

Fear of Failure and Fear of Finishing: A Case Study on the Emotional Aspects of Dissertation Proposal Research, with Thoughts on Library Instruction and Graduate Student Retention

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Abstract:

Carol Kuhlthau's ground-breaking research into the interplay of cognitive and affective aspects of the research process (from which she created her Information Search Process model) led her to conclude that anxiety is predictable at certain stages of research. Her work with this model (and those who have followed and deepened it) has largely focused on undergraduate behavior. What about graduate students—do their experiences follow the same model? Academic anxiety can create serious barriers for graduate research; at the same time, getting stuck at the dissertation phase, or worse, dropping out as “ABD” (all-but-dissertation), is a serious problem for both graduate students and graduate schools. Might the Information Search Process model shed light on how to abate this anxiety? Before jumping to conclusions and designing more instructional programs, librarians need a better understanding of the affective aspects of graduate students' research. This qualitative case study with doctoral candidates at the California Institute of Integral Studies uses journal

writings and interviews to elucidate: 1) how perceived emotional aspects of research leading to a dissertation proposal in the humanities correlates and compares to the affective aspects of Kuhlthau's model for the undergraduate Information Search Process; and 2) coping strategies for library anxiety, frustration, isolation, ambiguity and professional self-expectations that arise in the research process. It is hoped that, with a more thorough understanding of the dissertation research process, librarians, faculty, and academic administrators might form partnerships to support graduate students through this sometimes-perilous proposal stage towards that culminating goal, a finished dissertation.

Introduction

It would be difficult to overstate the impact of Carol Kuhlthau's ground-breaking research into the interplay of cognitive and affective aspects of the research process, from which she created the Information Search Process model (ISP) in the 1980s and 1990s upon library instruction and upon how academic libraries

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and librarians view our patrons. Briefly, the ISP model correlates the cognitive steps and tasks of seeking information with their corresponding emotional states (affect). It distinguishes six stages of the information search process: task initiation, topic selection, prefocus exploration, focus formulation, information collection, and search conclusion. Arranged in tabular form, the ISP comprises the stages and dimensions represented in Table 1.

Each stage has its determining task, resolution of which leads to the next task or step in the process; and failure to accomplish the tasks of each step fully can have unfortunate results for the final product. Each stage also has its concomitant feelings (affect) and attitudes (modes).

This simplified representation of the ISP model is cumulative, moving from stage 1 through stage 6. This

begs a question about iteration, repetitions, or feedback loops. Kuhlthau's work was, in part, an attempt to address what she saw as an overly linear and simplistic representation of the research process, and she recognized that the sequential stages of her model do not always progress in a linear fashion. Her ISP model includes iteration (Kuhlthau 1993) but, ironically, for the most part the ISP stages are presented—both in her work and in others'—as a consecutive progression. Nevertheless, as Bodi points out, "research [is] also interactive and circular, never merely linear." (Bodi 2002, 110). It may be time to ask ourselves: "what does the research process really look like for complex, recursive, and multi-faceted research questions?"

The ISP model has been validated by Kuhlthau for fairly concrete and/or well-defined information

Table 1 – Information Search Process model

Stage	Cognitive tasks	Affective aspects	Ideal mode of approach
1 -Task initiation	Identify the size and scope of the topic, or understand the nature of the information need	Relatively high levels of uncertainty, ambiguity, and apprehension,	invitational
2 -Topic selection	Choosing a general topic domain / area of investigation / type of methodology.	Discomfort and tension continue until a viable topic is chosen.	invitational
3 -Prefocus exploration	Gather contextual / background information and looking for a viable focus; orientation, brainstorming.	Mixed emotions, both positive and negative. Possible confusion or frustration; feelings of uncertainty, doubt, and anxiety may grow. (Can be highest levels of anxiety.)	invitational
4 -Focus formulation	Discovering a viable focus – evaluation, analysis, synthesis of ideas.	Once focus determined, relief and confidence combined with intellectual excitement.	invitational
5 -Information collection	Organizing ideas, directed searching, refining focus.	Mixed emotions – increasing confidence and less uncertainty when information confirms the thesis, but can experience frustration, confusion, etc. (deficits in research skills become apparent to the seeker).	invitational moving towards indicative
6 Search conclusion	Determine when finished - evaluation, revisiting prior work, fact & citation checking.	Relief and confidence if satisfied with results; disappointment if not. Also possible exhaustion, and/or uncertainty if time pressures forced premature closure	indicative

