Librarians: A Thinking and Learning Styles Portrait

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WHY WE BEGAN THIS STUDY

Sara was hired to work in the public services area of the library. Her responsibilities required her to help patrons find materials, to maintain the reference area, and to cooperate with fellow employees. She was especially adept at finding appropriate resources; however, her perfectionism and compulsive attention to detail caused unsettling problems with the other employees. Complaints about her efforts to organize everyone to follow her standards of perfection necessitated a change of assignment. Because her supervisor recognized Sara's potential and did not want to lose her, Sara was reassigned to a secretarial position that required structure and detail. Her transformation from unhappiness to total satisfaction in her new position was immediately apparent, and her relationships with others improved accordingly. A supervisor's awareness of Sara's thinking style turned a potentially bad situation into success.

Awareness of varied thinking styles is vital to the success of any dynamic organization. Personnel are often placed in situations where they must adapt their own thinking styles to meet the expectations of the organization. Such adaptations may improve effectiveness, but dissatisfaction often results from the stress of having to perform on a level that differs from one's style of thinking. Our research reflects the general tendencies and the challenges that develop when diverse thinking styles exist within any large organization, including libraries. Participants in this study contributed a variety of details that have helped us focus on thinking styles in the work place. Often, this kind of information leads to a better understanding of self and others. As one understands the principles of thinking and learning styles, both the organization and the individual benefit.

An organization with satisfied employees avoids problems that often result when people are not matched with the job description. Thinking styles analysis provides the basis for accurate job placement by personnel directors; and the organization that is not aware of thinking differences may be ineffective in matching people to compatible positions. Since dissatisfaction and ineffectiveness are conditions that any supervisor would like to avoid, awareness of how a person thinks improves the possibility of putting the right person in the right position.

Library tasks require a variety of thinking styles, yet our research finds that a strong logical style of thinking appears to shape the procedures within the organization. Since many library tasks attract individuals who are logical and organized, imaginative thinkers (who may not be logical) will not find as many compatible jobs in the library as they might elsewhere. Thinking style awareness will help a manager use judgment and tact in assisting the creative individual in upgrading both the job assignment and the level of job satisfaction. The manager who is aware of how a person thinks will be able to improve the efficiency of the organization by proper job placement of employees.

Another aspect of thinking style awareness is patron accommodation. A library might better serve its patrons by providing services that attract a wide diversity of thinking styles; thus both the logical and the imaginative patron will make better use of the library. The patron will seek out those areas of the library that provide usage comfort. If those areas are not available, the patron will probably not use the library. Successful libraries should provide a variety of accommodations designed to meet thinking style diversity.

In this study, we have explored the relationship between thinking styles and the library organization.
This research is a record of our methodology and of the conclusions that will be beneficial to libraries as well as to other organizations.

One of the purposes for conducting this survey was to determine the possibility of predicting how a new employee would respond to various types of training, and how productive their activity would be within the workplace.

**THE LIBRARY AND RESEARCH INSTRUMENTS**

Before one can understand the scope and sequence of this study, an explanation needs to be given of the library and the instruments used. Brigham Young University (BYU) is a private institution with a full-time enrollment of approximately twenty-seven thousand students. The Harold B. Lee Library (the library) has an undergraduate and graduate collection of three million volumes. It employs approximately 133 full-time employees (faculty, administrative, paraprofessional, and staff) and over 400 part-time student employees.

Thinking styles analysis provides the basis for accurate job placement by personnel directors; and the organization that is not aware of thinking differences may be ineffective in matching people to compatible positions.

The Squires Thinking Styles Test consists of two separate tests, both administered to the library participants. The first, an analytical test, called for responses to eight questions and determined the dominant thinking and learning style of each participant (see figure 1). Each response item was used as an indicator to determine how logical or imaginative each person was. This test measured each participant's dominant tendencies in situations where choices were required. One choice was for logical thinkers—one for imaginative thinkers, and one for combination thinkers requiring both logical and imaginative thinking. Some of these choices were psychomotor preferences; others were personal preferences. This test established thinking patterns similar to the test results of other standard thinking styles instruments.

