Meeting the Information Needs of Students Over 50

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Introduction

Record numbers of older adults are enrolling in college courses. According to a 2008 report from the National Center for Education Statistics, “non-traditional” students entering the post-secondary education system account for nearly half the current student population. Projections from the NCES indicate that, for the first time in the history of higher education, the number of non-traditional students is expected to exceed that of traditional students by the year 2012. Of these, a significant number may be carrying an AARP card along with their student ID. The New York Times reports that the number of graduate students over the age of 50 increased by 38 percent between 2001 and 2005, outpacing the overall growth rate by a margin of 2 to 1 (Larson 2008). The upward trend can be expected to continue as individuals in this age group take advantage of new and expanded opportunities to earn a college degree. The recent economic crisis prompted the creation of the “Plus 50 Initiative” program aimed at those hoping to extend their careers and enhance their earning potential. Beginning with a pilot program in 2007, people over the age of 50 were encouraged to enroll in one of ten participating community colleges located throughout the country, sponsored by grants offered through the American Association of Community Colleges (AACC). The program proved to be so successful that it was extended as part of the economic recovery stimulus funding in 2009 (Kent 2007, 2009). Writing in the Chronicle of Higher Education, Eric Hoover (2009) states that, as more people over 50 take advantage of this type of new opportunity, their numbers will have a great and lasting impact on the post-secondary education system. If this proves to be the case, academic libraries must prepare to meet the information needs of this unique generation of students who belong to a demographic typically referred to as “Baby Boomers.”
**Preliminary Definitions**

For the purpose of this paper, the term “traditional students” refers to those who enroll in for-credit courses from a degree-conferring college or university within a year of their high school graduation. Their chronological age ranges from late teens to 24 years. They are generally unmarried, are not responsible for dependents, and work less than 30 hours per week off-campus. They are classified as full-time students, planning to complete an undergraduate degree within a four to five year period. They are more likely to have at least some financial support from their parents.

Conversely, “non-traditional students” describes those over the age of 24 who are enrolled in accredited courses from degree-conferring institutions. The designated age corresponds with data published by the National Center for Education Statistics (NCES). In addition to a delayed period of time before entry into institutions of higher learning, non-traditional students are more likely to work full-time while attending class part-time. The time frame for completion of their degree program is more open-ended. They may be married and/or responsible for children and other dependents.

In addition to their non-traditional status, students over the age of 24 are further categorized in accordance to age ranges supplied by the American Library Association in the document *Information Seeking Behavior and the Generations* (Abels). “Traditions” refer to those individuals born before 1944. “Boomers” are those born in the post-World War II era, 1943-1960. “Generation X” or “Gen X-ers” comprise the group born between 1961 and 1980, followed by the “Millennials,” also referred to as “Gen-Y,” who were born after 1981. These terms are generally consistent with those found in a wide variety of other published resources with only slight variations in the specified birth years.
Review of the Literature

There is considerable research on the information-seeking behavior (ISB) of traditional college students. Two well-established models are central to this area of study: Carol C. Kuhlthau’s model of information seeking as a means of reducing uncertainty (1991, 2004) and Melissa Gross’ “Imposed Query” model in which the “agent” is not the sole originator of an information search (1995). Both of these models are connected to Brenda Dervin’s “sense-making” theory that describes “a state that arises within a person, suggesting some kind of gap that requires filling” (1983, 156). In Gross’ model, the critical information gap is somewhat artificially created in that it is initiated by someone else. The “imposer” of a question communicates it to the “agent” who looks for information to satisfy the querent. Operating in the role of agent, an inexperienced student often does not understand the nature of the question imposed by the instructor. As a result, the student may not recognize appropriate resources and the search for information may falter due to the student’s unfamiliarity with the topic. Consistent with the analogous stage of the information seeking process in Kuhlthau’s model, the student is likely to feel very anxious and uncertain. Kuhlthau adds that the search for information continues as long as the feelings of uncertainty and anxiety persist. These emotions decrease as the information seeker settles on a topic and begins to gather relevant information (1991, 366-8).