needs: high school and college term papers, other undergraduate research assignments, and public library queries. To date I have not been able to locate similar studies with graduate students, faculty, or professional researchers, however. What happens when research is on a much larger scale—does the ISP model even apply? Do research techniques of professional researchers—faculty, journalists, writers—follow these same stages? This pilot project study, focusing on how graduate students work on the dissertation proposal, attempts to suggest ways to examine those questions.

Any study of the dissertation process, though, must also consider the issues around—and research on—dissertation non-completion. Attrition from doctoral programs in the U.S. has been studied in several ways; however, there are several factors inhibiting a clear picture of the number of students presently in the all-but-dissertation (ABD) state. One is a lack of systematic data collection, and another is a lack of consistent data definitions, a third is that much of the research on attrition tends to conflate dropping out at various stages of the process of getting a doctoral degree. It is difficult to compare institutions; for example, attrition rates have varied as widely as 16%–78%, although it is thought that they have been fairly constant since 1944. (Bair 1999, 11) With the exception of some notable multi-institutional studies (Berelson 1960; Tucker, Gottlieb, and Pease 1964; Heiss 1970; Harmon 1978; Bowen and Rudenstine 1992), most published research has been as institutional case studies. From these, we can make a few conclusions. One is that most graduate school attrition, approximately two thirds, happens before students reach candidacy (with many of these students leaving with a terminal Master's degree). However, on the path between candidacy and completion, one large study revealed that almost one-fifth of all doctoral students found themselves either officially ABD or still struggling to finish more than 10 years after they advanced to candidacy. (Bair 1999, 104, quoting Nerad and Cerny 1991) This 18 percent represents a huge investment in resources and time, both for the institution and for the individual. While this can be a major problem for the school, it is usually a disastrous problem to individuals who find themselves ABD. From a patron service viewpoint, in libraries that support graduate study, this is an area that merits greater attention.

Research concept

The primary research question posed in this pilot study is whether dissertation-level research tends towards Kuhlthau's ISP model. The dissertation process in its entirety is too extensive to be easily studied at the level of a pilot project. Instead, this work focuses on the dissertation proposal—specifically, research for a doctoral dissertation proposal in the humanities or in psychology, by students at the California Institute of Integral Studies. Usually a dissertation proposal comprises: a literature review and/or context for the thesis; a statement of the research question (i.e., focused topic); a description of the proposed methodology; and a statement of research importance or relevance. Ideally, most bibliographic research for a dissertation is completed at this time and is reflected in the proposal. So it would encompass those portions of a dissertation roughly equivalent to the research projects used in other ISP model studies. In addition, it is comparatively easy to identify students at this point in their doctoral process. A related research question is whether graduate students are process-aware as well as self-aware. That is, to what extent can graduate students recognize shared or common patterns of affective response to the research process, and can they distinguish these from their individual or personal reactions? Lastly, it is hoped that this pilot would suggest some effective coping strategies for dealing with difficult or uncomfortable emotional reactions to the research process. While it was not expected that this pilot project would clearly answer the last two questions, it was hoped that it would suggest fruitful approaches for further study.

