# Information Dimensions in Library and Information Science Doctoral Mentoring: Qualitative Findings*

Jongwook Lee**

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ABSTRACT

Socialization of doctoral students refers to the process through which they acquire various types of information about their work, department, university, and discipline for their future careers. This study aims to investigate information behaviors, with emphasis on identifying types of information exchanged in mentoring between faculty advisors and their doctoral students in library and information science (LIS). As a first step to developing a content framework for LIS doctoral mentoring, the author interviewed ten LIS doctoral students from nine U.S. universities. Based on data from these interviews, the author identified sixteen types of information exchanged: language, history, coursework, research, skills, teaching, networking, structure, politics, goals, strategies, values, norms/tradition, rules/policies, benefits, and personal life. In comparison with a content framework used, four dimensions were newly added. In addition to the identification of content dimensions, the author observed four meaningful contextual levels to which the content types can be applied: work, department/school, university, and discipline. The qualitative data also showed that interpersonal factors of advisees/advisors and contextual factors might relate to information exchange in doctoral mentoring. In a following paper, the author will present the results of a follow-up survey that tests and generalizes the findings of this study.

## 1. Introduction

Many scholars have discussed a variety of human information behaviors in diverse contexts such as work-related, everyday life, and academic settings (Courtright, 2007; Fisher & Julien, 2009; Given, 2002). Interpersonal communication is a typical mode of information behavior (Jaeger & Burnett, 2010; Wilson, 2010) as supported by the conception of information as constructed and

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** Assistant Professor, Department of Library and Information Science, Kyungpook National University, Daegu, South Korea, 41566 (jongwook@knu.ac.kr)
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used in social interaction (Tuominen & Savolainen, 1997). In particular, interpersonal information behavior is a critical factor of mentoring, as protégés communicate with mentors to satisfy their information needs or to acquire something beneficial for their careers. Some researchers in management have investigated the role of information behaviors in mentoring, characterizing mentoring as an exchange of information and information acquisition (Mullen, 1994; Ostroff & Kozlowski, 1993). The purpose of these information practices in mentoring is to achieve the socialization of new employees, and some studies highlight the information seeking behavior of newcomers as it influences their socialization processes and outcomes (Miller & Jablin, 1991; Morrison, 1993; Ostroff & Kozlowski, 1993).

Similarly, in the academic context, mentoring by faculty advisors plays a significant role in socializing graduate students (Austin, 2002; Gardner, 2007, 2008, 2009). Girves and Wemmerus (1988) even described faculty advisors as the "primary socializing agent[s] in the department" (p. 185) and emphasized the importance of positive student-faculty relationships for doctoral degree progress. Further, some scholars noticed that such advisor-advisee relationships are likely to be mentoring relationships (Johnson, 2007; Johnson, Rose, & Schlosser, 2007), and mentoring relationships have been recognized as facilitating the socialization of individuals in organizational or academic settings (Cawyer, Simonds, & Davis, 2002).

Nevertheless, relatively few studies have examined the information behaviors occurring in academic mentoring, and very few scholars in library and information science (LIS) have investigated the information behavior aspects of mentoring. Even though the socialization content can be an accurate measure of learning outcomes (Klein & Heuser, 2008), there have not been many attempts to explore content dimensions in academic mentoring using a theoretical framework. To redress this dearth of research, this study aims to investigate information behaviors with a special emphasis on identifying types of information exchanged in mentoring between LIS faculty advisors and doctoral students. The results of this study will be useful for understanding information needs of doctoral students and their information exchange with their advisors. In addition, the results could be helpful in planning and implementing LIS doctoral programs and improving the quality of doctoral mentoring.

## 2. Literature Review

### *2.1 Definition of Socialization*

Socialization is "the process by which persons acquire the knowledge, skills, and dispositions that make them more or less able members of their society" (Brim, 1966, p. 3). The concept of socialization has been frequently used in organizational and educational contexts. Organizational socialization refers to the process through which an individual acquires the knowledge, skills, and norms to be an effective member of a given organization (Fisher, 1986; Van Maanen & Schein, 1979).

Socialization has also been discussed in higher education, especially in graduate education.

Socialization in graduate education refers to "the processes through which individuals gain the knowledge, skills, and values necessary for successful entry into a professional career requiring an advanced level of specialized knowledge and skills" (Weidman, Twale, & Stein, 2001, p. iii). Socialization of doctoral students aims to provide them with "the cognitive and affective dimensions of social roles related to the practice of learned occupations" (Weidman & Stein, 2003, p. 642) - in this case, the role of scholar. Doctoral student socialization has a distinctive feature compared to other types of professional socialization in that a doctoral student is socialized into both student and professional roles - that is, double socialization (Gardner, 2010; Golde, 1998; Mendoza, 2007).

### *2.2 Faculty Mentoring in Doctoral Education*

In academic settings, an advisor-advisee relationship is quite common, occurring in almost every department (Johnson et al., 2007). In comparison with a simple advisor-advisee relationship, mentoring is more future-oriented, meaning that the primary intent of mentoring is to advance the career of a protégé (Mertz, 2004). In addition, Burg (2010) differentiated mentoring from advising in doctoral education, saying that mentoring provides doctoral students with "support that goes beyond the basic duties of advising" (p. 6). Titus and Ballou (2013) also noted that while advisors are more likely to play administrative or institutional roles to students, mentors are involved with more diverse activities such as "promoting visibility in their field, professional socialization, and networking" (p. 1274). Thus, not every mentor-protégé relationship achieves true mentorship in doctoral education (Sugimoto, 2009; Lunsford, Baker, Griffin & Johnson, 2013). Studies often estimated that one-half to two-thirds of doctoral advisees see their advisors as mentors, and, in LIS, it was found that around 70% (53 out of 75) of advisees view their faculty advisors as mentors (Sugimoto, 2012a).

