Current Issues: Robert Taylor’s Question Negotiation Framework and Melissa Gross’ Imposed Query Model in the Online Environment

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Introduction

Robert Taylor’s Question-Negotiation Framework (1968) is one of the most well-established and oft-cited theories in the study of information-seeking behavior. Melissa Gross’ Imposed Query model (1995), while young in comparison, was developed in a time that more closely resembles the world of library systems enjoyed today (Janes & Silverstein 2003). Both theories, however, focus on the communication exchange between the information seeker and the information professional, whether synchronously in person, or asynchronously by phone or letter (Taylor 1968; Gross 1995). As libraries and information centers increasingly operate in the online information environment, however, it is imperative to study how information-seeking behavior is impacted by and changed in this milieu. Undoubtedly, information-seeking behavior theories will develop for the arena of technologically-based environments, but with a slight shift in focus, so too can traditional theories such those developed by Taylor and Gross provide insight into the communication and transfer of information along the digital superhighway.

Information-Seeking in the Online Environment

In regard to the online environment, there are many aspects of information-seeking behavior worthy of consideration. Many contemporary libraries are now capable of offering technological consultation both asynchronously (e.g. online information request forms, online catalogs that can be accessed off-site, and even query support via email), and synchronously by way of live “chat” in which reference librarians assist information seekers via instant messaging (Janes & Silverstein 2003). Other aspects of the online environment include the multitude of electronic databases available to information seekers through public, corporate, and academic library membership, as well as through individual consultants who can research these databases on behalf of paying customers. And, of course, there is the Internet, providing search engines
like Google and directories such as Yahoo! and WebMD for the masses. Additionally, there are other viable aspects of the online environment that impact information-seeking behavior, such as technical ability and communication style of the information seeker and professional, as well as the capability and functionality of technical devices utilized for information transfer; however, these will not be addressed here.

Taylor’s Question-Negotiation Framework

Although the Question-Negotiation Framework was developed in the 1960’s—certainly before the online environment as experienced today was commonplace in libraries—Taylor’s theory is timeless in application due to its focus on the fundamental levels at which queries are formed, and the emphasis on matching a compromised query with available information (1968). A major component of the Question-Negotiation Framework (QNF) is the focus on the communication that takes place between the information seeker (e.g. the library patron) and the information professional (e.g. the reference librarian), for the purpose of answering a query. As discussed before, this interaction can take place either synchronously face-to-face, or asynchronously, which at the inception of the QNF, usually referred to telephone call or letter; Taylor was careful to point out, however, that the face-to-face query was the most suitable context in applying his theory at the time, but that perhaps “...augmentation on the human intellect by computers may generate interesting systems in the future. . .” (182; 194). Taylor was correct, for technological developments have made for new electronic environments in which information seekers can now pose queries virtually.

The Virtual Query

Virtual reference is a major area of study in library, information, and technological studies today, no doubt due to the various elements that make this form of information sharing
and transfer possible. Major topics in virtual reference include, but are not limited to, the reference interview, question typology, provider technologies, confidentiality and privacy of user information, and online identity (Kovacs 2007; Kazmer, Burnett & Dickey 2007). While these are all relevant considerations of virtual reference querying, and no doubt intrinsically involves the information seeker, Taylor’s QNF primarily focuses on the very general question of, how does the information seeker obtain a satisfactory result?

Information seekers in the online environment can choose from a variety of communication methods to access reference librarians and information professionals; there is the possibility of emailing a query, filling out and submitting an online search request form, and for the really savvy, virtually chat or instant messaging with an information professional. According to Taylor’s QNF, a question or need develops along four general stages—visceral, conscious, formalized, and compromised—and it is at the third stage of formalizing a query that the question or need is solidified into a coherent statement. This formal, actualized question is then ready to pose to a librarian (Case 2007, 72). In virtual reference querying, it is this third stage of formalizing a question that is essential to the process; since virtual querying is most always accomplished through an email, online information request form, or instant message, the information seeker must formalize the query within the limitations of the written word, which, arguably, is more formal than a voiced query, in which the information professional may have a hand in solidifying.

