.kummer@griffith.edu.au

Kerstin Schäfer
Capgemini Deutschland GmbH,
Application Services
Germany
kerstin.schaefer@capgemini.com

Carol Saunders
University of Central Florida
4000 Central Florida Blvd.,
Orlando, FL, US 32816
csaunders@bus.ucf.edu

Abstract

A publication record provides evidence of research productivity and is critical for junior scholars starting their careers in academia. Publication attributes, such as level of the publication outlet, order and number of authors, are typically used to evaluate its quality. However, time spent on a publication is a limited commodity, and researchers face significant trade-offs when deciding which publications they should concentrate on. To better understand the choices made, conjoint analysis with 241 junior IS scholars was conducted. We find that when "quality vs. number of authors" and "quality vs. time" trade-offs are considered, quality is prioritized. However, the emphasis on quality is less pronounced when "rank as an author" is at stake. Especially Ph.D. students tend to choose first authorship when dealing with "quality vs. rank as an author" trade-off. Our findings provide intriguing insights into how publication attributes weigh against each other when research collaboration decisions are made.

Keywords: Information system research, Collaboration, Publication trade-offs, IS research issues, Publication strategy, First authorship.

Motivation

An array of factors shapes a successful academic career in Information Systems (*IS*): a sound stream of research publications; proficiency and experience teaching various *IS*-related courses; professional service to the home academic institution and the IS discipline; a record of applying and successfully getting research grants; research experience abroad, and multiple others. However, amidst intense competition for academic jobs, it is usually the research performance, reflected in the *publication record*, which ultimately determines a *young scholar*'s chances for employment as an assistant or junior professor, and his or her prospects for tenure and promotion at a later point in time (Dean et al. 2011; Dennis et al. 2006; Valacich et al. 2006). Indeed, the *publication record* is the key metric used to assess the research potential of its owner, making performance in this area particularly critical for junior non-tenured faculty (Dean et al. 2011). Hence, junior researchers - non-tenured assistant professors, post-doctoral fellows and Ph.D. students - find themselves under constant pressure to prove their academic potential through publication quality and quantity (Dean et al. 2011).

Most future academic careers depend on the publication performance in these early years. Yet, resources and expertise at this career stage are often limited and career prospects are uncertain. As a result, the choice of the right publication strategy is quite complicated and junior researchers must often consider multiple trade-offs. Should one publish two papers in a 'B' journal or concentrate on just one paper, which can possibly make the 'A' outlet? Should one sacrifice the "first authorship" and collaborate with two senior colleagues to gain better quality? Or rather should one lead a publication him- or herself, but possibly end up in a less prestigious outlet? Are multiple co-authors a positive indicator of researcher's teamwork skills or are they an indicator of one's inability to work independently? In an attempt to resolve these situations, junior scholars must clearly weigh several publication-related considerations, or *trade-offs*, such as level of target publication outlet, and number and order of authors when deciding whether or not to get involved in a research project.

Considering these complexities, the primary goal of this research is to understand *how junior researchers balance tradeoffs* when they make the decision to collaborate in a research project. Uncovering the dynamics of this decision-making process is critical for several reasons. First, choices of junior researchers regarding their publication strategy inevitably define the future of the *IS* discipline because they impact the nature of collaboration processes, which are especially critical for the progress in the *IS* field (Krasnova et al. 2012b), and consequently determine the quality of research contributions. Moreover, early collaboration and publication choices have a profound impact on young scholars' ability to attain tenure and, hence, their future in academia. Considering that junior researchers are just a decade away from becoming key decision-makers in the field of *IS*, setting goals and benchmarks for others, it is important to better understand their behavior at early stages of their careers.

While uncovering the tradeoffs in the collaboration decision makes the process more transparent and is useful in understanding the publication decisions that are being made, it does not reveal why junior researchers make such decisions. Hence, the second goal of this study is to perform some preliminary analyses to better understand how geography and career stage might be influencing preferences and choices of junior researchers in IS. To fulfill these two goals, this study builds on survey responses of 241 junior *IS* researchers - non-tenured assistant professors, post-doctoral fellows and Ph.D. students - to analyze and simulate researchers' behavior across different publication-related trade-offs. Specifically, we investigate how different attributes of a publication weigh against each other when a decision to participate in a research project is made. Beyond making the existing intricacies behind publication activity more transparent, junior researchers can use our results to benchmark their own preferences against others.

The Trade-Offs behind Publication Strategy

The *publication record* plays a critical role in hiring, tenure and promotion decisions, indicating a junior researcher's future academic productivity, visibility and success (Huang and Hsu 2005; Mesak and Jauch 1991). Considering importance of publications for employability in academia, it is no surprise that the weight assigned to different characteristics of research papers in a publication list continues to be a hot

topic among members of the *IS* research community, evaluation committees, and the junior researchers themselves (Krasnova et al. 2012b). Multiple factors may determine junior researchers' preferences and decisions on which paper to concentrate, including, among others, researcher's ambition, career objectives, desire for visibility and internal politics. Furthermore, institutional requirements a junior researcher has to fulfill to achieve his or her next career step may also provide guidance in interpreting and internalizing the value of different publication attributes (e.g. Dennis et al. 2006). As such, institutional requirements typically center on a set of limited criteria, which provide selection and promotion committees with necessary benchmarks for evaluation, simultaneously allowing for comparability between candidates. For example, assessment of "*quality"* of individual publications is common when formally evaluating a *publication record* (Dennis et al. 2006, McGill and Settle 2011). In this context, *quality* is usually measured by the level of the publication outlet as determined by the rankings, impact factors and citation indices (e.g. VHB-JOURQUAL 2011; Thomson Reuters 2011; Lowry et al. forthcoming). For instance, *Technical University of Darmstadt* requires a candidate to achieve *5 points* to become eligible for a Ph.D. defense. The points are assigned according to the VHB-JOURQUAL (2011) ranking, so that a single-authored paper in an "A+" outlet gets 8 points, 'A' – 6 points, 'B' – 4 points and 'C' - 1 point (TU Darmstadt 2011, p. 4).

Beyond evaluating *quality* of individual publications and counting their *quantity*, evaluation of a *publication record* may involve assessment of the *individual contribution* to research papers - a metric often derived on the basis of the *order* and *number of authors* (e.g. LU 2009; FUB 2011; GUFM 2011; Shim et al. 1991; Walker et al. 2010; Costa and Gatz 1992). As a result, *collaboration-related factors* become important determinants in researchers' decisions concerning their publication choices. For example, in the policies of Freie Universität Berlin (FUB, 2011, p.1) and Goethe Universität Frankfurt am Main (GUFM, 2011, p. 12) points for collaborative publications are allocated in accordance with the following formula: 1/n, where n = number of authors. While authors of multi-author research publications are penalized in this system, they are expected to produce better output in *a shorter time frame* as they share the workload. Hence, this system implicitly introduces *number of co-authors* and expected *time investments* as factors relevant for publication decisions. Further, guidelines at some universities may specifically emphasize *first*- or single-authorship, as a requirement for the next career step (e.g. LU 2009; FUB 2011; GUFM 2011). Taken together, when deciding on which research paper to concentrate on, junior scholars may particularly emphasize such manifest characteristics of a research publication as: (1) "*quality*" of an intended publication outlet; (2) *number of authors*; and (3) *rank as an author*, as they follow their institutional requirements and respond to a plethora of other extrinsic and intrinsic incentives. Additionally, (4) expected *time investment* may serve as a proxy for the quantity of publications one strives to achieve.