Testing Kuhlthau’s model, Barbara Fister (1992) interviewed 14 undergraduates from various disciplines about their approach to research. Each participant was recommended for the study by an instructor, based on the student’s success in an assigned research project that required an original hypothesis or data analysis. Fister asked the students to provide specific details about the steps they followed in their information gathering process. The study found that, of the distinct stages of information gathering that occur over the course of a successful
research project, the most critical was “finding a focus” (168). This phase is preceded by feelings of apprehension and frustration. These gradually give way to increased confidence at the point at which students decided on a topic for their research. For the successful students, the process of locating appropriate resources to support different facets of the project was accomplished through a non-sequential approach. One of the students described “sorting her notecards in a wheel, with her thesis in the middle and all of her major points radiating out from and referring back to the thesis” (Fister 1992, 167). In another research study referencing Kuhlthau’s cognitive framework, Barbara Valentine (1993) concluded that there is a strong utilitarian element driving students’ research; they want to complete the project quickly with minimal effort. Their choice of strategy is influenced primarily by their social and personality factors. Valentine also found that students tend to return to familiar resources that worked well for them in past assignments. This proclivity may have a negative impact on their research skills. In Valentines study, students admit they often neglect what they understand to be better, more relevant resources, and elect to search the resources with which they are familiar. Both Fister and Valentine note the circuitous and sometimes haphazard nature of the students’ information gathering activities which are inclined to be very different from the organized approach taught in bibliographic instruction classes. The studies emphasize the need for further research into individual information search and retrieval strategies so that libraries can improve the quality and applicability of library instruction sessions.

Ethelene Whitmire (2001) also advocates user studies as a means of improving information services to students. She focuses attention on the effect that social influences have on the individual’s cognitive style, learning preferences, and their information-seeking behavior (ISB). Additionally, she found that personal background attributes such as ethnicity and gender
show a discernable correlation to library use. This was particularly true for those participants in their freshman and sophomore years. The demographic category of “age” was not shown to be a factor affecting ISB in this study. It should be noted, however, that the average age of Whitmire’s respondents was only 18.74 years with a reported range of 17-87 years. One can only conclude that the 87-year-old participant was the rare exception among a predominantly younger student population. Whitmire conducted a separate study in 2003 that explored the influence of an individual student’s epistemological beliefs on his or her information search process. The possibility that there is evidence of a relationship between a student’s ISB and her or his personal belief system is certainly germane to the subject of this paper. Unfortunately, given the fact that the students taking part were all seniors attending Yale University, the results of this study are not likely to reflect any significant age differences. It would be interesting to compare results of Whitmire’s study with one drawn from a population of non-traditional students who have blown out at least 50 candles on their birthday cake.

Turning to the information seeking behavior of non-traditional students, the bulk of the literature focuses on the cognitive styles and learning preferences of the younger “Gen-X” or “Gen-Y” set (Weiler 2005). These studies typically divide students into only two groups: those who were born in the computer age and those who were not. Information on the group of older students serves primarily as a foil to illuminate the behavior of those born after 1980. One exception is a study published in the Netherlands by Schuetze and Slowey in 2002. The authors compared the higher education systems of 10 highly industrialized nations and found that new learning opportunities are opening up worldwide for people who have been previously excluded on the basis of social class, ethnicity, and gender. As a consequence, there is considerable pressure in academia to assimilate diverse groups of non-traditional and “lifelong learners” into
what has previously been an elitist and youth-focused enterprise. Schuetze and Slowey found that programs and services designed to meet the needs of older students have lagged well behind the number of those directed at the younger set.