Following Taylor’s framework, once a query has been formalized, the next step involves reaching a compromised query by negotiating between the actual query and what information is available to answer the query. Taylor poses that this negotiation process is facilitated through the use of question context, available information to answer the query, and determining the
appropriate format of the query results (1968). This aspect of the QNF theory is undoubtedly impacted by the online environment. If the communication is asynchronous in the form email or submission of an online information request form, there is the problem of time lapsed between the query and the delivery of results, especially if the librarian wishes to ask questions in order to clarify the query. Taylor even declared that a written query “doesn’t help one bit” because there is no dialog taking place between the information seeker and information professional, which is essential to the negotiation process (1968, 184). Of these two virtual, asynchronous methods of querying, perhaps the online search request form comes closest in attempting to solve this problem. The online information request form virtually interviews the information seeker through a series of questions to help develop the query (e.g., asks for useful keywords), to determine the reason for the query (perhaps the seeker is writing a thesis or interested in real estate development), and to target acceptable formats for delivery of the query results (e.g. scholarly articles, books, websites). This is akin to Taylor’s notion of limiting the negotiation process within the constraints of time and certain boundaries (1968, 183). In the case of synchronous technological querying in the form of chatting or instant messaging, however, the communication between the information seeker and information professional here is probably the closest to the dialog so valued by Taylor since there is a real-time exchange; such instantaneous question and response thus provides more opportunity for clarification and question-negotiation.

Melissa Gross’ Imposed Query Model

By the time Melissa Gross (1995) developed the Imposed Query Model, libraries and information centers were certainly more technologically advanced in comparison to the time in which Taylor’s Question-Negotiation Framework was introduced. The state-of-the-art microfilm
system noted by Taylor that streamlined library use and improved user success (but proved problematic since new reels were required in order to update information) was becoming antiquated technology by the 1990’s (1968, 193). Still, the interaction that took place between information seekers and information professionals at the time of the Imposed Query Model largely took place in the form of the face-to-face interview, yet—like Taylor’s Question-Negotiation Framework—is viable in the online environment as well.

Gross developed the Imposed Query Model (IQM) from the notion that understanding the information seeker’s mindset can be useful to information professionals in attempting to answer questions and in developing information packages (Gross 1995, 236). The context of IQM concerns the information-seeking behavior in which an information need is communicated to an agent by an imposer, followed by the agent interacting with an intermediary in order to answer the query (236). An example of IQM, then, would be a teacher (imposer) assigning a question to students (agents) to be answered by the school librarian (intermediary). Gross identifies six stages of her model, which are as follows: query initiation on behalf of the imposer; transfer of the query to an agent; interpretation of the query by the agent; negotiation between the agent and an intermediary; processing by the agent in regard to available resources to answer the query; and then evaluation by the imposer in light of the response provided (238).

In considering these stages of query development in the online environment in which communication usually takes place in the form of the written word, it is possible that, while the ability to gain clarity verbally both between the imposer and agent and the agent and intermediary is lacking, perhaps there is less room for the mutation of the query that Gross claims is possible at each stage of query development (1995, 240). In other words, it could be that the process of formalizing and stating the query by the imposer in order to communicate the
query electronically (say, via email or by posting in an online class forum), may leave less room for mutation of interpretation of the original query by the agent (student). This contrasts greatly with the traditional face-to-face or telephone setting. In these settings, an imposed query is communicated verbally to an agent who may or may not ask specific questions for clarity, or take notes to refer to later when negotiating with an intermediary. When the query is then later relayed to an intermediary, lapsed time, faulty memory, or a misunderstanding of the query may lead to a “mutated” version of the original query. Gross likens this process to the game of telephone in which a message is relayed in a large group by whispering the message from one person to another, only to invariably discover the vast difference between the original and the mutated message once the message has traveled full circle (240). If the transaction of a query takes place electronically, however, the agent has the query in its original format as well as any clarifying communication, all of which can be shared with the information intermediary. This, in a sense, streamlines the first few steps of the IQM, leaving less room for mutation. At this point, the agent and intermediary may together merge the interpreted and negotiated aspects of Gross’ model (238).