However, while existence of these determinants is usually not questioned, little is known about the *relative importance of these factors in the actual publication decisions*. So far, research on publication behavior of *IS* scholars has mainly concentrated on *research output*. For example, examining publication records of tenured IS faculty in the US, a recent study reports differences in the publication productivity for researchers employed at different categories of universities (Dean et al. 2011). Further, asymmetries have been reported in publication patterns between faculty in public and private universities in the US (Holsapple and O'Leary 2009). While these studies provide an insightful snapshot of the actual publication behavior, they fall short of analyzing the underlying dynamics behind researcher's *choices* and *preferences* for publications. After all, an elite publication equally enhances the profile of any researcher, yet only 6.7% of junior scholars worldwide published in the two premier IS journals - MISQ and ISR - between 1992 and 2004 (Dennis et al. 2006). Considering the intricacies surrounding participation and collaboration on research papers, this misbalance may be related to "*quality vs. time*" trade-offs associated with publishing at an 'A' (i.e. top) level (see Table 1). Indeed, while a researcher may have the ability and desire to publish in 'A' journals, such publications are associated with significantly more time and effort (Saunders and Benbasat 2007; JAIS 2011), with reviewers increasingly demanding "flawless' manuscripts" (Dennis et al. 2006; Saunders 2006; Saunders and Benbasat 2007). At the same time, 'B' and 'C' level outlets have fewer requirements regarding rigor and relevance, offering authors speedier and less challenging publication channels.

Naturally, *quality* of the resulting publications is not solely a function of the *time* researchers invest. For example *collaboration* with additional co-authors may allow access to expertise (Katz and Martin 1997; Melin 2000), funds (Rigby and Edler 2005) and resources (Melin 2000), which together may result in

better publication outcomes in terms of *quality*. Particularly in the *IS* field, better research outcomes are contingent on interpersonal collaborations since progress in such "data-driven" area of science is highly dependent on teamwork, data and idea exchange (e.g. Over and Smallman 1973). For example, our analysis reveals that a whopping 87.7% of MISQ publications between 2003 and 2013 were co-authored (MISQ 2003-2013[1]). However, while additional collaborators bring additional expertise and experience potentially improving the "quality" of the research in question, junior research may not always see their participation as desirable. This is because collaboration with additional researchers may trigger tensions about the recognition of the individual credit (Heinze and Kuhlmann 2008; Bukvova 2010) as additional authors dissipate visibility of individual contribution (Wray, 2006). Here, a commonly used "*et al.*" citation style exacerbates the situation, as it diminishes the visibility of everyone but the first author (Krasnova et al. 2012a). As a result "*quality vs. number of authors*" trade-off can be triggered. Specifically, junior researchers may face a hard choice of targeting a *better publication outlet* and collaborating with *more co-authors* to integrate their unique competencies, but possibly losing visibility; *or* working with *fewer co-authors* but aiming for a *lower quality outlet* (see Table 1). Since making the right choices is far from trivial, young researchers may end up with a sub-optimal publication strategy when selecting their research collaborations.

Choices described above may be further complicated when incentives for being the "*first author*" are involved. For example, trade-offs regarding "*rank as an author vs. time*" can be highly complex (Floyd et al. 1994; Moore and Griffin 2006) (see Table 1). Krasnova et al. (2012a) find that while the first author typically invests 60% of time and effort into a publication, the third author merely contributes 15%. In exchange for these disproportional efforts, the first author enjoys higher recognition, is more likely to get a promotion, tenure and research grants (Fine and Kurdek, 1993; Floyd et al. 1994). Ambiguities regarding this trade-off go hand in hand with the "*quality vs. rank as an author*" choices. According to Krasnova et al. (2012a), researchers with strong preference for self-assertion attribute higher value to being *first*. Having such preferences, a researcher may choose to be the *first author* on a 'B' paper, instead of collaborating as a secondary author on an 'A' paper. Taken together, publication participation decisions are plagued with numerous trade-offs, with young authors struggling to untangle this intricate net of overlapping incentives. Considering importance of making the right choices on both individual and IS community levels, this study aims to enhance transparency, and provide better guidance and self-benchmarking mechanisms by exploring the structure of preferences of junior researchers when it comes to making these hard choices.

Table 1. Examples of Collaboration Trade-Offs

Trade-Off	Explanation and Supporting Evidence
Quality vs. Number of Authors	Additional authors may contribute their experience and expertise to improve publication quality (Pennington 2008; Cullen et al. 1999; Moore and Griffin 2006; Birnholtz 2007; Sonnenwald 2007; Beaver 2001). For example, most MISQ publications are co-authored (own analysis; see below). However, additional authors dissipate credit and reduce visibility (Walker et al. 2010; Moore and Griffin 2006).
Quality vs. Rank as an Author	First authorship is associated with numerous positive outcomes, including higher salary (Costa and Gatz 1992), perceived competence and expertise (Fine and Kurdek 1993), and visibility (Over and Smallman 1973; Pfeffers and Hui 2003), among others. For example, Walker et al. (2010, p. 2) find that being the first author influences 75.9% of all related annual performance review and assessment processes. However, not willing to give up "first authorship" to a more experienced colleague, a researcher may end up with a study of inferior quality.
Quality vs. Time	Publications in high quality outlets are typically associated with greater effort and, therefore, time investments. Conversely, publishing at a "lower" level is likely to take less time (Saunders and Benbasat 2007; JAIS 2011).

[1] The following volumes (issues) were included into the analysis: 27(1) – 37(2).

	Hence, a researcher may theoretically publish more in a given time frame.
Number of Authors vs. Time	By collaborating with more co-authors, a researcher may save time Conversely, not to dissipate credit a researcher may choose to have less co-authors. As an outcome she may end up having higher workload (Moore and Griffin 2006; Floyd et al. 1994).
Rank as an Author vs. Time	Being the first author is typically associated with higher time investments. Conversely, non-first authors were found to invest less time. For example, a survey among IS researchers has revealed that the first author typically invests 60% of time and efforts into a publication; the third author contributes 15% (Krasnova et al. 2012a).

Understanding the Trade-Offs

Methodological Approach

To better understand how different attributes of a publication weigh against each other and the trade-offs junior researchers make in these choices, *conjoint analysis (CA)* was employed. CA is a methodological approach widely used in marketing to understand consumer trade-offs and choices. In IS, this approach has been applied to study and monetize the value users attach to privacy (Phelps et al. 2001, Hann et al. 2007), to explore acceptance of mobile coupons (Wehmeyer and Müller-Lankenau 2005) and to examine consumers' utility and willingness to pay for premium 'Music as a Service' offers (Doerr et al. 2010). Based on the additive multi-attribute product concept, conjoint approach posits that consumers view products as a bundle of certain characteristics (*attributes*) that can take the form of different values (*levels*) (Lambin 2007). In their decision-making, consumers are assumed to act in line with their preferences and choose the product that maximizes their utility in the face of existing constraints (Bakken and Frazier 2006). To elicit their preferences, respondents are put in a situation, where they have to rank, rate and / or choose between the products with different combinations of *attribute levels*. Based on their responses, it is possible to decompose the overall utilities of the different stimuli consumers evaluate and, thereby, make inferences about the underlying value system (Johnson 1974). Having trade-offs is essential for a conjoint setting, since only then the preferences can be assessed reliably (Bakken and Frazier 2006; Lambin 2007). Considering that participation on publications involves considerable trade-offs, application of the CA promises to deliver revealing insights into the value researchers attach to different publication characteristics. To study these trade-offs, decision to work on *a specific research paper* was chosen as a *unit of analysis*. In the next step, the *attributes* and their *levels* were selected following the guidelines by Orme (2002a).