Although not specific to older student populations, there is a great deal more research that points to “significant generational differences” in other types of ISB for people over 50 (Lowe and Skarl 2009, 400). Based on such evidence, Eileen Abels (2007) created a chart for the ALA’s Reference and User Services Association (RUSA) website that consolidates the findings of several of these studies. The table indicates that “Traditionals” and “Boomers,” have markedly different learning styles and preferences when compared with groups of younger people. Abels states that the more mature demographic is “accustomed to a top-down flow of information” derived from a stable learning environment (2007). People over 50 prefer their information to be communicated through more formal, recognized channels. Lancaster (2003) makes the point that Boomers were raised in a climate of optimism following World War II. Some of them may still believe that they can accomplish anything, while others may have become disillusioned over the years and feel unable to regain their former self-confidence. Writing about the different perspectives each generation brings to the workplace and the challenge of training them in a classroom setting, Zemke (1999) notes how older workers look upon instructors as authority figures. Traditionalists are described as “conformers” who look to established rules and precedents for guidance (1999, 50). The younger Boomers rebelled against authority, but they were brought up with “military-style directions” through their formative years (1999, 51). They also have respect for those they see as having expert knowledge. While these findings are highly generalized, it is conceivable that the age-related differences found in routine ISB carry over into the classroom. If this is the case, undergraduate students over the age of 50
would tend to evidence a learning style that is more consistent with their age and upbringing than that of the more independently nurtured Gen X-ers or Millennials. If the RUSA guidelines apply to older people when they become students, they indicate that there will be some innate challenges for Boomers and Traditionals as they approach research assignments.

Turning to literature in the field of education, some of the most sweeping changes have been the area of “student-centered” learning. With the goal of encouraging independent thinking and spurring creativity, many studies examine the subject of cognitive styles and learning preferences. Most of the research activity in this area began well after the Boomers and Traditionals graduated high school. Riding and Cheema (1991) present a broad overview of various theories of cognitive style that distills them into more encompassing themes. They conclude that there are two fundamental, independent categories of cognitive behavior. The first is the “holist-analytic” style that separates those who process information globally from those who think in terms of segmented parts. There is also the verbalizing/imagist dichotomy in which the individual is inclined to think in either words or mental images. Rayner collaborated with Riding in 1997 to revisit the subject of cognitive styles, differentiating that key term from the more personality-centered concepts of learning styles and preferences. While cognitive style appears to be an inherent structural quality of the human mind, learning style is more a matter of inclination. The former is difficult to alter once it has been established, but the latter can be consciously regulated by the individual in order to meet the needs of a given assignment.

One of the primary benefits of studying cognitive and learning styles is to allow educators to adopt more progressive teaching methods; creating assignments that will maximize the benefits of individual preferences while accommodating students with different cognitive styles over which they have little or no control (Sternberg 1994). Recognizing the differences in
learning styles, educators may also be able to help students understand their inherent thought processes so that they may adapt their individual style to all types of learning activities. In the library, this typically translates to user studies that examine how people conduct research to make the arrangement of resources more user-friendly.

**Analysis and Discussion**

Undergraduate students of all ages face challenges when approaching research assignments. At least part of the difficulty can be attributed to inadequate information-seeking skills and poorly formed research strategies. The situation is further complicated when a student entering college or university has been away from the classroom for a number of years. In the case of those over 50, several decades may have elapsed since the student’s last involvement with locating scholarly resources, reading academic literature and writing research papers. For these older students, much about the education experience will have changed dramatically. Beyond having to adapt to the use of computer and internet technology, many of these adult learners will be unprepared for the type of coursework they will be expected to negotiate at the university level. Research assignments that emphasize critical thinking and originality may prove to be particularly difficult for students trained in a more traditional classroom setting. Their approach to learning has been shaped by long-standing practices of rote memorization, class lectures, and prepared question-answer exercises. This time-honored education system placed students in a passive learning environment, fostering obedience and uniformity. Although educators like John Dewey advocated reform as far back as 1900, it took the launch of Sputnik in 1957 for American schools to take much notice. Since that time, there have been significant changes in the field of education. The major developments have come in the area of student-
centered learning that encourages active participation and creative, analytic thinking. Reference and instructional librarians have joined with other educators in supporting this development in higher education. Recognizing the essential need for students to be able to “locate, evaluate, and use” information effectively and independently, the American Library Association (ALA) created an executive report on information literacy in 1989, followed by the adoption of the document *Information Literacy Competency Standards for Higher Education* in 2000. Applying the ALA’s guidelines, academic librarians are working to equip students with better critical thinking skills through more advanced information literacy instruction. Part of this effort involves the study of individual differences in cognitive styles and learning preferences so that librarians can help students in a way that maximizes their learning potential.