The second test is unique to thinking styles instruments because it asks participants to perform an on-task response (see figure 2). The on-task activity required free expression (either verbal, visual, or combined verbal and visual on-task responses), as opposed to analytical judgments, which the participant was required to make in the first test.

Used together, these two tests provide an innovative approach to the analysis and use of thinking styles in the work place. All individuals were placed into one of nine thinking styles categories on the basis of their responses (see figure 3). Each of the nine categories represents distinctive characteristics of thinking. Within each category, participants ranged from very logical to very imaginative, based upon the results of the analytical portion of the Squires Thinking Styles Test. Thus, one thinker in each category was the most imaginative within that group, while another was the most logical. Each of the participants was ranked on a comparative basis with all others in each category. This ranking was recorded visually on a silhouette chart, which was later distributed to all participants (see figure 4).

The on-task portion of the test identified basic thinking tendencies of each participant as verbal/visual, convergent/divergent, concrete/abstract, and tendencies to observe limits during the on-task evaluation.

The team designed a prediction instrument to forecast the thinking profiles of each individual. Because the team members knew many of the people who were to be tested, the team tried to predict, before the test was actually administered, what they thought each individual's thinking style would be. When no one on the team knew the person well, short biographies were used to make predictions. All predictions were made in each of the six areas listed below:

1. On-task thinking style,
2. Organizational environment inclinations,
3. Relationships,
4. Individual learning style,
5. Time management style,
6. Personal directional style (needing guidance before beginning a task).

**ADMINISTRATION OF THE TEST**

Before the testing began, a proposal was submitted to the university librarian and the Library Administrative Council. Their support was instrumental in the success of this study. All 134 of the library employees participated in the testing sessions.

Following the library administration's approval, each participant filled out a "Personal Interests Survey" form, which included such topics as educational experiences, both previous and anticipated; hobbies; reading interests and preferences; past creative experiences; favorite and least favorite library tasks; and computer experience. This instrument verified that people in the same thinking categories had common goals and experiences. It also proved valuable in determining basic tendencies within each thinking styles category.

Testing places and times were scheduled by the department chairpersons. All sessions were small enough to test a department in one sitting, except for some of the larger departments, which were divided into smaller testing units. If persons could not meet with their assigned group, individual or small group make-up sessions were scheduled. The results of individual tests were kept confidential.

All testing was completed within a three-month period. In most cases, the time involved in administering each testing session was fifteen to twenty minutes. At least two of the three team members were present to ensure the validity of the test. Since the analytical test had been designed to measure the six separate areas listed above, examples were given to clarify meaning. Since the on-task test determined individual verbal
and visual processing, no explanations or examples were given. The interpretation of the written instructions by each individual was the key to this test.

After the test had been administered, each participant was classified into one of the nine thinking-style categories. To prevent the team from forming biased opinions, names were concealed during the evaluation process. Two forms were used to provide individual feedback to each participant. The first was a visual chart with 134 silhouettes (figures of men and women) illustrating the total number of library employees within the nine thinking-style categories. Each individual received a copy of this chart with his or her position highlighted. This provided immediate visual feedback to the participant that would have been difficult to provide verbally.

The team then sent a letter to each of the participants, explaining the preliminary results of the thinking style survey and describing the nine thinking-style categories; included was a glossary of terms. Each participant also received an "Individual Response" sheet, which focused on the first five thinking style traits (listed below), indicating the percentage of processing within the individual's on-task activity. Item six indicated a rank order within a thinking style and positioned the individual from most logical to most imaginative within that category. Item seven compared the analytical and the on-task thinking profiles of the individual for consistencies or differences. Comparative characteristics represented are as follows:

1. Concrete versus abstract thinking,
2. Convergent versus divergent thinking,
3. Observer of limits versus going beyond limits in thinking,
4. Verbal versus visual thinking,
5. Logical versus imaginative thinking,
6. Their ranking within a thinking-style category,
7. The consistency between the analytical and on-task thinking profiles.