Selection of the Attributes

Considering that such manifest characteristics of a research paper as (1) *level of publication outlet*, (2) *number of authors* on a publication and (3) *rank as an author* are often part of researchers' formal requirements (Dean et al. 2011; Dennis et al. 2006; FUB 2011; LU 2009), these variables were included as *attributes* of a *research paper* in our analysis. The attribute "*level of publication outlet"* was used as a proxy for the research *quality*.

Another way of looking at the attributes is to consider the resources that are available to junior scholars. Junior faculty have limited financial funding available to them to purchase additional manpower or labor-saving mechanisms. It could be argued that virtually the only resource that is available to them is the precious resource of time. Thus, we included (4) *time to be spent* on a publication in our attribute set. It may be viewed as an indirect measure of the researcher's emphasis on "quantity". Indeed, *time* represents a major constraint of publication participation and can be seen as the "currency" researchers "pay with" for their choices. For example, working as the first author on an 'A' publication requires by far more time than being the fourth author on a 'C' publication (see Table 1 for details). If the latter is chosen, a

researcher is likely to have more publications in absolute numbers in a given time frame.

As recommended by Lambin (2007), we verified the relevance of selected attributes through interviews with seven IS researchers - four Ph.D. students, two post-doctoral fellows and one junior professor. Unprompted, all interviewees mentioned the determinants listed above when asked about the factors behind their choice to collaborate on a paper. This indicates that the selected attributes do represent important criteria when choosing the research paper to work on (Orme 2002a). Overall, the attributes we selected satisfy such key criteria of CA as relevance, presence of compensatory relationship and independence (Lambin 2007; Orme 2002a). To summarize, in our study a decision to participate in a publication is modeled as a function of individual preferences across four dimensions:

- Where do we intend to publish this paper (*level of publication outlet*)?
- How many authors will collaborate (*number of authors*)?
- What is my expected involvement and, consequently, my place as an author (*rank as an author)?*
- How much time am I expected to invest into this paper (*time to be spent*)?

Selection of the Levels

As summarized in Table 2, each of the four attributes relevant for a decision to participate in a research paper involved several levels, which represent specific alternatives of a given attribute. Levels should reflect common parameters in the decision-making process and be mutually exclusive (Orme 2002a). By observing how respondents react to the level changes, we can estimate the influence (utility) of each attribute level on the overall preference for a research paper (Orme 2002a; 2002b). In operationalizing the levels for the intended *"level of publication outlet"* attribute, a common differentiation into *'A', 'B' and 'C' publication* was used. We intentionally did not make a distinction between journals and conferences at this point, but rather left the interpretation open to the respondent, since we expected perceptions to deviate considerably. For example, in the German-speaking community, publication in the ICIS Proceedings is ranked as an 'A', alongside with publications in such prestigious journals as MISQ or ISR (VHB-JOURQUAL 2011).

When selecting the levels for the attribute "*the number of authors*", we chose to concentrate only on collaborative publications with two, three and four authors since these publications represent the most common size of authorship in IS. Indeed, our review of the MISQ articles over the period of 2003 to 2013 revealed that single-authored publications and publications with more than 4 authors comprised a mere 12.3% and 3.2% respectively (MISQ 2003-2013). Similarly, the share of single-authored papers published at ICIS in 2009 was limited to 10.2% and the share of publications with five or more authors was only 5.9%. In contrast, the share of two-/three-/four-author publications comprised 38.5% / 33.2% / 12.2% respectively (AIS Electronic Library 2009).

Since the maximum number of authors we examined was *four*, the levels for the "*rank as an author*" attribute were limited to being "the first author", "the second author", "the third author" and "the fourth author". To avoid impossible scenarios, the following three combinations of the attribute levels were excluded from the analysis: 2 authors - Third Author; 2 authors - Fourth Author; 3 authors - Fourth Author. Even though prohibitions should be used carefully, they help to ensure consistency of the responses. Moreover, Adaptive Conjoint Analysis employed in this study tends to be robust to the attribute prohibitions since the preferences of the respondents are elicited in several stages, with some of them not being affected by prohibitions (Orme 2009).

Finally, the seven interviews we conducted helped us to find appropriate levels for the continuous attribute: "*time to be spent*", as recommended by Lambin (2007). In these interviews respondents were asked to specify the amount of time, which a single author typically needs to invest if she works on an 'A', 'B' and 'C' publication full time. The answers ranged from 12 months for an 'A' journal to 30 days for a 'C' journal. In the next step, the share of the time load a respondent typically invests in a publication with 2/3/4 authors when acting as the 1st /2nd/3rd or 4th author respectively were elicited (9 situations in total). On the basis of the in-depth analysis of the obtained responses, the following four levels – 1, 2, 4 and 8 months – were selected. While these values reflect the best judgment of the authors and are in line with the methodological guidelines and the data we collected (Orme 2002a), it is still important to note upfront

that this attribute is subject to great variability, depending on the researcher and the type of study in question. While it is a simplification, our choice of the levels was necessary to allow us to integrate "time"-related trade-offs into our analysis.

When starting the conjoint module, respondents were provided with a set of instructions, as presented in Table 2. The instructions were pretested to ensure that respondents correctly interpret each level.

Table 2. Instructions, Attributes and Levels Used in the Study

General Instructions: Publishing papers is an important task of any researcher. Deciding which publication to concentrate on is often a trade-off. In this study we would like to better understand the choices you make when collaborating on research papers with others. Imagine, you now choose which publication to concentrate on. The publication options can differ in the following characteristics:	
Attribute Name and Instructions	Levels of the Attribute
Level of publication outlet: The quality of a publication is often judged by the outlet it is published in. As 'A' level outlets set very high standards for quality, these publications are highly valued. As 'B', 'C' level outlets are less demanding, they allow researchers to build up the publication lists with less effort. In our scenarios, you will have a choice between three levels of publication outlets from the best to the worst:	'A' publication, 'B' publication, 'C' publication
Number of authors: As publishing can be challenging, several people typically contribute to a paper. In our scenarios, you will have a choice between the following total number of authors on a publication:	2 authors 3 authors 4 authors
Rank as an author: As authors are ordered non-alphabetically, your position on the authors' list may play a role in your decision to contribute. In our scenarios, you will have a choice between being:	First author Second author Third author Fourth author
Time to be spent: Writing research papers is time-consuming. In our scenarios, you will have a choice to spend the following amount of time on a publication:	1 month 2 month 4 months 8 months

Adaptive Conjoint Analysis

Bakken and Frazier (2006, p. 613) differentiate between three principal approaches to conduct the CA: a full profile conjoint, adaptive or hybrid conjoint, and choice-based conjoint. In research settings, full-profile, and its reduced form - fractional factorial designs - have been widely applied. These designs require respondents to rate or rank various stimuli, thereby expressing their preferences (e.g. Hann et al. 2002; 2007). Even though this approach aims to elicit exact preferences for all combinations of the attribute levels, it has been widely criticized for the cognitive load it imposes on a respondent (Green and Srinivasan 1978). For example, if we choose to use a full-profile conjoint in our setting, respondents would have to evaluate 108 stimuli (3 x 3 x 4 x 4 total combinations - 36 prohibited combinations). Even in the case of the reduced orthogonal design, respondents would have to assess 16 cards, which may still lead to the loss of interest and elevate the drop-out rate as reported by Krasnova et al. (2009). To tackle these drawbacks, we decided to use computer-aided Adaptive Conjoint Analysis (ACA). ACA is recommended when the number of attributes and levels exceed 32 full-profile stimuli, which is the case for our study (Finkbeiner and Platz 1986; Sawtooth Software 2007). Implemented in the Conjoint Extension of Globalpark Survey Suite (EFS Conjoint Extension 2008), ACA helps to significantly reduce the cognitive load for the respondents since it automatically builds on their previous answers. This way fewer and less challenging questions are asked (Srinivasan 1997). Moreover, in contrast to the traditional full-profile approach, in which a respondent has to evaluate each situation separately, ACA induces a respondent to

make choices. This way real preferences behind trade-offs can be reliably elicited.