Given the lack of current research addressing the specific needs of students over the age of 50, it is important to study this particular population to see if it differs from that of traditional students. Older students’ learning styles and preferences have been shaped by influences such as their upbringing, former schooling, and social environment. Their experience with education is quite different from that of college students in the 18 to 24 year-old range. Dees Stallings states, “In the 1970’s it was typical for a composition text to have a chapter on logic, often with formal exercises such as distribution of syllogisms” (2002, 49). The contemporary education experience places the development of critical thinking abilities above training in formal logic. There is a push in today’s society to encourage students to analyze the information they receive, to synthesize it, and to form innovative theories. The ability to think independently is considered a crucial skill for today’s workers in the challenging global marketplace. For students over 50, this is a far-reaching change from their former experience. As a result, they may need more
specialized guidance and encouragement in order to adjust to advanced coursework which requires more highly developed analytical and research skills.

Far too much of the discussion regarding generational differences in information seeking focuses on the assumed lack of computer skills in those over 50 and their unfamiliarity with internet communication technology. Thankfully, this issue appears to be resolving itself fairly quickly. According to a 2009 PEW report, the largest spike in internet use since 2005 occurred among those 70-75 years of age. The same report notes that 78% of those between the age of 50 and 54 are now online and 56% of “Older Boomers” aged 55 to 63 use the internet regularly (Jones and Fox). This figure is nearly double that of the first such PEW report in 2000 that stated only 41% of adults aged 50 to 64 used the internet and only 13% of those over 65 had ever been online (Lenhart). Older adults seem to be adapting quite well to new technologies. As computers and hand-held devices become less expensive, more popular, and simpler to use, the discrepancy in skill level based on age is likely to become a moot point. Even if this were not the case, computer usage is not the decisive litmus test for information gathering. While the internet remains an important tool in library research, it is only one tool of many. The larger consideration involves the ability of the individuals using both electronic and material resources to find information relevant to their coursework. The primary concern, then, should be to increase the library’s ability to equip older students with effective research strategies that will be more relevant to their coursework. Far too many studies on the ISB of Boomers and Traditionalists focus on their inexperience with computers. It is time to move the discussion beyond a simplistic, mechanical issues and focus on the more fundamental problems that impede the success of older students.
Setting aside the issue of computer use in those over 50, it may be their experience with formal education in their formative years that places them at a disadvantage to younger students in information processing. The classroom of 1950’s - populated with chalkboards, Big Chief tablets, and maps of the 48 states - was governed by rules of order that reflected a top-down flow of information. The hierarchical, authoritative dissemination of information was modeled in the system. Lectures were delivered from the front of the room while students absorbed the teaching in what was primarily a passive learning environment. The education paradigm changed dramatically in the latter half of the twentieth century, leaving many older students to struggle with outmoded learning strategies that simply do not translate into the modern university setting. Students from traditional education backgrounds have been accustomed to summarizing blocks of information based on answers found in class lectures or textbooks. As a result, they may have a difficult time with more complicated projects that require synthesizing and interpreting information. Unlike assignments driven by a simple question – single answer approach, larger research papers are comprised of many complex sections that require highly developed analytic skills. According to Fister (1992), the student writing and researching for this type of assignment benefits from a non-linear, non-sequential approach. This has not been shown to be the preferred method for the more mature adult learners. Many still adhere to their former strategies, unaware of more a productive approach. Retraining older students as they undertake more challenging assignments demands a new and more comprehensive model of ISB.