The pilot project's methodology uses excerpts from students' diaries or journals. Numerous other studies on the ISP model have used similar data: Kuhlthau's original work was developed and validated using search logs, student narratives, and research journals (1993, 34) as well as questionnaire data. Similarly, studies used interviews (Fister 1992), focus groups (Valentine 1993), or a combination of journals, purposive writing, and interviews (Swain 1996) to further study the ISP model. The decision to use journals for this pilot was, in part, an attempt to understand how research processes work during the time spent working on a dissertation proposal, which is typically far longer than one semester. There is some question whether 'snapshot' methods such as surveys, questionnaires, focus groups or interviews can accurately capture past experience

and previous emotional states without being colored by current attitudes and situations. In an effort to avoid as much observer bias as would be practical, dissertation students who keep personal journals or diaries were asked to contribute selections from those works, instead of asking students to create autobiographical narratives specifically for this project. In this way it was hoped to obtain material both contemporary (written while the experience was immediate), and authentic (written with the self as audience).

Disadvantages of using contributed autobiographical writings are that they can be effort- and time-consuming to solicit; also establishing careful confidentiality and privacy protections means that selections are incomplete excerpts, and researchers cannot use sampling techniques. The researcher must correlate descriptions (of events and of thoughts and feeling) to stages in the ISP model, which can introduce observer bias or misunderstanding. And often the researcher cannot establish causality for emotional states. For example, one writer described being anxious over taking another semester to finish the dissertation proposal. Is the anxiety due to financial pressures, fear of potentially souring the relationship with one's dissertation advisor, or intellectual concerns with lack of focus? Of course it is all of the above. With care, a researcher can tease out whether the writer's perceptions—at that time—included academic anxiety and/or concern with research. To supplement and complement data derived from journal excerpts, this pilot includes subsequent interviews with each student.

It is important to remember that autobiographical writings are neither truly objective nor a complete record of the past. "Memory doesn't work in a linear way", but "the advantage of writing close to the time of the event is that it doesn't take much effort to access lived emotions—they're often there whether you want them to be or not." (Ellis and Bochner 2000,

752). Besides giving valuable information about affect, diaries / journals / autobiographic writings also can provide extremely valuable insights into that person's perceived reality. It is possible, as has been posited via constructivist theory, that "self-telling ... life narratives achieve[s] the power to structure perceptual experience, to organize memory, to segment and purpose-build the very 'events' of a life. In the end, we *become* [sic] the autobiographical narratives by which we 'tell about' our lives." (Bruner 1987, 15)

It is also important to point out that this pilot is a purely qualitative case study. The number of respondents, and variability of their responses, makes it impossible to make statistically relevant observations. There are few numeric comparisons, to avoid over-generalizing from this scarce data. Instead, it draws on grounded theory and narrative research techniques to attempt to approach the participants' expressed reality.

Methodology

The first step was to solicit diary / journal excerpts that would discuss the writer's feelings about (and actions taken on) the dissertation proposal. An email solicitation was sent to all students at CIIS whose proposal had been accepted (i.e., had advanced to candidacy) in or before the Spring 2004 term, but had not yet completed their dissertation research. Since these students register in a different manner than students still taking courses, they were relatively easily identified. Of 86 initial solicitations, 4 students responded; contributing between 6 and 13 excerpts each (a total of 34 excerpts). Table 2 shows the basic characteristics of the respondents; however, data has been dis-associated to protect the privacy of these few individuals.

Next, contributed excerpts were read to discern common themes, specifically: a) any discussion of actions taken to further their information search; b) affect or attitude statements—in Kracker's phrases: "what feelings are mentioned in relation to research?" and "what thoughts are mentioned in relation to research?" (Kracker 2002b, 297); and c) mention of any coping strategies or factors that improved affect. Then interviews were conducted by telephone with each student to get more complete details on circumstances around those excerpts, as well as additional information on the context of their contributed excerpts. The excerpts were then re-read, to determine whether details from

Table 2. Pilot Project Participants (N = 4)

gender	3 women, 1 man
age span	34 – 57
partner status	2 single, 2 partnered
parental status	1 parent, 3 childless
employment status	3 employed fulltime, 1 part-time
degree	3 Ph.D. candidates, 1 Psy.D. candidate

Anxiety	19
Undifferentiated stress	8
Frustration	7
Discouragement	5
Uncertainty	3
Resentment	3

interviews changed or clarified the previous interpretations. Following techniques described in Kracker’s study, the excerpts and contributed details from the interviews were classified according to themes expressed in their affect and attitude statements.