In doctoral education in the field of LIS, Sugimoto (2009, 2012a, 2012b) did some representative mentoring research. As part of her dissertation, Sugimoto (2012a) addressed characteristics of academic mentoring using Kram's framework, categorizing the dimensions of mentoring into "psychosocial", "pedagogical", and "career preparation and acculturation" based on the results of questionnaires and interviews. Furthermore, Sugimoto (2012b) analyzed behavioral and procedural features of LIS doctoral students in mentoring by relating them to the mentoring phases suggested by Kram (1983). Overall, Sugimoto did pioneering mentoring work in LIS, investigating the process of doctoral mentoring theoretically and developing a new framework relevant to academic settings. She also covered some aspects of information exchange in mentoring, but the focus of her studies was not on information dimensions.

### *2.3 Socialization Content Framework*

Many researchers have proposed the content or information types sought in organizational socialization. For example, Feldman (1981) proposed a model that explains the multiple socialization processes a newcomer to an organization goes through. In the model, Feldman described three

content domains of organizational socialization: role demands, task mastery, and group norms and values. Then, Fisher (1986) introduced four primary types of socialization content: organizational characteristics, work group, task, and personal learning. Miller and Jablin (1991) also suggested three types of information (referent information, appraisal information, and relational information) sought by newcomers to an organization in their model of information seeking behaviors of newcomers to an organization.

Ostroff and Kozlowski (1992; 1993) modified the models of Feldman (1981) and Fisher (1986) to present the four content domains of task, role, group, and organization; Morrison (1993) identified five types of information: technical information, referent information, normative information, performance feedback, and social feedback. Subsequently, Chao et al. (1994) proposed six dimensions of organizational socialization content: performance proficiency, people, politic, language, organizational goals and values, and history.

The Chao et al. (1994) framework was based on a review of prior studies. Specifically, Chao et al. referenced the Feldman (1981) and Fisher (1986) frameworks. An important strength of the Chao et al. framework is that its six content areas of socialization were empirically tested. In the study, Chao et al. developed a 34-item scale through confirmatory and exploratory factor analysis and confirmed the construct and discriminant validity of the scale. For this reason, this scale has been the frequently referenced in organizational socialization research (Bauer et al., 2007).

However, several authors have pointed out some weaknesses of the Chao et al. (1994) framework (Bauer, Morrison, & Callister, 1998; Haueter, Macan, & Winter, 2003; Klein & Heuser, 2008). Haueter, Macan, and Winter (2003) noted that the prior frameworks, including that of Chao et al. (1994), suffer from "inconsistent inclusion of different levels of analysis (i.e., job, work group, and organization) within specific dimensions", "assessment of predominantly knowledge, with little to no coverage of role", and "lack of differentiation between task socialization and job performance" (pp. 21-22). Saks and Ashforth (1997) also mentioned the possibility of existence of other content areas. Klein and Heuser (2008) further elaborated that the Chao et al. (1994) framework does not differentiate learning outcomes from proximal outcomes. For instance, Chao et al.'s content dimension of performance proficiency has overlaps between learning and proximal outcomes. Klein and Heuser also pointed out that the framework tends to measure the organizational level of socialization even though some content areas can be mastered at different levels, such as job or work group.

In reaction to this, Klein and Heuser (2008) proposed an expanded typology of socialization after resolving some issues of existing content frameworks. Their proposed typology consists of twelve content dimensions (Table 1). They retained or modified the content dimensions of the Chao et al. framework and added some new dimensions, such as rules and policies, navigation, and inducements. Compared to other content frameworks, Klein and Heuser's framework has strengths in that it is comprehensive; it focuses on measuring learning outcomes consistently; and it enables researchers to examine content dimensions at different levels of socialization (the job, the work group, the department, the division/unit, and the organization levels) separately, which can be expanded to other socialization levels. Considering these strengths, the proposed study drew upon the Klein and Heuser framework to examine information dimensions of doctoral mentoring.

**Table 1.** The Klein and Heuser (2008) socialization content framework

| Dimension | Construct Definition |
|---|---|
| Language | The extent to which the individual has learned the unique technical language, acronyms, slang, and jargon |
| History | The extent to which the individual has learned the history, traditions, origins, and changes |
| Task Proficiency | The extent to which the individual has learned the necessary job knowledge and skills needed to successfully perform required "in-role" tasks |
| Working Relationships | The extent to which the individual has learned the necessary information about others to establish effective working relationships including the learning of work colleagues' expectations, needs, and working styles |
| Social Relationships | The extent to which the individual has learned the necessary information about others to develop a network of social relationships, including the extent to which an individual has learned personal things about a work colleague (i.e., common interests, family) |
| Structure | The extent to which the individual has learned the formal structure, including the physical layout and where formal responsibility and authority is assigned |
| Politics | The extent to which the individual has learned the informal power structure, including where actual control of resources, decision making, and influence over decisions resides |
| Goals and Strategy | The extent to which the individual has learned the current product/market mix, competitive position, mission, goals, and strategies |
| Culture and Values | The extent to which the individual has learned the customs, myths, rituals, beliefs, and values including guiding principles, symbols, and ideology |
| Rules and Policies | The extent to which the individual has learned the formal workplace rules, policies, and procedures |
| Navigation | The extent to which the individual has learned the implicit rules, norms, and procedures of the workplace |
| Inducements | The extent to which the individual has learned what is offered in exchange for their contributions including pay, development opportunities, benefits, and intangibles |

Note. Adapted from "The Learning of Socialization Content: A Framework for Researching Orientating Practices", by H. J. Klein, and A. E. Heuser, 2008, *Research in Personnel and Human Resources Management, 27*, p. 301.