Current Models of ISB

Melissa Gross (1995) created the “Imposed Query Model” to represent the unique sort of information gathering activity that occurs when the impetus for a given search originates with
someone other than the seeker. She charts six stages in the model’s event horizon: \textit{initiation} of the query by the imposer, its \textit{transfer} to the agent, its \textit{interpretation} by the agent, \textit{negotiation} of the question that takes place with an information professional, \textit{processing} of available information by the agent, and \textit{evaluation} of the results by the imposer (1995, 238). While Gross’ model lays a solid foundation for this type of activity, it does not go far enough in describing the complex nature of queries which are imposed by instructors and negotiated by students. The imposer in Gross’ original system seeks the information because of some need, what Brenda Dervin states is a “gap that can be filled” in their present state of knowledge (1983, 156). As such, the imposer is the primary stakeholder in the process, not the agent who gathers the information. In the case of college professors assigning research papers, however, this order is upended. Presumably, the instructors already possess considerable knowledge on the subject in question. They are not requesting information for themselves, but instigating the query for the benefit and edification of the agent. Similarly, in the final stage of the process described by Gross, instructors are not assimilating and evaluating the proffered information for their personal use. They are assessing the student’s ability to locate, understand, and apply appropriate research strategies in the presentation of the assignment. Students, therefore, are very different from other types of information seeking agents represented in Gross’ framework. Students are not professionals in the field, yet they are finding information to pass on to those who are. The underlying purpose is not to inform the imposer, but to enlighten the agent by engaging them in the research effort. The student is the primary stakeholder in this type of search, not the instructor/imposer. Unfortunately, students often lack the necessary frame of reference to connect their current state of knowledge with the desired goal-oriented state of the project’s completion. To adapt a metaphor from Dervin’s “Sense-making” theory (1983), undergraduates
may be building incredible bridges but they may be engineering their scaffolding over the wrong information gap. While this poses a challenge for students of all ages, the situation may generate a greater level of uncertainty and stress for students over 50. Products of a hierarchical learning environment in which information was provided by an instructor through lectures and directed readings, they may feel completely at a loss – set adrift by the expert authority figure that was once their information mainstay. This serves to increase the feelings of confusion and anxiety that Kuhlthau describes as a normal part of the information searching process.

Kuhlthau is one of the first researchers to take into account the emotional impact of what has largely been considered to be a cognitive process. The six stages of her model describe the various moods and “effective feelings” that users experience when searching for information (1991, 363). These range from uncertainty at the initial stage while the user acquires background knowledge, to optimism when understanding or selection of a generalized topic occurs. If the choice of a topic is delayed, there are feelings of anxiety, frustration, confusion, and doubt. More upbeat feelings give way quite readily to emotional upset as the new information gathered does not always fit with the individual’s construct of reality. Depending on the how strongly a student’s personal views are integrated into the individual’s sense of self, the new information may be threatening, or even frightening. Kuhlthau notes that at this point in the learning process, some people may simply give up and avoid gathering more information (2004, 193). Kuhlthau’s model adds emotional depth to the model described by Gross. It supplies the distinctly human, often irrational, component which accompanies the mental and physical activities featured in Gross’ “Imposed Query” model of ISB. Figure 1 below illustrates the “Imposed Query” sequence, “G” (1995) as it might intersect with Kuhlthau’s “Six Stages” of the information search process “K” (1991):
In this array, the activities that fall under the purview of the imposer/instructor are set on a level above, visually separating them from the actions undertaken by the agent/student. The growing emotional intensity from G2/K1 to G4/K3 is a result of an increasing level of stress which elicits more powerful responses. These increase as the student becomes more involved with the assignment. The stress is not mitigated until the final stage of the lower tier (G5/K4/K5) and actual progress toward completion of the project is made. Even then, varying degrees of emotions continue well beyond the time that the project is in the hands of the imposer/instructor for evaluation. The instructor controls the activities in the upper tier of this arrangement with the student having little autonomy. This serves to increase the feeling of uncertainty and pressure being felt by the student, prolonging the experience of stress.