Following Johnson (1987) and Green et al. (1991), our ACA consisted of *four phases*. The ***first phase*** involved the rating of the levels for each publication-relevant attribute. We intentionally refrained from sorting the levels for the attributes (from the worst to the best) in advance, to ensure that the whole span of preferences is covered. For example, to elicit the order of the preferences for the "*number of authors*" attribute, the following question was asked: "*When choosing a publication to work on collaboratively, how would you evaluate the following levels of "number of authors"? Two Authors? Three Authors? Four Authors?*". The answer options for each level involved a 5-point scale: *1=bad; rather bad; somewhat good; good; and 5=excellent*. As a result, best and worst levels for each attribute were obtained for each respondent.

Building on these responses, in the ***second phase***, respondents were asked to determine the importance of the difference between the best and worst levels for *each* attribute. For example the following question was asked: *If two publications you were choosing from were completely the same except for your rank as an author, how important would the difference between being the first and the fourth author be to you*? If equal ratings were assigned to two or more attribute levels in the first phase, the selection was made at random (EFS Conjoint Extension 2007). The answer options for each attribute involved a 5-point scale: *1 = not important at all; rather unimportant; moderately important; important; and 5=very important*.

Prior utilities calculated on the basis of the responses from this phase served as a basis for the *13 pair-wise comparisons* offered to the respondents in ***the third stage***. In each comparison respondents were offered two options of a research paper on which to concentrate and asked: *"Which publication would you choose to work on if they only differed in the following aspects?"*. For example, **Publication 1** (P1): *'A' level* publication, you are the *third author*, you need to invest 2 *months* vs. **Publication 2** (P2): *'B' level* publication, you are the *first author*, you need to invest *2 months*. Respondents had to specify on a bipolar 7-point scale the degree of their preference towards P1 or P2: *1=Strongly Prefer P1; Prefer P1; Slightly Prefer P1; Neutral; Slightly Prefer P2; Prefer P2; 7=Strongly Prefer P2*. Throughout this phase, the attributes and the levels offered to the respondents were calculated by the system on the basis of the previous responses using OLS regression analysis. The algorithm ensured that in each case the two stimuli offered for choice were as close as possible in their utility for the respondent to provide for the fine-grained evaluation of their utility patterns (EFS Conjoint Extension 2007). As an outcome of this phase final utilities were calculated, which reflect the value respondents attach to a certain attribute level. Since *final utilities* - interval data - are scaled arbitrary, only differences between the part-worth levels can be meaningfully interpreted (Sawtooth Software 2007).

In the ***fourth "calibration phase"***, the participants were given *four* examples of publication options. For each option they had to indicate on a scale from 0 to 100 the subjective probability of choosing to work on a research paper with specific attributes: "*If you could only work on one publication at a time, how likely would you choose to work on the publication below?"* The obtained probabilities were then used to derive the *calibrated utilities* - ratio data - in such a way that sums of utilities for specific publication choices *"are approximately equal to logit transforms of the respondent's likelihood percentages*" (Sawtooth Software 2007, p.7). In addition, this phase helped us to verify the consistency of the answers respondents were giving in the previous phases.

Sampling

Invitation to participate in this study was distributed via AISWorld mailing list and by contacting researchers directly by email between September and November 2011. To identify relevant persons and their emails, author contact information from the proceedings of ECIS 2008, 2009, 2011, WI 2011 and ICIS 2009, 2010 was collected, covering over 2000 researchers (AIS Electronic Library 2012a, 2012b, 2012c). Respondents were contacted twice: an initial invitation to complete the survey was followed by a reminder. A lottery of a €50 Amazon gift card was offered as an incentive to complete the survey. In addition, each respondent was provided with a personalized report on her or his preferences regarding publications immediately after completing the conjoint block.

In total, 398 IS researchers completed the survey. Since we focused on *junior researchers*, only responses from *Ph.D. students (n=157; 65.1%)* and *junior faculty (n=84; 34.9%)* were used for the final analysis,

resulting in the total sample of 241 observations. The category "*junior faculty*" included individuals who pursued a career in academia upon receiving their doctorate and held positions of post-doctoral fellows (n=27), or untenured assistant / junior professors (n=57). 71% of junior researchers in our sample were male and 29.0% female. The mean age was 32.8 years (SD=6.87). 71.0% (n=171) of junior respondents were based in Europe; 22.0% (n=53) in North America (US and Canada); 3.7% (n=9) in Asia; and, 1.7% (n=4) in Australia and New Zealand. Interestingly, a closer look at the geographical sample distribution reveals two large geographical groups distinguishable in their approach to IS discipline: German-speaking scientific community, with respondents from Germany, Austria, Switzerland, the Netherlands and Lichtenstein (n=131) and North American scientific community, with respondents from USA and Canada (n=53). Considering that German and North American approaches to IS research have recently been in the focus of scholarly attention (Buhl et al. 2012; Baskerville et al. 2011; Chen 2011; Österle et al. 2010), we will, among others, touch upon the differences between these two groups.

Analysis of Empirical Results

First, reliability of obtained responses was assessed. The determination coefficient for the regression of utility values and publication participation probabilities r^2 reflects "*how well the weighed set of compositional and decompositional utilities fits the final [...] probabilities*" (Schmidt-Gallas and Huber 1999, p. 10). As a measure of reliability, this metric can be used to identify respondents who were unmotivated or answered inconsistently. For our sample, the mean of the determination coefficient was high, reaching 0.83 (median 0.87) with 91.2% of all observations having r^2 above the threshold of 0.64 (p=0.1, 4 holdout cases) recommended by Chrzan (1991). Further, none of the values of r^2 was less than 0.4. Hence, the appropriate quality of the collected data can be assumed (EFS Conjoint Extension 2007).

Table 3. Calibrated Part-Worth Utilities of Attribute Levels and Relative Importance of Attributes (means)

Attribute	Levels	Part-Worth Utilities	Relative Importance			p-value for Career Stage Difference
			Overall Sample	Ph.D. Students	Junior Faculty	
Level of Publication Outlet	'A' publication	1.161	38.7 %	36.4%	43.0%	0.000
	'B' publication	0.066				
	'C' publication	-0.994				
Number of Authors	2 authors	0.345	13.3%	13.5%	12.8%	0.566
	3 authors	0.118				
	4 authors	-0.230				
Rank as an Author	First author	0.813	25.7%	27.0%	23.1%	0.003
	Second author	0.211				
	Third author	-0.229				
	Fourth author	-0.483				
Time to be Spent	1 month	0.503	22.4%	23.1%	21.0%	0.139
	2 months	0.319				
	4 months	0.002				
	8 months	-0.512				

Summarized in Table 3, *part-worth utilities*, reflecting the value respondents attach to the specific levels of the attributes represent the main output of the CA. Among others, these values reveal the order of preferences between corresponding attribute levels (Orme 2002b). We notice that, on average, researchers rank the levels of the attributes in the expected order: submitting to an *'A' outlet*, having *2 authors*, being the *first author* and spending just *1 month* are the most preferred levels of the attributes in

our set-up. By dividing the range between the highest and the lowest utility values for each attribute by the sum of all ranges, relative importance (RI) of each attribute can be derived. RIs reflect "*how much difference each attribute could make in the total utility*" of a stimulus (Orme 2002b, p. 3). We notice that on average a decision to join a publication is mainly determined by the "*level of publication outlet*", followed by the "*rank as an author*". Importance of the "*rank as an author*" is closely followed by the "*time to be spent*" attribute, the difference is, however, significant (*t-test p=0.002*). Of the least importance is the "*number of authors"* on a publication. Apparently, once the questions: *Where* are we going to submit the paper? *What is my rank* as an author? And *how much time* am I expected to invest? have been answered, the "*number of authors"* does not matter as much. A closer look at the RIs at different career stages in Table 3 reveals that the "*level of publication outlet*" is of higher importance for junior faculty. At the same time, being the "*first author"* is more important for Ph.D. students.