## 3. Pilot Study

The author conducted a pilot study to test the applicability of Klein and Heuser's (2008) content framework discussed above, interviewing six doctoral candidates in an LIS program at a university in the US. The interview protocol used in the pilot study was developed on the basis of Klein and Heuser's framework, and the author asked ten questions that covered twelve socialization content dimensions. The findings of the pilot study suggested the applicability of the framework to doctoral mentoring. However, some modifications of the framework seem to be necessary. The current framework supports five different levels of socialization: job, work group, department, division/unit, and organization, but the findings indicated the needs for an additional level, which is a disciplinary level. In addition, the content type of "personal life" was revealed through the study. Nevertheless, the study sample of the pilot study was only six participants and limited to the doctoral program at a single university. Therefore, additional interviews with doctoral students from other universities were made in this study.

## 4. Methods

This paper is part of doctoral dissertation (Lee, 2016) that relied on a mixed methods design to answer the research questions, combining interviews and a questionnaire. The present paper focuses on describing the qualitative findings from the interviews.

### *4.1 Research Questions*

Mentoring by faculty advisors plays a significant role in socializing doctoral students. However, relatively few studies have examined information aspects in mentoring between faculty advisors and their doctoral students. To address the problems identified, research questions are posed below:

RQ 1. What types of information are exchanged between LIS doctoral students and their advisors at the level of their job/task, department/school, university, and discipline?
RQ 2. What factors influence information exchange in doctoral mentoring?
RQ 3. What modifications, if any, have to be made to Klein and Heuser's framework in order to make a fit to the context of LIS doctoral education?

### *4.2 Data Collection*

The author conducted semi-structured interviews with ten LIS doctoral students (seven female and three male students) from nine U.S. universities in the spring and summer semesters of 2015 (Table 2). The six pilot study participants were excluded in the main study. While there is no definitive guide regarding the ideal number of interviews to conduct, six to twelve participants can be expected to yield meaningful data (Guest, Bunce, & Johnson, 2006). Pseudonyms are used to protect the identities of research participants.

**Table 2.** Description of interview participants

| | Name | Affiliation | Stage* | Nationality |
|---|---|---|---|---|
| P1 | Heidi | University "A" | Pre-candidate | United States |
| P2 | Charles | University "B" | Pre-candidate | United States |
| P3 | Jina | University "C" | Pre-candidate | South Korea |
| P4 | Ann | University "D" | Pre-candidate | Canada |
| P5 | John | University "E" | Pre-candidate | United States |
| P6 | Daniela | University "F" | Candidate | Brazil |
| P7 | Shanshan | University "G" | Candidate | China |
| P8 | Peter | University "F" | Candidate | United States |
| P9 | Susan | University "H" | Candidate | United States |
| P10 | Claire | University "I" | Candidate | United States |

Note. * The stage of doctoral work at the time of interview

Three of the interviews were face-to-face, and the remaining seven were online interviews over Skype as the participants were geographically remote from the author. An interview protocol was developed through the framework and the pilot study, and one-to-one mappings between the framework and the main interview questions were made in Table 3 below (A copy of the complete interview protocol is available from the author upon request). Each interview took approximately thirty minutes to an hour, and all the interviews were audio-recorded and transcribed for data analysis.

**Table 3.** Mapping between theoretical framework and interview questions

| Dimension | Questions |
|---|---|
| Language | Every discipline has its own language or way of talking. Tell me about a time when you talked with your advisor about the kinds of jargon, acronyms, or other specialized language used in your field. |
| History | Have you ever talked with you faculty advisor about the history or tradition of your discipline? |
| Task Proficiency | Tell me about a time when you talked with your advisor about knowledge or skills for your doctoral work. |
| Working Relationships | Tell me about a time when you talked with your advisor about how you should interact with and develop professional relationships with others in your field. Do you consider any of these professional relationships to be friendship? |
| Social Relationships | Tell me about a time when you talked with your advisor about how you develop friendships with others in the field? |
| Structure | Have you talked with your advisor about how the profession of academia is structured, in terms of things like academic rank, hierarchy, responsibilities, etc.? |
| Politics | Tell me about a time when you talked with your advisor about how to navigate the politics of your field? |
| Goals and Strategy | Tell me about a time when you talked with your advisor about developing goals or strategies for being successful in your doctoral work and future career? |
| Culture and Values | Tell me about a time when you talked with your advisor about why academic work in LIS is important or of value. |
| Rules and Policies | Tell me about a time when you talked with your advisor about the rules or policies in your school/department. What about the rules or policies related to your university? |
| Navigation | Tell me about a time when you talked with your advisor about expectations about how you act. For example, how you should or shouldn't behave in academic conference. |
| Inducements | Tell me about a time when you talked with your advisor about what benefits you can hope to gain from your doctoral work. |

### *4.3 Data Analysis*

Content analysis was used to analyze qualitative data. The procedure of coding was consisted of two stages: The first stage was primarily inductive, assigning topics to the data (i.e., descriptive coding) and extracting some phrases from interviewees' own words (i.e., In vivo coding) (Miles, Huberman, & Saldaña, 2014). The second stage of coding was more deductive, as the researcher compared the codes with the categories created from the theoretical framework. New categories were constructed when the codes did not fit any existing theoretical category.

To ensure reliability, the researcher developed a codebook and checked inter-coder agreement

with a third-party LIS doctoral student. First, the researcher and LIS student examined two interview transcripts and assigned relevant themes to the responses independently. Next the researcher compared the two sets of codes and created a draft codebook (v. 1.0), which was revised based on feedback from his faculty advisor and the third-party coder (v. 2.0). Two coders then coded another interview transcript using version 2 of the codebook, and discussed coding discrepancies and problematic codes, which resulted in a third version of the codebook. Finally, the coders conducted another round of coding with a selected portion of an interview transcript and achieved an acceptable level of inter-coder agreement. To achieve internal validity, the researcher (1) was trained through several practice interviews and a pilot study under the supervision of his major professor; (2) conducted member checks that solicited interview participants' feedback on the findings of the study; and (3) obtained reviews from his doctoral committee members.