Certainly, students of all ages can feel overwhelmed by the demands of higher education. Researching for assignments may pose more of a challenge to older students, however, in that they have been away from the classroom for a longer period of time. Not only has the education system shifted to a new paradigm, study skills have a way of becoming dulled over time. There are other sobering realities facing older students. Given their chronological age, it is likely that
there are fewer years of productive employment over which an older student can recoup the investment represented by higher education. If Boomers and Traditionals choose the wrong educational strategy, they are very aware that the time and money spent in a failed effort are two things they will never get back. This reality puts additional pressure on older students to do well in every class. Adding to the stress, students over 50 tend to be highly motivated to a point that might be detrimental to their emotional well being. Raised in post-war America with the attitude that hard work translates to success in life, Boomers feel the need to “prove their worthiness” through a work ethic that has been described as “dedicated—or even driven” (Zemke 1999, 50). Many born in this era saw their parents’ generation rise from poverty after the Great Depression to a new post-war prosperity. In part, advancement was made possible through the benefits of the 1944 “Servicemen’s Readjustment Act” commonly known as the G.I. Bill. As more working-class students entered the system, a college education was valued as a key accomplishment. It remained beyond the grasp of certain segments of the population, however, until social changes brought about by the Civil Rights Movement and the Women’s Movement of the 1960’s. During this time, Americans saw the overturning of many racial and gender barriers. For many over the age of 50, the dream was deferred, but it never died. The optimism and longing that prompted them to enroll in college in the first place, coupled with the drive noted by Zemke, would make the prospect of failing coursework or withdrawing from classes a distressing option. In addition, older students tend to have family responsibilities that add to their stress level. They are likely to be working a full time job while going to school part-time, perhaps caring for children, grandchildren, or aging parents. Combine these pressures with biological changes that naturally occur as people grow older and the student over 50 may be experiencing a debilitating level of stress that will affect their ability to function.
Stress and the Single Student

The effect of stress on human beings has been studied since the early 1900’s. For students, stress is to be expected throughout the learning experience as new ideas challenge their current state of knowledge and deadlines for assignments draw near. A certain level of stress is beneficial: it spurs the individual to accomplish tasks and meet challenging goals for scholarship. Without a productive amount of stress, little would ever be accomplished. When stress levels rise too high, however, they become counterproductive and even dangerous to a person’s mental and physical health. Stress is more than an internalized emotional reaction; it is a biological response to the external environment when an individual feels threatened.

One of the earliest published observations of the reaction to excessive stress in primates has been dubbed the “fight or flight” response attributed to Walter Canon. His 1929 book identified these reactions as the two primary responses which occur when an animal is in an aroused state from physical discomforts such as hunger and pain or sensing some external threat to their safety. Over the years, clinical researchers and behaviorists adapted the simple framework to examine the effects of stress in human beings. Studies in human subjects tend to focus on internalized stressors; the kind that students experience when they feel overwhelmed by coursework and uncertain where to turn for help. Librarians often deal with students in these reactive states. Some respond to assignments with an attitude of “fight.” They meet the challenge directly and are determined to finish at the top of the class. Taken too far, “fight” erupts into an expression of anger, which can be focused on one element of the assignment or unleashed upon the world in general. Another type of student reacts to the same stress-inducing assignment with a “flight” response. Almost every student feels this at the beginning of a course when handed a fat syllabus burgeoning with important due dates. Most are able to find coping
strategies that allow them to recognize the impulse is a false alarm from their hypothalamus. Other individuals feel that they want to give up or to run away at every turn. If the emotional response is strong enough, these people will not be able to control the urge to escape. They will be more likely to avoid the assignment or withdraw from the class. Some people will repeat the behavior several times. They may enroll in the same course, perhaps with a different instructor, only to experience the same debilitating emotions with the same unsatisfactory results. Modern psychologists often point out that the underlying emotion in a “fight or flight” response is that of fear, which elicits the natural reaction to protect oneself against a perceived threat (Forbes and Post, 2006).