(Kracker 2002b, 297) Unlike that study, however, data was coded solely by the author; and since data from this pilot was so small, it did not require software manipulation. Also, the list of affective terms was generated from the texts themselves, and not based on that work. A separate list of concern domains (academic, personal, or professional) was also generated from the texts as well. Lastly, excerpts were examined to attempt to classify into cognitive stages of the ISP model, again, following Kracker’s coding methods but performed solely by the author.

Results—emotional statements

Of the themes thus identified, far more expressed negative affect than positive affect. (N=34 excerpts, 49 negative affect vs. 14 positive, 8 neutral or no affect expressed.) Among these negative emotions were: anxiety or apprehension or fear; uncertainty and doubt; frustration; resentment or anger; discouragement or depression; and undifferentiated stress. As indicated in Table 3, anxiety, undifferentiated stress, frustration and discouragement were the most commonly described.

However, positive affects were also described in 14 statements, which mention: intellectual excitement; satisfaction (the pieces are coming together); reassurance and feeling supported; and confidence, which included affirming one’s professionalism. Table 4 shows the relative frequencies for these statements.

Results—ISP stages

The excerpts alone could not clearly identify any of the six stages of the ISP model. Using supplemental information derived from interviews, nine excerpts showed indications of either ISP stage 2 (prefocus exploration), ISP stage 3 (focus formulation) and/or ISP stage 4 (information collection). Table 5 shows the presumed distribution. However, this is offered without

much confidence, as the boundary between ISP stages 4 (focus formulation) and 5 (information collection) is very unclear with these excerpts.

Satisfaction	6
Reassurance	4
Intellectual excitement	2
Confidence	2

Iteration also complicates the ISP sequence. One student conceptualized the dissertation topic as the intersection of several components, each modifying the other. As one component moved into focus it would clarify, alter, or shed doubt on another aspect of the research question. This clearly fits Kracker’s description of the cognitive tasks of ISP stage 5 (information collection), “to locate and collect useful information that supports, refines, and extends the focus.” (Kracker 2002a, 292) Instead, the result, as described by the student, was a period of constant re-evaluation of the research question, more fitting with ISP stage 4 (focus formulation). In other students’ comments elicited in the interviews, it appears that they went as far as selecting a focus, then rejected it and struggled again to find a new focus, more than once. Information found—or not found—in what seems to be stage 5 (information collection) lead them to discard their former focus, bringing them back to the process of settling on another focus. These iterations could be considered all part of pre-focus exploration, ISP stage 3; and information professionals might classify them as such. Kracker, looking at what she calls “awareness of cognitive categories”, noted: “Of particular interest is the apparent low level of awareness of the focus stage. This finding is consistent with Kuhlthau’s finding: nearly half of the students did not form a focus during their information seeking.” (Kracker 2002b, 303)

However, when explaining their own process in the interviews, students did not perceive any pre-focus stage. This is consistent with other research findings, notably in Isbell and Kammerlocher’s work, which reported that students expect the research process to begin with a focused topic at ISP stage 5 (information collection). Efforts—and time—spent in the earlier pre-focus stages was considered unproductive, or worse, a