## 5. Findings

### *5.1 Content Dimensions*

This section describes the content dimensions identified from interview data. The author assigned relevant codes of content dimensions to the answers of the participants, regardless of the topic of the corresponding interview questions.

#### *5.1.1 Coursework*

The dimension of coursework covers information exchanged in mentoring about classes doctoral students take. Seven interview participants, including all five pre-candidate students, responded that they had talked with their advisors about their coursework in terms of the knowledge or skills they could get from classes, and the benefits to their future research thereof. For example, Charles stated that he talked to his advisor about what knowledge or skills, in relation to his research and dissertation plan, were taught in which classes. Claire also reported receiving some help from her advisor in making decisions about which classes to take for conducting her research.

Information about coursework was also exchanged in relation to department policy and the traditions of the LIS discipline. For example, Jina said, "Regarding coursework, the policy should be involved because there are some required courses and some elective." In addition, Shanshan said that a conversation about coursework with her advisor led to a discussion about the traditions of the LIS discipline; she complained about the coursework to her advisor, as she felt some courses were irrelevant to her research, but her advisor suggested that she persist in those courses, given the interdisciplinary nature of the information science discipline.

#### *5.1.2 Research*

Although there were some individual variations in topical diversity and depth of conversation,

all participants had exchanged information about their research with their advisors, such as dissertation, research projects, and grants. Information exchange related to research covers the processes of identifying topics or theoretical frameworks, reviewing literature, collecting data, analyzing data, writing, and publishing. Claire said that she talked with her advisor about the research design for her dissertation, saying, "We definitely have meetings and have been having meetings all year where we sit down and say, 'Okay, if I want to study this, I need to do this kind of data collection'." Ann also exchanged information with her advisor about many aspects of the research process, including organizing literature, identifying and using theories, applying research methods, and writing for a book chapter or a research proposal. Furthermore, three participants (Daniela, Shanshan, and Peter) reported that they discussed methods or skills for conducting research: Daniela said she discussed what things she should pursue in terms of technical skills and statistics. Shanshan said that her advisor helped her get all the necessary research skills and methodologies.

#### *5.1.3 Skills*

The dimension of skills is defined as the abilities participants need to have in order to perform their tasks. In addition to the research skills covered in the previous section, eight participants reported having talked with their advisors about other types of skills, such as writing, time management, and technical skills. Writing skills are closely related to the research dimension, writing being a core activity; however, some participants, especially those who were not native English speakers, had talked with their advisors about their English writing skills in general. Shanshan, a Chinese participant, said that her advisor helped her a lot with both speaking and writing. Three participants (Peter, Susan, and Ann) mentioned other skills, such as project- or time-management skills, and two other respondents (Daniela and Peter) had talked with their advisors about some technical skills, such as programming languages, server management, and database design.

#### *5.1.4 Teaching*

Three participants had talked with their advisors about teaching. Daniela had discussed the classes she planned to offer after completing her study because she had been hired as a faculty member in her country. Shanshan, who had been working as an instructor in her program, said that her advisor often asked about her teaching. Another doctoral student (Heidi) discussed with her advisor her experience as a teaching assistant in the context of rules or policies. Specifically, she reported having talked with her advisor about delayed coursework completion as she worked as a teaching assistant instead of taking another class.

#### *5.1.5 Language*

The language dimension refers to the information exchanged in mentoring about a field's specialized language, such as technical language, acronyms, slang, and jargon. Around half of the participants had talked with their advisors about language, especially in the context of academia. Ann had

had a conversation with her advisor about choosing appropriate terminology in her research, saying that they had talked about some acronyms such as ELIS (i.e., Everyday Life Information Seeking). Some other participants had discussed different usages of certain terminology across disciplines; for example, Susan had talked a lot with her advisor about how certain jargon was being used across disciplines, saying, "We talked some about that because I struggle with the kinds of language to use when I'm describing something because I may be pulling terminology from different disciplines." Finally, one participant remembered a conversation with her advisor about the translation of terminology, as their national backgrounds differed:

> I know this term or concept in my native language, so sometimes when she would mention something, I don't recall exactly which word, but then, 'oh, you mean that?' It was more translation than an understanding of what you really meant.

### *5.1.6 History*

When asked if they talked with their advisors about the history of their department/school, university, or discipline, some participants mentioned sharing historical information across various contexts. Three (Daniela, Susan and Claire) had discussed the historical aspect of their research areas: "We discussed the progression of information science, how library science has shifted in the last years" (Daniela). Claire had discussed with her advisor the disciplinary history of archives, as her advisor came from that discipline.

Three other respondents said that they had talked with their advisors about the history of their institution at the department or university level. For instance, one participant said that her advisor "mentioned what schools started first and then how the academic schools developed." Two participants had talked with their advisors about their personal histories. For example, Shanshan's advisor told her stories about how she got a job at her current university: "She told me her stories of how she came here… how she got a phone call from X."

### *5.1.7 Rules/Policies*

Rules or policies are formally written statements that regulate the academic behaviors of participants in their doctoral programs. Participants had discussed rules or policies with their advisors if they affected their studies. Pre-candidate participants who had not yet passed preliminary or comprehensive exams tended to discuss program guidelines, coursework requirements, or exams with their advisors; for example, Ann said, "Our department also just changed the way it does its comprehensive exams, so we've talked about those changes a bit and talked about the requirements that you need for a dissertation committee."