Additional Considerations

Both Taylor’s Question-Negotiation Framework and Gross’ Imposed Query Model focus on the human-to-human interaction that takes place in the process of querying. Both Taylor and Gross mention that technology and perhaps one day artificial intelligence would be able to act in the role of information professional or reference librarian in the future (Taylor 1965; Gross 1995); and in fact, artificial intelligence components such as automated, question-answering web tools and database systems that can address queries are in the process of development (Roussinov & Turetken 2007). However, a strong argument could be made that it does not
require artificial intelligence or “smart” programs to act in the role of information professional for either Taylor’s or Gross’ models to apply.

In considering the host of online databases available to information seekers today, the tools and techniques that commonly accompany these databases are in many cases already acting the role of information professional. While not all online databases are created equally (in fact, database interfaces and content can be as varied as the companies who produce them), many online databases offer similar tools that aid an information seeker in query development. For example, if an information seeker is still in the formalizing stage of a query (Taylor 1968), doing a basic search in an online database can begin the assisted process of solidifying the query and moving the query to its compromised form. After a keyword or phrase is entered into the system, if the query is not immediately satisfied to the liking of the seeker by the database holdings, a user has many options as to how to refine the query. The user can begin perusing the titles or abstracts of any retrieved resources, searching for additional, viable keywords in which to begin another search, or consult the reference sections of retrieved resources and conduct new searches based on other author names or titles of useful materials. Another method of refinement is for the seeker to consult the database thesaurus for other topics and controlled vocabulary similar to the original query, or perhaps employ a suggestion from the subject headings list and refine the original search, using a combination of new search terms. Interacting with a database in this way very much resembles a dialog between information seeker and information professional in which the user or information seeker gives the database a keyword to represent a concept, and the database responds with suggestions and resources to help formalize the query. This is applicable to both Taylor’s negotiation process and the negotiated and processed stages as outlined in
Gross’ Imposed Query Model. And, considering the closed systems of online databases, there is no question that the compromised query is indeed limited to the information resources available.

While databases have not always been consulted by the general public, or as Taylor describes as the “non-native” information seeker, this is changing (Taylor 1968). Technology has infiltrated the lives of common people in industrialized countries to such a degree that the computer and its homogenous interface is recognizable and utilized by the masses both at work and in the home. In a way, this technological infiltration has prepared common information seekers to consult information sources that, in previous forms (such as the card catalog) would seem foreign and perhaps intimidating or off-putting. However, if someone is already a user of the search box in Google, then using the basic search engine in other online databases such as EBSCOHost or ScienceDirect can be familiar territory. This is true of searching in electronic card catalogs as well. What’s more, off-site access to catalogs and databases may also attract patrons that would otherwise not use the library. This notion of homogeneity and familiarity with online information interfaces is of great import to library, information and technology specialists, as noted in the literature (Hendry & Harper 1996; Conrad & Claussen 2003). Especially as automated systems become capable of providing better and smarter service to information seekers, ensuring that the great wizard stays behind the curtain, or rather, that the interface remains user-friendly, could impact whether even the most advanced systems act as the information professional, or requires an information professional to mediate between the system and the user.

Conclusion

Information-seeking behavior theories and models that originated before advancements in technology conceptualized the quest for information and the way in which people go about it in a
world that is very different from today’s information environments. However, concepts such as Taylor’s Question-Negotiation Framework and Gross’ Imposed Query that deal with query development strive to understand a process that, in large part, is internal to the seeker (Gross 1995, 236). The way in which the query is then communicated in the world and with others is secondary to the formation of the query itself, so applying these theories to new settings such as the online environment is not only possible, but ultimately productive, especially as the architects of online environments strive to make these places information seekers will return to again and again.
References