The value of the part-worth utilities can be used to estimate the utility change - "*gaps*" - between attribute levels. In Table 4, we notice that improvements in the "*level of publication outlet*" result in the highest gains in utility (1.095 and 1.060 respectively), followed by the gains when moving from being the *second* to being the *first author* (0.602). Interestingly, the change between having 3 vs. 4 authors on a paper is linked with higher utility growth of 0.348 units than having 2 vs. 3 authors: 0.227 (paired samples t test p-value=0.000). The reasons for this finding can be the disproportional increase in the coordination costs when collaboration involves multiple actors (Malone and Crowston 1994), as well as dispersed contribution and visibility of other co-authors (Floyd et al. 1994; Over and Smallman 1973).

The magnitude of the gaps allows us to derive initial insights about the trade-offs researchers might consider and strategies on how the overall utility of a publication participation can be improved. Specifically, we notice that being the *first author,* as opposed to being the *fourth author,* results in the average utility gain of 1.295 (0.602+0.440+0.253). Since this value is higher than the utility loss of 1.095 in the case a researcher decides to target a 'B' instead of an 'A' outlet (*t-test p=0.001*), we can conclude that an average researcher would be more prone to choose being the first author on a 'B' publication than the fourth author on an 'A' publication. In a similar fashion, our data suggest that an average researcher would be willing to "trade-off" spending 8 months as a second author on an 'A' publication against being the first author on a 'B' publication and spending just 4 month on it.

Table 4. Mean Utility Change and Equivalent of Level Changes in Months

Attribute	Level Change	Utility Change	P-Value in Equality (t-test)	Time Equivalent of Level Changes (bound 1 – bound 2) in Months
Level of Publication Outlet	'B' ➔ 'A'-publication	1.095	.00	6.0-8.5
	'C'➔ 'B'-publication	1.060	.00	5.8-8.3
Number of Authors	3 ➔ 2 authors	0.227	.00	1.2-1.8
	4 ➔ 3 authors	0.348	.00	1.9-2.7
Rank as an Author	Second ➔ First author	0.602	.00	3.3-4.7
	Third ➔ Second author	0.440	.00	2.4-3.4
	Fourth ➔Third author	0.253	.00	1.4-2.0
Time to be Spent	2 ➔ 1 month	0.183	.00	*utility units per month (bound 1 - bound 2): 0.183 - 0.128*
	4 ➔ 2 months	0.318	.00	
	8 ➔ 4 months	0.514	.00	

Values for the level changes across different time points allow us to express the level changes of other attributes in terms of time (Orme 2001). Specifically, from Table 4 we infer that the total change in the utility from spending "8 months" to "4 months" implies the value of 0.514/4=0.128 utility units per month. Correspondingly, the "4 → 2 months" change and the "2 → 1 month" change render the values of 0.159 and 0.183 utility units per month, respectively. By taking the minimum and maximum of these

three values, the *upper and the lower bound* of "the utility change per month" can be derived: 0.128 - 0.183. These bounds allow us to operationalize the value of the change in the levels of all other attributes in terms of *time* (Table 4, columns "Time Equivalent of Level Changes"). For example, we notice that researchers on average are willing to invest 6.0 - 8.5 months more to move from a 'B' to an 'A' outlet.

Exploring the Trade-Offs

Final part-worth utilities obtained in the CA are typically scaled arbitrarily, so that only differences in the levels can be meaningfully interpreted. To correct this, the calibration phase allows adjusting the part-worth values, so that they can be summed up across attributes to reflect the cumulative utility of a specific option (research paper). Research offers several possibilities to interpret the cumulative utility values when several alternatives of a product (research paper) are considered. Particularly, the "*first choice"* and the "*share of preference"* simulation models have gained in popularity, due to their ease of interpretation and usefulness (Bakken and Frazier 2006). According to the "*first choice model"*, a person will always choose an alternative with the highest utility (Sawtooth Software 2007). While this approach is easy to apply and interpret, it offers a limited view of the decision-making process: In reality people may prefer alternatives with less utility to diversify their consumption. Accounting for these effects, the "*share of preference"* model renders a more conservative view, as it interprets the utility values as a "*proportion of the time that the respondent will select that option in the specified competitive context*" (Bakken and Frazier 2006, p. 647-648). In this approach, the anti-log of the cumulative utility is calculated for each alternative, reflecting the odds ratio for the likelihood of choosing this particular alternative (Sawtooth Software 2007, p. 19). The probability of choice of a specific alternative out of all other alternatives is then calculated on the basis of odds ratios for each option in the consideration set. For example, the share of preference for alternative 1, when only alternative 1 and alternative 2 are considered, can be calculated as: odds ratio 1 / (odds ratio 1+ odds ratio 2), where odds ratios are obtained by taking the anti-log (exp) of the cumulated utility of each alternative (EFS Conjoint Extension 2007; Sawtooth Software 2007). To make use of these affordances, an *ad hoc simulation of preferences* was conducted to explore the differences in the utility for different publication options. Our results help us to better understand researchers' real-world behavior when facing publication-related trade-offs.

Since "*level of publication outlet"*, respondent's "*rank as an author*" and "*time to be spent*" emerge as attributes with the highest RI, mainly trade-offs between these options were simulated in this study due to space limitations. For the "*number of authors",* only the trade-off with the publication *quality* was included. In all other scenarios, the "*number of authors"* was fixed to 3, since this form of collaboration is rather common in IS (AIS Electronic Library 2009; MISQ 2003-2013). Researchers' behavior for each trade-off was examined with the help of *two* scenarios to increase the validity of our conclusions. In *each* scenario, a respondent was assumed to have a choice between only *two* alternatives. For example, to examine preferences for the "*quality vs. time*" trade-off, the following 2 scenarios were considered: **Scenario 1.1:** "Spending *8 months* on working on an '*A' publication* as the *first author"* versus "Spending *4 months* on a '*B' publication* as the *first author"*. **Scenario 1.2:** "Spending *4 months* on working on a '*B' publication* as the *first author"* versus "Spending *2 months* on a '*C' publication* as the *first author"*. While our data allows us to study numerous combinations of attribute levels, we have chosen to limit ourselves to the selected scenarios to ensure the best fit to the real-life choices as provided by our pre-test (Sawtooth Software 2007). Indeed, when choosing which publications to work on, researchers rarely have a myriad of options, but rather have to choose between several close but distinct alternatives.