Participants who had earned doctoral candidacy talked about a broader range of topics with their advisors, covering the dissertation defense or the graduation process. Daniela, who was preparing for her final defense, mentioned that she had talked about the departmental policies she had to follow to complete her doctoral degree. Shanshan talked with her advisor about her departmental

policies, such as the requirements for credit hours, coursework, and annual review. She had also talked a little about university policy regarding her dissertation defense and graduation: "She indeed gives me a lot of useful information about the whole Ph. D. program - how this program works, how you graduate from the school."

### *5.1.8 Structure*

The dimension of structure covers the organization of work, department/school, university, and discipline, including organizational hierarchy and task allocation (i.e., responsibilities), of individuals in academic settings. Some participants had talked about those topics with their advisors; for example, one participant and her advisor had discussed the academic systems in two countries because the latter was invited to a conference in the participant's home country:

> I was curious to understand how the system is different here in the U.S. compared to my country. She was also interested in learning how it happens there, so that was a mutual exchange because she got invited to conferences in….

Two other participants (Shanshan and Claire) discussed the tenure system while they were searching for academic jobs. Shanshan said, "We do talk about this - especially, when I was searching for jobs she told me a lot about how the tenure-track works." In addition, Susan talked about the structure of the department with her advisor because of the transition in her program, and Jina discussed the responsibilities of faculty members with her advisor.

### *5.1.9 Norms/Tradition*

The author operationally defined *norms* as behavioral expectations of doctoral students and their advisors in their institutions or disciplines, and also defined *tradition* as comprising norms that have existed for a long time. In response to the question "Tell me about a time when you talked with your advisor about expectations about how you act", most respondents shared the advice obtained from their advisors.

Two respondents received advice about how to behave in academic conferences. Claire had talked with her advisor about appropriate behavior at conferences, including a dress code for her presentations. In particular, Claire felt the need to acquire such information, as she did not have any academic background, saying, "I came from a non-academic background and I don't come from an academic family. So, a lot of things that I think some of my peers just know is stuff that I had to ask about." Another participant shared a conversation with her advisor about in the job-search process: "…my advisor said, 'If a male faculty member on a search committee invites you to a hotel room for a private talk, you shouldn't go.'"

Other respondents had talked with their advisors about norms in academia. For instance, Ann's advisor had been concerned about the degree to which she would be taken seriously, as she sounded young. Ann said, "She just thought that I should take extra care to always be very professional

and serious, so that I was not written-off as not very serious and not very involved." The reason for this advice can be associated with the political aspect of a discipline based on Ann's response: "I know part of it is coming from her belief, a little bit maybe, [that] it's more of a male-dominated field." In addition, Jina said that she talked about general cultural norms in academia because they differ between nations and cultures.

A few respondents had talked about tradition with their advisors. Daniela had talked about the tradition of the comprehensive exam in her department, saying, "We have to address our intellectual home, where we are situated in the field, and what are the methods and theories and concepts that inform our research interests." Shanshan reported having discussed disciplinary tradition with her advisor, saying, "If you have a Ph. D. in this field, you are supposed to have general ideas about different tracks, domains, and disciplines."

#### *5.1.10 Networking*

The content dimension of networking is related to that of norms, as some of the conversations between the participants and their advisors covered the behavioral expectations of interacting with others. Nevertheless, the networking dimension is distinct in that it focuses on the social interactions among people. Mentoring the behavior expectations that are not directly relevant to interpersonal relationships was discussed above in the subsection on the dimension of norms.

Although most participants had not talked with their advisors about how to develop relationships with others directly, many of them had received some tips on how to network. For example, Daniela said that she received some tips about how to talk to other people or how to invite people to her poster session in an academic conference. Similarly, Shanshan talked with her advisor about how to ask questions to presenters: "She said, you shouldn't ask very harsh questions or you [should] ask questions after her or his presentation." Claire had asked her advisor for advice or help about how to stay in touch with someone she met at a conference.

Other participants had talked about "people" with their advisors; for example, Shanshan said, "We usually have a talk about people I met in the conferences." She also reported having talked with her advisor about faculty members in her university for her dissertation committee. In a similar context, Charles discussed the composition of doctoral committee members with his advisor. Another participant (Claire) had talked with her advisor about her friendships developed from a conference because she intended to work with them in future: "I might say to my advisor, 'Oh, this person who I'm friends with, that I know from this conference -we're going to do this together.'"

#### *5.1.11 Politics*

The dimension of politics is connected to the networking dimension, as both arise from social interaction. The author viewed a dimension of networking as politics if it dealt with informal power differences between individuals in academic contexts. Five participants reported having talked with their advisors about the political aspect, especially in their departments or disciplines. One participant had had to consider the preference of the department chair in choosing his areas for comprehensive

exams: "When I was choosing my areas for comprehensive exams, the chair of the department has to sign off on wherever I choose…. If she does not sign off on my areas, then that's it."

Four other participants had discussed some influential people in their discipline with their advisors. A female participant's advisor mentioned a faculty member in her program, as he is the chief editor of a well-known journal. She also said that her advisor had mentioned some well-known scholars as well as people who have power in academic politics. In addition, as discussed in the subsection on norms/tradition, another participant's advisor had mentioned the informal power structure in the discipline to the participant; that is, the LIS discipline is rather male dominated. Another advisor had told one participant personal stories about how to deal with politics at the levels of department and discipline.

#### *5.1.12 Goals*

The ultimate goal of doctoral mentoring is to prepare students for their future careers. For this reason, all the content dimensions discussed in mentoring are related to career in some way. In this study, the dimension of goals was defined as information exchanged about the things participants seek to accomplish during their doctoral work to assist in their future careers.