3 - prefocus exploration	2
4 - focus formulation	3
5 - information collection	4

sign of incompetence or failure. The students in this pilot study seem to agree that research begins with forming a clear attachment to specific aspects of a topic, and resolving to pursue those ideas. When their search results did not sufficiently support those ideas (or, in one case, when the advisor so persuaded the student) and they had to re-negotiate their research question, in their eyes they were set back to begin all over. Librarians and information professionals might assert that these students are confusing a topic with a focus, and that is perhaps true. However, one of the tenets of qualitative research is to respect the participants' reality; as Janesick points out, "Validity in qualitative research has to do with description and explanation and whether or not the explanation fits the description." (Janesick 2000, 393) Two of the respondents, in their interviews, described their process as akin to reaching a watershed after long, often dead-end, exploration. They were seeking the successful topic focus that would take them past their (or their advisor's) ambiguities, uncertainties, or even doubt or disbelief, into a clear pathway.

Results—ISP model correspondence between cognitive stage and affect?

If we accept for the moment that these students were (as information professionals might describe their experience) cognitively fluctuating between stages 3, 4 and 5 of the ISP model, are there any indications that they experienced the corresponding affective stages? Association of cognitive statements and affective statements is based on either a) connected explicitly in the journal excerpt, or b) explicitly connected by information elicited in the interview. To reiterate an earlier caveat, though, it is important to keep in mind that the number of respondents in this pilot, and variability of their responses, makes it impossible to make statistically relevant observations. That said, among these 4 students, the two statements of intellectual excitement and two statements of confidence were associated with either: settling on a focus (end of stage 3 or the beginning of stage 4); or useful research (stage 5). Some expressions of satisfaction or relief were associated with both stages, and also when the dissertation proposal was successfully defended – which might lead one to classify that experience as stage 6 (search closure), except that cognitive statements associated with that experience, if any, do not reveal a sense of closure.

Do correlations between statements of negative affect and cognitive statements show any correspondence with the ISP? They are even less certain, unfortunately. Anxiety statements, the largest cluster of negative affect, seemed to relate to cognitive statements only twice; whereas anger, frustration, and depression co-occurred at approximately the same frequency. These were all associated with fluctuations between stage 5 and stage 3 (setbacks in focusing the topic). Many of the statements of negative affect were not associated with any statement reflecting cognitive aspects at all. Interviews elicited only one additional correspondence than was evident in the excerpts. In that case, there is a suggestion the student was experiencing a concatenation of academic and personal concerns—rejection of the proposed focus was associated with performance anxiety, anxiety over relationship with their advisor, as well as experiencing difficulty with a personal relationship, all roughly at the same time.

What might explain such a preponderance of negative affect? Kracker found that negative affect had a similar majority, but with different ratios—anxiety was mentioned by 59 percent participants; uncertainty by 13 percent participants; confidence by 41 percent participants; and more of her participants described research as difficult (47%) than easy (28%). (Kracker 2002b, 299) One possibility might be that research is inherently difficult. Another factor might be, again if we accept the ISP model's premise, that if stage 3 is "where uncomfortable feelings are strongest as one tries to evaluate and/or integrate inconsistent or contradictory" information, the more time spent at that stage the greater negative affect. (Kracker 2002a, 292) Another ISP model premise is that that iteration (as cycling between stages 3 and 5 in the pilot study) increases anxiety. (Kuhlthau 1991)

It is also possible that more frequent negative statements by dissertation students reflect a broader range of concerns associated with doing a dissertation. It is useful to look for clues in the research on the dissertation process, particularly on why students stop at the ABD stage. Malmberg's case study of psychological factors identified by graduate students as having the greatest influence on their dissertation process, both positive and negative, reports that the most common were: family support (96.8%); personal motivation, usually for a career goal (90.5%); isolation (87.3%); persistence (82.6%); stress (68.3%); family obligations

Table 6. Domains of concern
Academic concerns:
Academic quality and competence
Performance
Fear of writer's block
Relationship with advisor or other faculty
Relationship with program / department
Financial concerns:
Paying tuition
Paying bills
Ability to handle academic debt in future
Future concern (anxiety over change [fear of success?])
Professional concerns
Current employability
Future employability
Licensure requirements
Relationship concerns
Relationship with partner
Relationship with child
Balancing personal relationship needs with dissertation needs
Crises interfering with dissertation work
Support from significant others

and/or commitments (65%); perfectionism (60.3%); anxiety (50.8%); procrastination (47.7%); and stress anxiety (36.5%). (Malmberg 2000, 55 and 65) While undergraduates would probably rate all these factors as important to their success, that work makes the case that graduate students feel that they are more vulnerable, dependent, or otherwise open to influence than in their earlier experience.