Summarized in Table 5, results of our analysis reveal the choices an average junior researcher will make when faced with two alternatives. Applying "*first choice"* and the "*share of preference"* approaches to our data, we observe that in "*quality vs. time*" and "*quality vs. number of authors*" trade-offs, junior researchers place higher weight on *quality*: Alternatives with higher level of publication outlets dominate researchers' choices. If shares of preference are considered for a publication with 3 authors and a researcher being the first author, in 64.1% of the cases a researcher would choose to spend 8 months on an 'A' publication, and only in 35.9% of times will choose to spend 4 months on a 'B' publication, all else being equal (scenario 1.1). Similarly, researchers will choose to "share" their contribution with *three* additional co-authors in 62.7% of the cases if 'A' outlet is considered as opposed to having just *one* additional co-author but aiming for a 'B' outlet (scenario 4.1).

The emphasis on *quality* is, however, less pronounced when *rank as an author* is at stake. In fact, we find that researchers are on average indifferent between being the *third author* on an 'A'-publication and *the first author* on a 'B'-publication (scenario 2.1, p-value for the paired samples t-test=0.385). The same can be observed when the trade-off between 'B' and 'C' levels is considered (scenario 2.2). The importance researchers attach to the *first authorship* is particularly vivid for "*rank as an author vs. time*" trade-offs, with researcher exhibiting high willingness to invest more time to move up in the authors' ranking (scenarios 3.1 and 3.2).

Table 5. Publication Trade-Off Preferences -First Choice and Share of Preferences Models

Trade-Off in Focus	Scenario	Attribute Levels				Cumulative Utility	p-value paired t-test	Choice in favor of:	Odds Ratio	Share of Preference
		q*	n_a	R	t					
Quality vs. Time	1.1	**'A'**	3	1st	**8**	1.58	0.000	quality	4.9	64.1%
		'B'	3	1st	**4**	1.00			2.7	35.9%
	1.2	**'B'**	3	1st	**4**	1.00	0.000	quality	2.7	67.8%
		'C'	3	1st	**2**	0.26			1.3	32.2%
Quality vs. Rank as an Author	2.1	**'A'**	3	**3rd**	2	1.37	0.385	indifferent	3.9	51.3%
		'B'	3	**1st**	2	1.32			3.7	48.7%
	2.2	**'B'**	3	**3rd**	1	0.46	0.765	indifferent	1.6	50.4%
		'C'	3	**1st**	1	0.44			1.6	49.6%
Rank as an Author vs. Time	3.1	'A'	3	**1st**	**8**	1.58	0.000	rank	4.9	55.3%
		'A'	3	**3rd**	**2**	1.37			3.9	44.7%
	3.2	'B'	3	**1st**	**4**	1.00	0.000	rank	2.7	63.2%
		'B'	3	**3rd**	**1**	0.46			1.6	36.8%
Quality vs. Number of Authors	4.1	**'A'**	**4**	1st	4	1.75	0.000	quality	5.7	62.7%
		'B'	**2**	1st	4	1.23			3.4	37.3%
	4.2	**'B'**	**4**	1st	2	0.97	0.000	quality	2.6	61.9%
		'C'	**2**	1st	2	0.48			1.6	38.1%

**q=level of publication outlet, n_a=number of authors, r=rank as an author, t=time to be spent*

Our findings, however, reveal slightly different dynamics when a *career stage* of researchers gets factored in (see Table 6). Specifically, while choices in favor of *quality* still hold for "*quality vs. time*" and "*quality vs. number of authors*" trade-offs for both Ph.D. students and junior faculty, the preferences regarding "*quality vs. rank as an author*" and "*rank as an author vs. time*" trade-offs tell a different story. Specifically, in "*quality vs. rank as an author*" trade-offs Ph.D. students are more likely to choose being *the first author*, as opposed to submitting to *better quality outlets* (p-values for the paired samples t-test for scenario 2.1 and 2.2 equal to 0.096 and 0.052, 10% significance level). In contrast, junior faculty make *quality*-oriented choices when faced with such trade-offs. The smaller weight junior faculty place on the rank can be also witnessed in the "*rank as an author vs. time*" trade-off: In scenario 3.1 where 'A' outlets were considered, junior faculty were indifferent between spending *2 months* of their time and *being third* as opposed to spending *8 months* and *being first*, which signals a more balanced attitude toward *first authorship* (p-value=0.221). On the contrary, Ph.D. students were willing to invest more time to warrant the *first position* on the paper intended for both 'B' and 'A' outlets (scenarios 3.1 and 3.2). Overall, significant differences observed between Ph.D. students and junior faculty suggest heterogeneous preferences when it comes to publication-relevant trade-offs. To explore this dynamic, cluster analysis was conducted to identify systematic differences between sub-groups of junior scholars in our sample.

Table 6. Publication Trade-Off Preferences for Ph.D. Students and Junior Faculty

Trade-Off in Focus	Scenario	Attribute Levels				Ph.D. Students			Junior Faculty		
		q	n_a	r	t	Cumulative Utility	p-value paired t-test	Choice in favor of:	Cumulative Utility	p-value paired t-test	Choice in Favor of:
Quality vs. Time	1.1	**'A'**	3	1st	**8**	1.53	0.000	quality	1.66	0.000	quality
		'B'	3	1st	**4**	1.08			0.84		
	1.2	**'B'**	3	1st	**4**	1.08	0.000	quality	0.84	0.000	quality
		'C'	3	1st	**2**	0.43			-0.08		
Quality vs. Rank as an Author	2.1	**'A'**	3	**3rd**	2	1.28	**0.096**	rank	1.54	0.001	quality
		'B'	3	**1st**	2	1.39			1.17		
	2.2	**'B'**	3	**3rd**	1	0.47	**0.052**	rank	0.44	0.002	quality
		'C'	3	**1st**	1	0.61			0.13		
Rank as an Author vs. Time	3.1	'A'	3	**1st**	**8**	1.53	0.000	rank	1.66	**0.221**	indifferent
		'A'	3	**3rd**	**2**	1.28			1.54		
	3.2	'B'	3	**1st**	**4**	1.08	0.000	rank	0.84	0.001	rank
		'B'	3	**3rd**	**1**	0.47			0.44		
Quality vs. Number of Authors	4.1	**'A'**	**4**	1st	4	1.71	0.000	quality	1.82	0.000	quality
		'B'	**2**	1st	4	1.29			1.10		
	4.2	**'B'**	**4**	1st	2	1.04	0.000	quality	0.85	0.000	quality
		'C'	**2**	1st	2	0.65			0.18		