This dimension was often discussed in relation to the program requirements the participants need to satisfy; for example, four participants had talked with their advisors about the steps to get through the program successfully, but not about their future careers. Charles said, "The goals have been what has been in the program guidelines so far…. It's never really been more farsighted than that, never really about anything beyond graduating." Ann mentioned that her goals-related conversation with her advisor had been mainly about scheduling and hitting milestones based on the program guideline. Peter also said he had talked with his advisor about short-term goals and objectives for writing his dissertation but not about his career.

#### *5.1.13 Strategies*

The dimension of strategies was defined as information exchanged about how to achieve the goals and future careers of participants. Strategies sometimes required participants to have certain skills. In this study, seven participants reported having exchanged information about strategies with their advisors. Three of them said that they discussed publishing papers in journals or attending conferences. For example, Claire said that her advisor gave her some realistic and practical advice, mentioning her advisor's comments "You need to submit one paper per semester to a journal" and "You need to plan to go to these conferences next year." Another participant said that her advisor had recommended that she submit a paper to a conference in her home country as she was interested in getting a job there.

Other strategies discussed in mentoring were how to collaborate with others, prepare for exams or annual reviews, get tenure, write, negotiate job offers, and achieve a balance between work and personal life. For example, Shanshan had talked with her advisor about how to prepare for the annual review and meeting, how to get tenure as a faculty member, and how to negotiate

job offers. John had talked with his advisor about the type of collaboration he should seek, and Jina had talked with her advisor about how to prepare for preliminary exams.

#### *5.1.14 Values*

The dimension of value refers to the information exchanged in mentoring about the importance of a participant's research or discipline. In response to the prompt "Tell me about a time when you talked with your advisor about why academic work in LIS is important or of value", three participants replied that they had had such conversations. Although he could not give any instance, John was positive that he had talked about it with his advisor, saying, "He is super passionate about that." Claire mentioned that she and her advisor strongly agreed that their work was important, and a discussion on significance in their research work had facilitated the conversations about it: "There is a section where you have to talk about significance, about broader impact." Also, Susan had had a conversation about specific contributions of her dissertation.

#### *5.1.15 Benefits*

This dimension was operationalized as the information exchanged in mentoring about the benefits available to participants during and after their doctoral work. Six participants reported having discussed intellectual or financial benefits they could obtain. Two of them described discussions over benefits to their careers; for example, one participant, who had a faculty position in her country, talked with her advisor about the benefits she could gain after getting a doctoral degree. She had some restrictions in teaching and in getting funding because she did not have a doctoral degree, but after getting the degree, such restrictions would be removed.

Another international participant mentioned that she could improve her English through her doctoral work. She had received much help from her advisor in English speaking and writing: "She indeed said, my English is much better, especially my writing is much better, than when I just came here." She had further discussed with her advisor several teaching opportunities in her program and useful invited talks she could attend in her university. Finally, Heidi and Jina reported having talked with their advisors about financial aid or rewards available to them.

#### *5.1.16 Personal Life*

The dimension of personal life refers to the information exchanged about non-academic matters, including small talk. All the participants except one had exchanged personal life information with their advisors, even though five of the nine participants said that the scope of information exchanged had been limited to the things that affected their work. For instance, Ann said, "We've really only touched on personal things as they would influence work in some ways", and Jina stated, "If it doesn't have any influence on my schedule for the exam [. . .] I just do not share with her."

Some other participants had talked with their advisors about diverse topics of personal life events, such as moving from one place to another, ups and downs in life, family members, or pets, and

they considered such conversations useful for relationship building with their advisors and sometimes for their lives. In particular, John said that he considered his advisor more than just an advisor due to the personal aspect in mentoring. However, one participant reported being reluctant to talk with his advisor about his personal life events because he thought his advisor did not want to know about them.

### *5.2 Levels of Content Dimensions*

On the basis of the Klein and Heuser framework, the author explored multiple levels of socialization in doctoral mentoring through the interviews with ten doctoral students and identified the levels of work, department/school, university, discipline, and other. Such levels are interrelated, as any given content dimension may be found at multiple levels.

The work level of socialization refers to the information exchanged in doctoral mentoring that is related to participants' day-to-day tasks. All interview participants have exchanged information with their advisors about their work, such as coursework, research, teaching, and skills. Personal life information was also exchanged if it was expected to affect participants' work progress. The department/school level of socialization in doctoral mentoring was also observed, as participants exchanged information with their advisors about their department or school, such as language, history, teaching opportunities, structure, politics, rules/policies, and benefits. Moreover, information exchange at the level of university was identified in doctoral mentoring. However, this appeared to take place less frequently compared to other socialization levels (department/school and discipline); only a few participants explicitly mentioned that they had talked with their advisors about university-wide policies, transitions, teaching opportunities, or benefits (e.g., fellowship). Furthermore, participants were being socialized into their discipline through doctoral mentoring. They discussed many content dimensions at the level of discipline, such as history, research, networking, politics, strategies, values, and norms/tradition. Finally, the "other" levels of socialization were identified, covering the information exchange about social/academic norms, policies, and terminology across disciplines or nations; however, these levels cannot be meaningfully explored here given that information at the level was rarely discussed.

### *5.3 Factors in Information Exchange in Mentoring*

#### *5.3.1 Individual/Relational Factors*

1) Advisee characteristics

Although there was no statistical analysis conducted to confirm this, the author found individual variables for advisees (i.e., age, gender, nationality, stage of doctoral work, educational background, current job, work experience, personality, and family) to be related to how they exchange information with their advisors.

Information exchange seems to differ by participants' work experience, age, and gender. For example, one participant said that, as she had work experience in academia, her advisor did not

have to discuss with her how to behave or deal with academic politics. As an older student, Peter noted that he did not talk with his advisor about behavioral expectations in academia. Two female participants reported having received gender-related advice from their advisors.