At some point in the last half of the twentieth century, the term “freeze” came to be associated with Canon’s framework. It describes a state of immobilization accompanied by a feeling of hyper-vigilance that occurs under intense levels of stress. Although not working directly with Canon’s paradigm, behaviorist Jeffery Gray (1971) pointed out the obvious advantages to such “freezing” tactics for small animals in the wild. Their survival often depends on remaining undetected by predators. This behavior is observed in humans as well. It can be caused by intense panic in which a person shuts down physically. No matter how much she or he wills the muscles of the body to move, there is no response. The student experiencing a sudden shock or enduring stress over a prolonged period may exhibit a similar behavioral reaction. They may seem slow to process thoughts and may express a persistent feeling of sluggishness or disassociation. Not every person who is thought to be procrastinating is being indolent. Some may be effectively paralyzed from the excessive stress.

The opposite of this type of behavior is also observable in students. Far from inert, they are in a state which I describe as “frenzy.” Unable to focus on a topic, they jump from one
subject area or resource to another. They expend enormous amounts of energy, but there is little work produced. Mapping this behavior onto Kuhlthau’s six stages of information gathering, these students are repeatedly cycling through the “initiation” and “selection” phases, progressing to tentative “exploration” but they have difficulty advancing the project beyond that point toward completion. All the feelings of uncertainty, anxiety, and fear associated with these early stages of the process are never released by moving forward in the creative process. Individuals caught up in this cycle are reacting to stress in a manner consistent with “flight,” but they are unable to escape the source of stress and feel they must keep trying to “fight” the assignment. As a result, uncertainty, frustration and doubt continue to cycle back and interfere with cognition. No relief comes with the confidence and increasing optimism that the effective processing of information would supply.

In each of these four behavioral responses to stress, it is important to understand that the emotional reactions are largely beyond an individual’s control. Human beings are hard-wired to protect themselves with certain biologically predisposed defense mechanisms. There is little the intellect can do to prevent the body from reacting. Much like cognitive styles, responses to stress are set early in life. Hopefully, they may be recognized and channeled into more productive activity or managed with practice. In realizing that different students react to assignments with different protective reactions, information professionals may be able to help students of all ages as they learn to cope with their feelings and behaviors more effectively.

**Toward an Integrated Model**

Combining models found in traditional library science with basic theories adapted from the field of psychology, a more complete model of the students’ response to stress and its effect
on ISB can be developed. Beginning with Gross’ “Imposed Query” in which a student receives a research assignment from the instructor, she or he has essentially three choices: to avoid the assignment altogether, to attempt the assignment without gathering further information, or to undertake the assignment and engage in information seeking. Figure 2 illustrates this:

Of the three options, the first two are the least likely to result in the successful negotiation of a research project. As such, they are more likely to result in sense of negative closure for the student. The third option in which the student seeks more information is more likely to bring about the desired result. In this best-case scenario, the need for more information imposed by an instructor (I) sends the student (S) out into the information universe. This information universe is definitely a “big bang” model. It is unbounded, constantly expanding, and shows no sign of contraction. Within the set of all information is a subset of the information that is needed to complete the assignment: the relevant information. This subset is in perpetual flux, with new information being added and other information falling out of favor. It is important to note that the discredited information is still situated in the information universe, but is no longer part of the relevant information needed to complete the task. Students engaging in information seeking
will be challenged to negotiate the difference between acceptable and specious information. An academic library, which is situated in the information universe, intersects with the relevant information. It provides both physical items and virtual connectivity to resources that meet the information need. The library is only loosely enclosed by physical space and is permeable to information outside its boundaries. Relevant information flows into the library. As the research project is assigned, the student (S) comes into contact with the relevant information through the instructor (I). The student may or may not be aware of the library as a potential resource.