Cluster Analysis

A two-step procedure was applied to achieve the optimal clustering of the respondents (Burns and Burns 2008). First, a Hierarchical Agglomerative Cluster Analysis with the Ward's linkage was conducted on respondents' calibrated part-worth utilities (EFS Conjoint Extension 2007; Klein 2002). By applying the elbow rule on the coefficients rendered by the agglomeration schedule, we derived that differentiating between 2 groups represents the optimal cluster number for our sample. In the second step, a non-hierarchical K-means clustering method has been applied to separate our dataset into 2 clusters. K-means was chosen due to its high robustness and reliability in separating the sample into distinct groups (Burns and Burns 2008). As a result, 79 (32.8%) and 162 (67.2%) researchers were assigned into *cluster 1* and *cluster 2,* respectively. Table 7 shows the differences in the *utility changes* across clusters, corresponding values for *relative importance* and *time equivalents of level changes* (i.e. time researchers are willing to invest to move from one level to the next). We notice that researchers in *cluster 2* associate high utility with the *quality* of the publication outlet, with a relative importance of this attribute reaching 44%. Moreover, the incremental value of aiming for *'A' vs. 'B'* and for *'B' vs. 'C'* outlets, is almost twice as high for researchers in *cluster 2* than for researchers in *cluster 1*. In contrast, researchers in *cluster 1* place higher emphasis on *first authorship*. For this group the increase in value when moving from *second* to the *first* position in the author's list is of *equal* value as moving from a *'B' to an 'A' outlet* (paired samples t-test p-value=0.517). In addition, these researchers associate significantly higher incremental value with *time reductions*, indicating higher time pressure and signaling the emphasis on *quantity* (rather than quality). For these researchers*, quality* is just one among many factors considered when the decision on whether to take part in a paper (or not) is made. In fact, paired samples t-tests reveal *no* significant differences in the *relative importance* researchers in cluster 1 attach to such attributes as *level of publication outlet*, *rank as an author* and *time to be spent* (p-values range 0.529 - 0.766). Striking differences in the preference patterns between two clusters become particularly apparent when *time equivalents of level changes* are considered. We notice that while researchers in *cluster 1* would on

average invest just 2.4-4.4 months of their time to ensure their publication can appear in the 'A' vs. 'B' outlet, scholars in *cluster 2* would readily sacrifice a whopping 9.3-11.1 months to achieve this outcome. Considering the characteristics of these two groups, we refer to researchers in *cluster 2* as "*quality-focused*" and to researchers in *cluster 1* as "*pragmatists*". "*Quality-focused"* researchers strive for the highest quality publications regardless of their authorship position, number of authors, time and effort expenditures. "*Pragmatists*" prefer to gain maximum visibility through first authorship in the least amount of time. Indeed, analysis of scenarios presented in Table 5 across clusters reveals that when "*quality vs. rank as an author*" trade-off is considered, "*pragmatists*" prefer the scenarios with *higher authorship position* (p=0.000 for scenarios 2.1 and 2.2). On the contrary, *"quality-focused"* choose *better quality outlets* (p=0.000 for scenarios 2.1 and 2.2). Moreover, when it comes to the "*quality vs. number of authors*" trade-offs, *"quality-focused"* would always choose additional authors to warrant a better-quality publication.

Table 7. Mean Utility Change and Relative Importance per Cluster

Attribute	Level Change	Utility Change		p-value (t-test)	Relative Importance		p-value (t-test)	Time Equivalent of Level Changes (in months)	
		Cl_1*	Cl_2		Cl_1	Cl_2		Cl_1	Cl_2
Level of Publication	B ➔ A	*0.67*	**1.30**	**0.000**	27.3%	44.3%	**0.000**	2.4-4.4	9.3-11.1
	C ➔ B	*0.69*	**1.24**	**0.000**				2.5-4.5	8.9-10.6
Number of Authors	3 ➔ 2	0.22	0.23	0.906	15.9%	12.0%	**0.000**	0.8-1.4	1.6-2.0
	4 ➔ 3	0.35	0.34	0.864				1.3-2.3	2.4-2.9
Rank as Author	2nd ➔ 1st	**0.73**	*0.54*	**0.018**	28.1%	24.5%	**0.007**	2.6-4.8	3.9-4.6
	3rd ➔ 2nd	0.41	0.45	0.572				1.5-2.7	3.2-3.8
	4th ➔3rd	0.22	0.27	0.403				0.8-1.4	1.9-2.3
Time to be Spent (in months)	2 ➔ 1	**0.28**	*0.14*	**0.034**	28.6%	19.3%	**0.000**	(Bound 1- Bound 2)	
	4 ➔ 2	**0.41**	*0.27*	**0.035**					
	8 ➔ 4	**0.61**	*0.47*	**0.034**					

** Cl_1 - "cluster 1", Cl_2 - "cluster 2"*

To better understand the determinants of cluster membership, demographic characteristics and institutional requirements were analyzed as summarized in Table 8. We notice that *Ph.D. students* and respondents from the *German-speaking scientific community* are overrepresented among "*pragmatists*" (cluster 1). In contrast, *junior faculty* and representatives of the *North American scientific community* are overrepresented among "*quality-focused*" cluster 2. We find no significant differences for *gender*, providing evidence that publication-related preferences are similar for male and female researchers. In addition, we explored the role of *institutional requirements*, because prior research has identified them as an important factor in researchers' publication strategies (Dean et al. 2011; Dennis et al. 2006; Holsapple and O'Leary 2009). To do so, an open-ended question was asked before the conjoint bloc: "*Do you have any publication requirements to achieve your next career goal*?" The use of open-ended format allowed us to gain an unprompted snapshot of the requirements respondents care about most (Harper and Singleton 2001). A resulting text corpus of 1717 words was content-analyzed following the methodological guidelines of Ryan and Bernard (2000). After initial exploration of the existing categories, we coded references to the *'A', 'B', 'C' journals, first authorship* and *number of authors* as part of formal requirements. We refrained from coding requirements concerning *quantity* and *time constraints*: Since these requirements were tightly coupled with other attributes and/or were often formulated as an "or" statement: "*I need to publish 4 papers in an A or 6 papers in a B journal to get tenure*", the coding would not result in meaningful conclusions. As the coding categories were, in essence, manifest (rather than interpretative), only one coder initially coded the responses. In case of doubt, the second author was

involved to reach the final decision[2]. Our data shows that publishing in *'A' journal(s)* is a requirement for 28.2% of junior scholars in our sample. Requirements regarding the *first authorship* and *number of authors* are less common, but still occur for 15.5% and 2.9% of our respondents respectively. Examination of the relationship between presence of institutional requirements and cluster membership, however, did not reveal any significant effects (all p-values > 0.1 in Table 8). This suggests that while *formal requirements* may offer some loose guidance on how, where and with whom to publish, they leave researchers enough *freedom* to form their own preferences.

Table 8. Respondent Distribution in Clusters

Demographic Groups		Overall sample, %	Cluster 1 *"pragmatists"*	Cluster 2 *"quality-focused"*	Pearson Chi-Square Test
			% within cluster		
Career Stage	Ph.D. students	65.1	74.7	60.5	0.030
	Junior Faculty	34.9	25.3	39.5	
Gender	Male	71.0	69.6	71.6	0.750
	Female	29.0	30.4	28.4	
Region of the workplace	German Community	54.4	68.4	48.1	0.003
	North America	22.0	10.1	27.8	
	Other	23.6	21.5	24.1	
Presence of Formal the Institutional Requirements regarding:	'A' journal	28.2	26.4	28.9	0.735
	'B' journal	25.9	26.4	25.6	0.912
	'C' journal	6.9	3.8	8.3	0.282
	First Authorship	15.5	20.8	13.2	0.207
	Number of Authors	2.9	1.9	3.3	0.606

Since only the links with *career stage* and *region of the workplace* were significant, the influence of these variables was next tested in *a logistic regression analysis*, with *cluster membership* as a dependent variable. The test of the full model against a constant only model was statistically significant, indicating that together our predictors distinguished between the cluster membership (Chi-Square=15.016, df=3, p=0.002). In addition, the Hosmer and Lemeshow Chi-square test was insignificant p=0.982, leading us to conclude that model's estimates fit the data at an appropriate level. Even though Nagelkerke's R^2 of 0.084 indicated a relatively weak relationship between prediction and grouping, we consider this power as appropriate since only few predictors were included (Burns and Burns 2008). The Wald criterion revealed that being a researcher in *North America* increases one's chances to land in the *quality-focused* cluster 2 (b=0.775, p=0.078). Moreover, the influence of the career stage - being a Ph.D. student - approached a 10% significance level: b= -0.485, p=0.123[3]. Hence, with some level of caution, we can conclude that being a Ph.D. student decreases one's chances to belong to the *quality-focused* cluster 2.