Participants' current jobs (e.g., teaching, research, project assistant, etc.), nationality, and educational background also seemed to affect their information exchange. For instance, Shanshan's advisor had often asked about her teaching (as she was working as an instructor on her program), and Claire noted that she was involved in the research for her advisor's project as a research assistant, resulting in fruitful discussions thereon. In addition, international participants noted unique experiences of information exchange due to their nationalities. Furthermore, Daniela said that she never talked with her advisor about the terminology used in their discipline, as they have the same educational background. Shanshan, however, discussed the different usage of certain jargon terms across disciplines with her advisor, who had a different educational background from her.

Moreover, participants' stage of doctoral work also seems to influence their information exchange. For example, Heidi and John remarked that they did not talk much with their advisors about their goals or careers, because they were too busy taking classes. In addition, Daniela, Peter, and Claire pointed out that information exchange patterns with their advisors changed before and after completing their coursework or preliminary exams. Daniela said that, after completing her coursework, she had started sharing more personal information with her advisor as she focused on her proposal research.

The author also observed that participants' personality and family may be related to information exchange. One participant noted that he did not discuss his personal life with others, saying, "Even with people that I work with and I'm friendly with, I don't share as much about my personal life...." Another participant felt that she talked with her advisor about academic norms more than with her peers, as she came from a non-academic background and does not have a family with an academic background or history.

2) Advisor characteristics

The author noted that certain aspects of advisors—notably, gender, nationality, educational background, academic rank/position, work experience, and personality—appear to be related to information exchange processes in mentoring. As reported above, two female participants discussed their behavioral expectations during conferences with their female advisors, which might be because their advisors were also female.

Advisors' nationality and educational background also seem related to information exchange in mentoring. One participant said that she would not talk to her advisor about her personal life at the beginning of their relationship, as she felt that she had to keep a distance between herself and her advisor. The advisor was from an Asian country, wherein the boundaries between professor and student are more structured than in Western countries. Also, as described above, advisors' educational background may have prompted more discussion about the different meanings of terms across fields.

The author further identified advisors' academic rank (e.g., assistant, associate, full professor) and position (e.g., director, associate dean, dean) as potential factors for information exchange.

For example, as one participant's advisor was not on the tenure-track, they did not talk much about their research, goals, and strategies as a faculty member. Another participant said that her advisor gave useful information about the rules and policies relevant to her doctoral program, noting her advisor's familiarity with such rules and policies from having served as a program director.

During interviews, participants mentioned their advisors' work experience. One participant stated that, because his advisor graduated from the same program, he had talked with his advisor about their program's history. Another participant, however, had not discussed her program's history with her advisor, because her advisor had arrived at the school while she was still in the second year of her master's program.

Finally, participants spoke about their advisors' personal traits in information exchange in mentoring. For example, one participant said that her advisor was not a person who normally had friendly relationships with others, so they rarely discussed how to network with others. Another female participant stated that her advisor had never explicitly mentioned how to navigate their program's inner politics.

3) Relational characteristics

The relational factors related to information exchange in mentoring include emotional/physical closeness, regularity of meetings, and advisor-advisee matches regarding gender, national/educational background, personality, and research interests. One participant remarked that she had a close relationship with her advisor, enabling them to discuss emotional matters. A female participant was not living at her home institution, so she discussed with her advisor the role of friends in navigating her isolation. Several participants, such as Ann and John, said that they have had regular meetings with their advisors, and the regularity of meetings may affect advisees' experiences of information exchange quantitatively and qualitatively.

If advisees had the same gender as their advisors, different information seemed to have been emphasized. As mentioned above, one female participant's female advisor viewed the discipline as a male-dominated field, so she recommended to the participant to behave attentively. In addition, depending on the match in national background between advisors and their advisees, certain information appears to have been discussed more frequently than others. For instance, Jina (an Asian student) said that since her advisor was also from an Asian country, they had talked about the differences in academic norms between the U.S. and Asian countries.

Moreover, the research findings showed that if participants had a different educational background from their advisors, they were more likely to discuss the different usage and meaning of certain terminology across disciplines. Participants also mentioned personality fit with their advisors, with one saying, "We have similar personality types, and I think that her style of wanting to meet regularly and all those types of things matches well with what I have wanted and expected." Finally, shared research interests between advisors and their advisees seem to be related to the type of information exchanged. Two participants said that, as their areas of study varied from their advisor's research interests, they did not discuss the historical backgrounds of their research areas.

### 5.3.2 Contextual Factors

The author identified external factors that may lead to different information exchange experiences in mentoring, which exist at the levels of department/school and university. For example, Claire had learned of a structural change in her department—that is, the change of the head of the doctoral program—, so she had talked with her advisor about the updated program policies. Similarly, Ann's department changed the format of comprehensive exams, so Ann had discussed the impact of such change with her advisor. The courses offered by a department also seem to relate to information exchange in mentoring, given that Claire was able to acquire terminology used in the discipline through some foundational courses rather than discussing these points with her advisor.

Furthermore, Daniela, Peter, Jina, and John remarked on the existence of other interpersonal information sources in their department, such as peer doctoral students, administrative staffs, the Ph. D. director, and visiting scholars. For instance, one participant said that he had discussed politics within the program with his peers instead of his advisor, and another participant had talked with the director of her program about department politics. The factors specific to the university level were rarely discussed, with the exception of one participant who was receiving a fellowship from a university source.

## 6. Discussion and Limitations

The interview results showed that sixteen types of information were exchanged: language, history, structure, politics, rules/policies, benefits, coursework, research, skills, teaching, norms/traditions, networking, goals, strategies, values, and personal life. In terms of the levels of content dimensions applied, four meaningful categories were identified: work, school/department, university, and discipline. Despite the potential associations across these levels, elucidation of each level would provide additional analytical points of view.