That list of psychological factors mirror the concerns expressed by the students in this study. The ostensible topics of anxiety expressed by students in this pilot are included in Table 6.

The statements of negative affect which were expressed in connection with academic concerns revolved

around: performance (are my ideas good enough?); academic quality (I don't know what I'm doing in general / do my ideas qualify for a dissertation?); relationship with advisor (being judged negatively/lack of rapport); relationship with program (lack of rapport or dissatisfaction with courses or advisement). Interestingly, there did not seem to be library anxiety per se. One student mentioned general concern for the future (I'm not ready to leave school—what happens when I finish?), which may relate to anxiety over new roles or a fear of success. More often, though, were more specific professional concerns: current employability (can I find/maintain a decent job while also working on a dissertation?); future employability (will this lead me to the jobs I want?); and, for the clinical psychology student, concerns over licensure requirements. Financial concerns (both paying for education and affording to live in one of the most expensive cities in the U.S.) were shared by most. Three students also had concerns over personal relationships. There was the more general worry over balancing needs of important people vs. time and energy for dissertation work; but also specific crises or relationship issues affecting—or being affected by—dissertation work.

How important are those concerns for academic performance? Bair, in her "meta-ethnographical" analysis of over 20 different studies on graduate attrition and failure, identified the following psychological factors that had been determined to have the greatest influence on dissertation success or failure:

- motivation
- clear and realistic expectations, beliefs, objectives
- relevance for career goals
- lack of confidence, which may also be connected to cultural identity for minority students
- stress
- timeliness, ability to meet deadlines, and amount of time spent (inversely relevant—the more time spent in the dissertation phase, the less likely the student would finish)
- fear of success
- high need for achievement
- satisfying interpersonal relations
- satisfying relationship with academic advisors or mentors
- locus of control
- perfectionism

Of all these, stress—particularly fear of failure or role conflict—was found to be one of top 5 reasons for attrition. (Bair 1999, 91–100)

These concerns, or rather the negative affect produced by these concerns, can actively impede work on a dissertation. Kracker observes, “when not perceived as a part of the process, negative emotions may be viewed as a personal flaw, leading to feelings of inadequacy and incompetence, which can further impact the process in a negative way.” (Kracker 2002a, 284) These observations are based, in part, on Mellon’s work on library anxiety in undergraduates, which also points out that negative affect increases in isolation. As she puts it, “Affective barriers’ stem from students’ feelings of inadequacy about the library. These feelings of ineptness are heightened by the assumption that they alone possess incompetent library skills.” (Mellon 1986, 164) Compared to their other academic experiences, most students find themselves much more isolated when they begin to work on their dissertations in earnest. One study found that roughly half of all dissertation students had problems with isolation (Bair 1999, 83, citing Huguley 1988). They feel “cut-off from the previous structure of scheduled classes, from deadlines, and from opportunities for interaction with students and faculty” (Bair 1999, 83, quoting Mah 1986). If isolation personalizes negative affect, as Mellon posits, by potentially adding shame or blame to existing discomfort and anxiety, then it should be considered as another co-occurring and confounding factor for academic anxiety.