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It is assumed that the instructor of a given course is connected to the relevant information required to complete the research project. Unfortunately, she or he may not share information with the library. The result of this lack of communication may be that the available resources are obscured from the student. Entering such a model, the student would see the expanding information universe moving away in all directions. The student feels very small and isolated from possible resources. Kuhlthau notes that frequent feelings at this point include confusion and doubt with an increased level of stress. For the student that remains separated from the relevant information, the stress level continues to rise. No relief comes from choosing a topic.

**Figure 3**

G3/K2 Feelings: optimism, or anxiety if topic is not chosen
Stress Level N++
and beginning to gather information that would increase feelings of confidence. The student may react to the excessive stress by exhibiting behaviors such as fight, flight, freeze, or frenzy.

![Figure 4](image)

Students experiencing high levels of stress may not be able to progress toward completion of the research project without some form of outside intervention.

**Conclusions**

While the proposed model is not limited to the experience of students over the age of 50, it lays the groundwork for future research into their information seeking behavior. The dearth of studies on the ISB of older students attests to the fact that they have been largely ignored to date. The growing awareness of diversity issues in the classroom has yet to be extended to include age as an important factor when studying the needs of various student populations. Assuming that the information needs of students over 50 are the same is other age groups is an insensitive and ultimately destructive practice. James O’Donnell drives the point home, stating “institutions that go on thinking they’re in the youth camp business will increasingly be seen as failing at their core mission” (2001, 19). Further study on the ISB of students over 50 is warranted to evaluate how it may differ from younger student populations.

Gross’ “Imposed Query” model lays a solid foundation for understanding the information search process of students who are not the sole originator of their inquiry. Unlike other imposed
queries, however, student assignments take on a different intention in that the imposer is not seeking information through the agent, but encouraging the agent’s education. This places additional pressure on students who must negotiate the query knowing that it is their academic progress at stake. Kuhlthau’s description of information searching enhances Gross’ model by adding emotional components to each stage of information gathering process. The proposed model combines these elements with behavioral theories from the field of psychology. The classic “Fight or Flight” paradigm can be expanded to describe a range of negative reactions that some students exhibit when their stress levels get out of hand. In the same way that education theories, such as those regarding cognitive styles and learning preferences, have been used to inform the practice of reference and instructional librarianship, behavioral theories such as the one suggested here can shed new light on ways to improve services to students.

There is a consensus that undergraduate students benefit from formal information literacy instruction. From the above model of ISB, it is clear that it would be advantageous for the library and the instructor to create an area of information synergy before the student enters the mix. The primary responsibility for establishing contact with faculty members falls to reference and instruction librarians. It cannot be a passive, “if we build it they will come,” effort on their part. Developing a productive relationship with instructors from each department requires that information professionals get out of the library and introduce themselves into the academic community. To this end, there is a great effort underway to see that library instruction becomes an integrated component of every student’s college experience (Jacobson 2001; Owusu-Anash 2004). While a positive step, generalized information literacy classes that combine traditional and non-traditional students may not be adequate to meet the needs of students over 50. There are too many other issues affecting older students to make a generalized approach effective.
Group meetings and library orientations directed at older students may facilitate their adjustment to college coursework. Literacy sessions catering to people over 50 can teach productive information seeking skills while addressing some of the outmoded practices that carry over from previous training and experience. Group sessions also put students in contact with individual librarians, establishing a personal connection that students can draw upon when the need arises.

With the one-on-one student contact that often occurs during a reference exchange, librarians are very likely to encounter students who are experiencing debilitating levels of stress. Instead of leaving the situation to deteriorate, librarians with proper training may be able to help a student adjust their behavior in a way that is more productive. If more serious intervention is warranted, librarians can serve as a liaison to professional counseling services. Many universities have mental health facilities that include an emergency hot-line for students in distress. Educating librarians to recognize stress and its effects on human behavior would seem a natural complement to other interpersonal skills required in the ever-shifting landscape of higher education.
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