Concluding Remarks

This study is a first attempt to understand the motivation of junior IS researchers to pursue collaboration on a particular project. Our primary goal is to understand how junior researchers balance tradeoffs when they make a decision to collaborate in a research project. Focusing on four types of publication-relevant attributes, we find that *level of publication outlet* and *rank as an author* are the most important determinants of the paper participation decision. Simulation of expected behavior across an array of

2 Detailed description of the coding procedure is omitted due to space limitations and is available upon request.
3 When only career stage and dummy variable for North America were in the regression, the impact of the career stage became significant: b=-0.524, p=0.093.

trade-offs reveals that an average junior IS researcher is willing to spend *more time* (scenarios 1.1, 1.2 in Table 5) and collaborate with *more co-authors* to gain a *higher quality* publication (scenarios 4.1, 4.2 in Table 5), hence preferring quality when "*quality vs. time*" and "*quality vs. number of authors*" trade-offs are considered.

A secondary goal of our research is to identify distinguishing factors that might offer preliminary insights as to *why* junior scholars make the tradeoffs that they do. In particular we look at *career stage* and *geographic location* to make inferences about differences in tradeoff utilities in the sample. Career stage makes a difference when it comes to the "*rank as an author*" trade-offs: Preferences of Ph.D. students and junior faculty - post-doctoral fellows, untenured assistant and junior professors - differ significantly. Across the four scenarios (2.1, 2.2, 3.1, 3.2 in Table 6) we simulated, junior faculty were more focused on quality and willing to dedicate more time and work with more co-authors for a chance of getting a higher quality publication. Apparently, since the main goal of most junior faculty is to get a tenure-track job and subsequently tenure, tenure requirements - often emphasizing "quality" - dictate their publication preferences in many cases. In contrast, we find that Ph.D. students attribute more utility to moving up in the author ranks rather than in raising the quality of the publication outlet. They are willing to spend more time to earn that higher authorship ranking. This could be a function of Ph.D. program requirements that demand single or first-authored publications from students. This tendency for Ph.D. students is surprising and sends a warning signal to some academic supervisors, who may want to steer publication behavior of their protégés into the "quality-oriented and collaborative" path as opposed to the present "first authorship-oriented" path, where additional authors are seen as competitors for a desired "first place" rather than as an improvement.

Further, our findings suggest that institutional requirements alone are not effective in ensuring quality-oriented behavior. We find that assignment into the "quality-focused" vs. "pragmatic" clusters of researchers was not linked to the requirements regarding 'A', 'B' or 'C' journals. Apparently, other forces are at work here (see Table 8). For example, Krasnova et al. (2012a) argue that emphasis on first authorship by Ph.D. students can be rooted in their elevated need to establish themselves as independent researchers, desire for leadership, visibility and ownership.

Alongside career stage, *geographical origin* emerges as a powerful predictor of publication-related strategies. Specifically, we find that North American researchers are over-represented in the "*quality-focused*" cluster, with logistic regression analysis confirming the significance of this effect. This geographic heterogeneity in preferences is intriguing and can be an indication of a different focus between the geographic communities. European researchers are known to opt for a post-positivist non-empirical direction, placing value on the practical relevance of their contributions (Benbasat and Weber 1996; Evaristo and Karahanna 1997; Österle et al. 2010). This may possibly lead them to prefer faster publication cycles to ensure their findings are disseminated quickly. In contrast, North Americans rather engage in behavioral empirical research with high emphasis on rigor, research replicability and theoretical strength (Benbasat and Weber 1996; Evaristo and Karahanna 1997; Chua et al. 2002). Consequently, they may put up with longer publication cycles of top-tier IS journals. Further, variations in journal rankings in these two communities and inconsistencies in methods used to assign credit for work as a secondary author could also be a factor in these different approaches to publishing. Future researchshould test the presence of these effects.

Further, *long-term career goals* of researchers from North-American and European / German-speaking scientific communities in our sample also differ: 22.8% of respondents from Europe - all of them Ph.D. students - indicated their plans to work in the "*industry*". This share was 25.8% when only the German-speaking scientific community was considered. In contrast, none of North-American scholars had these intentions, with 92.5% planning a future in "*academia*" and 7.5% choosing the *"I do not know yet"* option. This could explain the differences in preferences: Since 'A' publications are highly valued in academic world, North-American researchers may have a strong motivation to submit to these journals from the outset of their careers and especially when they land their first academic job. Ph.D. students with industry ambitions, however, may rather be concerned with showcasing their leadership abilities and independence of thought (i.e. first authorship) and, for practical reasons, managing time.

Limitations as Venues for Future Work

Our study has several limitations.

First, we only focused on the four most common attributes of participation in a research paper. At the same time other determinants, such as researcher's interest in the subject area, synergies with teaching or other research projects, and friendships, were also mentioned during our preliminary interviews and can serve as powerful incentives for scholarly collaboration. Even though omitting these factors is a limitation of our study, these factors are rarely a part of the formal requirements and are rather attitudinal in nature, making them hard to capture in a conjoint setting.

Second, in our study we assumed that scholars have a free choice in all trade-off decisions. However, particularly for early-stage scholars, the choices especially around the rank of authorship are often predefined by established academic practices of a specific institution. Most, but not all, institutions hold that students get first billing on journal papers derived from the dissertation. However, in some institutions alphabetical ordering or putting the doctoral advisor first could be an established practice.

Third, since researchers often diversify their publication participation - focusing on multiple publications and, in this process, emphasizing different key attributes at a time - our approach involves some degree of simplification. It may have been more realistic to assume that trade-off decisions change dynamically for every paper according to the context and personal situation.

Fourth, we equate the level of the publication outlet with research quality. Despite a contestable nature of this assumption (Dean et al. 2011; Howard 2001), differentiating between 'A', 'B' and 'C' levels provided an intuitive proxy in our set-up.

Fifth, in our study design we differentiate between four levels of the attribute "*time to be spent*", such as 1 month, 2 month, 4 months, and 8 months. While these values reflect our best judgment and were derived on the basis of careful analysis of the conducted interviews, we urge the reader to interpret our time-related findings with caution. Indeed, the *time* researchers spend on papers is subject to great variability, often depending on the nature of the study in question, researchers' experience and expertise, researchers' perception of time, and personal tempo of "writing".

Sixth, we do not specifically study why our respondents made the decisions that they did. Additional analyses, however, suggests that career stage and geographic location appear to be important. Nevertheless, further research should specifically address this issue.

Finally, while conjoint analysis approximates real life choices, possible social desirability bias in subjects' responses cannot be ruled out completely. Responding to our survey questions some respondents might have chosen more socially attractive options, such as concentration on *research quality* as opposed to *higher rank as an author*, than they would have when faced with this trade-off in a real-life setting.

All in all, we advise future research to deepen our insights by addressing these limitations. Future research could also address which tradeoff patterns will lead to success, however success is defined. For some success is linked to publications in highly-ranked journals; For others in more teaching-oriented schools, success may be linked to publications in teaching journals or publication records characterized by quantity vs. quality. Our results, however, suggest that future research is warranted. Our exploratory research suggests that causal analysis can be applied to understand deep-rooted motives behind researchers' preferences. Overall, our study offers intriguing insights into the choices of junior researchers when facing publication trade-offs.

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