Clearly graduate students are under—and recognize that they are under—a great deal of academic, personal and professional stress during their dissertation work. It is not clear how much students realize the commonalities of their experience, or that certain types and levels of stress may be inherent:

“Individual students rarely acknowledge or recognize the stressors associated with the dissertation process. Although they may realize that they are becoming more short-tempered, irritable, and anxious, and are experiencing loss of sleep, they tend to associate the manifestations with the approaching conclusion of their program and not recognize that the increased stress upon themselves and family is caused by the research and writing of the dissertation.” (Malmberg 2000, 27).

He also notes “the rigors of research and writing the dissertation differ greatly from the requirements, expectations, and support found in previous writing experiences. There are times when students believe that they are experiencing writer’s block, when, in fact, they are experiencing a phase of development, reflection, and ‘ripening’ of ideas. This pause in written productivity may raise student anxiety levels and develop into writer’s block.” (Malmberg 2000, 31) This sounds a great deal like the tendency to ignore the pre-focus stages of the ISP model mentioned above.

Besides this tendency to ignore the existence of preparatory stages, the pilot study’s methodology may have contributed to the inability to identify earlier stages of the ISP model in its findings. Initially information was solicited about dissertation proposal research, not the broader concept ‘thoughts and feelings about your dissertation’—which may have reinforced the students’ assumption that pre-focus work is not properly a part of dissertation work. When asked in the interview when they first thought about doing a dissertation on the topic they eventually chose, 2 of the 4 said they had thought about potential dissertation topics when they were considering applying to graduate school (before matriculation!). For one other, the general topic area evolved during the first two years of coursework, and the last elected to work with a specific methodology that was explored in a first-year course. If this pattern should turn out to be common (and not idiosyncratic), then this may be a major departure from the ISP model. Unlike students given a time-limited research assignment, or adults with a specific and localized information need, many dissertation students may not have a clear sense of when they begin. However, I would suspect that most have a sense of a date *ante quem*—when they should have selected a topic—according to the ideal sequence for their program as laid out by advisors or academic handbooks. Ironically, this may increase anxiety (“I should have achieved that step already”).

Besides not finding earlier stages of the ISP model, this pilot study did not identify the concluding stage 6, either. One possible reason might be that, while a dissertation proposal has a definite end-point (when it is accepted, and the student advances to candidacy), in reality that end point is the official starting point of work on the dissertation proper. So perhaps closure is skipped over in the desire to jump to the next process.

Despite the lack of earlier stages and of a closure stage, and of clear and definite correspondences between cognitive and affective statements with other stages of the ISP model, it would be extremely unwise to see these as indications to reject ISP model entirely. Perhaps it would be closer to these students' perceived—or at least expressed—experience if we collapsed the 6 stages into broader steps, as Kracker suggests. One could reduce the ISP model into “three overarching phases”, grouped as:

- topic or pre-focus phase (ISP stages 1 and 2);
- focus phase (ISP stages 3 and 4)
- development or post-focus phase (ISP stages 5 and 6). (Kracker 2002a , 290)

Moving between the topic or pre-focus phase and the focus phase, as noted in this pilot study, makes more intuitive sense in this version of ISP stages. This condensed ISP model might become a useful adjunct to graduate students' strategies for coping with the multiple stressors in dissertation research. If it is a closer approximation of students' experience, then it may be more easily form common ground to discuss both the cognitive tasks of research (including the value of pre-focus research) and the emotional aspects of research. As Kracker observes from her study's results:

A meaningful change in anxiety [after a discussion of a modified version of the ISP model] without commensurate changes in cognitive and affective awareness suggests that knowledge of the model at a general level, coupled with the opportunity to discuss the uncomfortable feelings associated with research, may be enough to reduce anxiety. Naming unspoken feelings opens the topic for discussion, and sharing uncomfortable feelings with others who can relate to the experience can be an effective way of diffusing the impact of these feelings. Moreover, correctly placing the root of the negative emotions within the process itself, rather than within the individual, allows students to experience the emotions in a less threatening and less personal way, and may help them feel less responsible for the discomfort they encounter. (Kracker 2002a , 290)

In this way it might be particularly useful to counteract the amplifying effects of dissertation students' isolation.