In comparison with Klein and Heuser's framework, four content dimensions were newly added (see Fig. 1). The dimension of task proficiency in Klein and Heuser's framework was broken into four dimensions—coursework, research, skills, and teaching—, while two separate relational dimensions were merged into a single networking dimension. Furthermore, a combined dimension for goals and strategies was separated into two dimensions from the interviews. Modifications were also made to Klein and Heuser's culture/values and navigation dimensions, as the author created the dimension of norms/tradition to cover the definitions of culture and navigation. The personal life dimension was also identified, which was not part of the framework; however, the scope of non-work information exchange was limited to factors that affected participants' performance or progress.

| Interviews | Klein & Heuser's content framework |
|---|---|
| Language | Language |
| History | History |
| Structure | Structure |
| Politics | Politics |
| Rules/Policies | Rules/Policies |
| Benefits | Inducements |
| Coursework<br>Research<br>Skills<br>Teaching | Task Proficiency |
| Norms/Tradition<br>Values | Navigation<br>Culture/Values |
| Networking | Working relationships<br>Social relationships |
| Goals<br>Strategies | Goals/Strategies |
| Personal life | |

**Fig. 1.** Comparison of the content dimensions from the qualitative interviews and Klein and Heuser's framework

Compared to Klein and Heuser's framework, although the work group and division/unit levels were undetectable from the interviews, two other levels (discipline and "others") were newly observed (see Fig. 2). Finally, the new level of discipline was added, which contributes to socializing doctoral students to their professional roles. In particular, the information exchange at the discipline level reflects the primary goal of doctoral education, which aims to nurture "future" scholars.

| Interviews | Klein & Heuser's framework |
|---|---|
| Work | Job |
| Department/School | Work group |
| University | Department |
| Discipline | Division/Unit |
| Others | Organization |

**Fig. 2.** Comparison of levels of content dimensions from the qualitative interviews and Klein and Heuser's framework

Because the Klein and Heuser (2008) framework used in this research was developed originally to examine the socialization level of employees in their workplaces, it was necessary to check its applicability to academic settings and modify it as appropriate. The interview findings show that Klein and Heuser's framework is applicable, though it does require some modification.

The interview findings suggested potential factors that exert influence on information behavior. With respect to the individual factors, the author found that characteristics of advisees and advisors seem to be related to information exchange in mentoring. Moreover, the author identified relational factors, such as relationship type, emotional/physical closeness, and advisor-advisee match regarding gender, that may be related to information exchange. In addition, contextual factors at the levels

of school/department, university, and discipline, appeared to be related to information exchange processes. This implies that examinations of information behaviors in mentoring need to be conducted with respect to individual, relational, and contextual factors. By doing so, we can better understand the different patterns of information behavior, which will help faculty advisors provide relevant information that will increase the effectiveness of information exchange and mentoring. The differences in information behavior by these factors will be analyzed and reported in a following paper.

Through investigation of the types of information exchanged, the present study attempted to make the immeasurable and invisible dimension of mentoring measurable and visible in order to illustrate the important role of information/information exchange. The information types identified in the study could be used as dimensions to measure the learning outcomes of doctoral students, and be referenced for information behavior research in mentoring. This will improve the mentoring process and lead to the successful socialization of doctoral students.

There are some limitations to this study. First, the research focused on doctoral students' (protégés) perspectives, even though doctoral mentoring involves faculty advisors as well as other doctoral students. Second, there could be some response bias in the survey; for example, doctoral students who had negative relationships with their advisors may have been reluctant to participate in interviews or survey. Moreover, the results of the study are limited to the discipline of LIS in the United States; thus, the study findings may not be generalizable to doctoral students across disciplines or nations, warranting future work in different disciplines to establish an interdisciplinary framework.

Despite these limitations, the current study addressed the dearth in content framework research in academic settings, especially academic mentoring. In particular, it was a very rare attempt to apply a socialization content framework to investigate mentoring. Moreover, the study established a foundation for the examination of interpersonal information behavior in mentoring; for example, future research that studies on what subjects, and how, faculty advisors and doctoral students exchange information could provide interesting results that contribute to improving the mentoring process. Furthermore, the content framework can be used as a basis for a measurement system that evaluates the effectiveness of knowledge transfer and mentoring. Finally, the results of this study have potential to contribute to the education of LIS doctoral students.

## 7. Conclusions

Information exchange between faculty advisors and their doctoral students is a necessary condition for students' successful socialization into their work, school/department, university, and discipline, which could be linked to their future outcomes. Since the information dimension in advising/mentoring has been under-studied, this study attempted to provide a foundation for information behavior research in mentoring through an exploration of the types of information exchanged. Using the content framework proposed, information behavior studies can be conducted to identify information needs of doctoral students and to better understand their information seeking, use, exchange, or even avoidance in mentoring.

Based on the fact that LIS doctoral students participated in exchanges with their advisors on

sixteen diverse topics related to work, school/department, university, and discipline, the author proposes a modified socialization content framework, consisting of sixteen content dimensions across four levels, that is applicable to LIS doctoral mentoring. The study also suggests that individual and relational factors may affect information exchange; however, future research addressing such factors is necessary because the current study focused on identification of information types. In a following paper, the author will present the results of a survey study that tests and generalizes the findings of this study. Specifically, the author will analyze the associations of background characteristics of doctoral students and their information exchange with their advisors.

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## [ About the author ]

**Jongwook Lee** is an Assistant Professor in the Department of Library and Information Science at Kyungpook National University, South Korea. He earned a bachelor's degree in Library and Information Science from Kyungpook National University, South Korea, a master's degree in Information Science from Indiana University Bloomington, and a Ph.D in Information Studies from Florida State University. He is interested in conducting research on different aspects of scholarly communications, including creation, distribution, evaluation, and use of research. He purses being an information/social scientist who studies researchers' information and collaboration practices using quantitative and qualitative research methods in cooperation with other researchers.