Another goal of this pilot was to try to identify coping tools used by dissertation students. None were mentioned explicitly in the journal excerpts, but a question on this topic was included in the telephone interviews. Coping mechanisms, strategies and otherwise helpful interventions mentioned by students were:

- journal writing
- seeking support from friends/partner/family
- exercise
- mindfulness practice (meditation and yoga)
- other unspecified stress management techniques

All of these are familiar techniques for stress management; there are no surprises here, and the presence of ‘journal writing’ is perhaps a tautology. However, it may be interesting to note that one of the reasons journal writing is touted as a tool both for self-awareness and for managing sometimes difficult emotions is that it offers a safe place to express negative affect—echoing Kracker's speculation above on why students in her study demonstrated lower anxiety levels. Research on library anxiety makes similar assertions (Mellon 1986), and Kuhlthau posited that self-awareness through understanding of the ISP model increases students' ability to cope with negative emotions during the research process, particularly with ambiguity, frustration and uncertainty (Kuhlthau 1993, 64–73). It is possible that both journal writing and mindfulness practice (especially cultivating self-compassion) may serve the same function.

Suggestions for future research

Findings from the pilot study are sufficiently intriguing to suggest further research with journal writings is warranted. Plans are underway for a similar project at CIIS in the spring of 2005, with students in dissertation proposal or dissertation topic development seminars. For that study students will be asked to contribute writings on their cognition and affective states as focused on their dissertation on a regular basis, and it is hoped that a more systematic and synchronous approach would offer more reliable data. A crucial aspect would be to assess students' levels of anxiety, using the Library Anxiety Scale (Bostick 1992) or similar validated instruments.

The findings also hint that further research with interventions to address isolation and academic anxiety could yield useful methods for supporting students in the high-stress dissertation process. Malmberg found encouraging results with established dissertation sup-

port groups (Malmberg 2000, 40), but cautioned that peer-only groups can have drawbacks, and recommended having a facilitator or group advisor—which seems an ideal role for a librarian counselor. Programs that incorporate self-awareness tools (like journaling) may prove useful, but it would be relevant to consider the possible connections between learning styles and anxiety (explored by Onwuegbuzie and Jiao 1998). Mindfulness practices, perhaps including psychological research with Buddhist compassion concepts, may have positive effects on perfectionism—which has been linked with library anxiety and procrastination (Jiao and Onwuegbuzie 1998, Onwuegbuzie and Jiao 2000). Lastly, these findings indicate a need for more study on information search processes for complex research, and for research that extends over time (or without clear time limits). Perhaps the work with upper-level undergraduate students' research epistemologies (Whitmire 2003) may prove models for this type of research with graduate students, not just to better understand the dissertation process—although that would be a worthy goal in itself—but also to understand how faculty and other professional researchers work. It has been speculated that faculty tend not to teach search process models like the ISP because it does not reflect how they learned to conduct research (Mellon 1986, Kracker 2002a quoting Thomas 1994). Learned behavior aside, it is likely that faculty seek information for their own work in different ways from undergraduates, and a better understanding of how their processes differ from what we know about undergraduates would enlighten not only information science but also post-secondary pedagogies.

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Appendix – Interview questions

For each journal excerpt:

1. Can you tell me a bit more about what was happening at this time?
2. Can you tell me a bit more about what you were feeling at this time?
3. Can you tell me a bit more about what you were thinking at this time?
4. How far had you gotten in your dissertation research at this time?
5. Was anything else going on in your personal or professional life that affected what you thought or felt at this time?

General process questions asked of each student:

7. When did you begin work on your dissertation?
8. What are some positive influences on your work?
8. When you run into difficulty, what helps you cope?
9. What are some negative influences on your work?
10. When did you first begin to think about the topic you ultimately decided to do your dissertation on?