The characteristics of each of the nine thinking-style categories were summarized into two lists: "Category Tendencies" and "Category Challenges." These lists were sent to each participant. The "Category Tendencies" provided a profile of the common thinking tendencies associated with each category. The "Category Challenges" list provided suggestions that might be used as a means to enlarge one's thinking productivity. Consultation and feedback was provided upon request.

RESULTS

After compiling and analyzing the various instruments used in this study, we concluded that the professional librarians in this sample tended to be verbally oriented and more satisfied with libraries than were the visual thinkers. Verbal thinkers feel comfortable in a library-like atmosphere where organization and structure are priorities. Verbal thinkers, as a general rule, tend to be more logical, more organized, and more involved in establishing systems, yet less creative, than do those in the more visual categories. Verbal thinkers, most of whom had prepared for other occupations, now consider librarianship as an ultimate career. Most paraprofessionals, as opposed to professional librarians, tended to be more visually oriented. In this study, visual thinkers were more imaginative, and interested in less-structured activities. Many in this group expressed dissatisfaction with their library tasks and were more inclined to leave the library to pursue other interests in areas such as the performing arts. This study indicates that the library administrator often hires a paraprofessional who will be a short-term employee. The use of a test such as the Squires Thinking Styles Test provides a thinking style profile which, if used properly, would reduce the rapid turnover rate of paraprofessionals.

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Selected additional observations from the study include the following:

1. Most management personnel come from within the verbal categories; verbal divergent thinkers are most heavily represented.
2. To some degree, computer literacy is present within all nine thinking categories, but a larger percentage of visual thinkers avoid computers than do verbal thinkers.
3. The majority of those tested have thinking and learning styles that could strengthen any library system, although a small number of the participants in the study, mostly those in the visual categories, feel somewhat out-of-place within the library system.

A large number of participants felt that their individual results were accurate and helpful. Supervisors have been able to understand employees and positions on a new level of awareness, and as a result, employees have benefitted with improved interviews and individual evaluations, job reclassifications, and enhanced personal relationships. These results are being used in some hiring interviews, and much success has been demonstrated in placing people into positions for which their particular thinking style is most suited.

FUTURE PROSPECTS

Business, education, counseling, and industry could all benefit from the use of thinking styles testing. Some organizations might best be served by employees with a particular style of thinking. (For example, a computer operator would most likely come from the more computational thinking styles, while an illustrator would
rely more on visual skills.) Most systems, however, will benefit from developing tasks that add thinking diversity to organizations. Creative thinkers often feel lost in tightly structured organizations; however, if innovation is crucial to the continued growth and success of a company, the imaginative employee is a necessity.

The creative thinkers in today's school systems might struggle to succeed. Narrow teaching practices favor the more logical thinker. Math is a required subject for graduation while art is an elective. The imaginative thinker often has difficulty in the computational skills required in math, yet is still required to take such courses. Diagnosis and prescription for individual thinking and learning tendencies can lessen the epidemic dropout rate that includes many imaginative thinkers.

There are many people like Sara—people lost and struggling for identity in the work force. The findings of this study provide hope for those thinkers who are cast aside because someone has failed to understand the many dimensions of thinking styles. This study has provided the foundation for future research, not only in libraries, but in other occupations as well.

Instructions: Number your paper from 1 to 8. While answering the following questions, mark X's, O's, or C's according to your preference. If X's are dominant, you are left brained (logical). If O's are dominant, you are right brained (imaginative, creative). If C's are dominant, you are orchestrated. Compare your answers to someone else who has taken this test to help you understand the diversity of thinking styles.

<table>
<thead>
<tr>
<th>LEFT BRAIN</th>
<th>RIGHT BRAIN</th>
<th>ORCHESTRATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clasp your hands together, intertwining fingers. Which thumb is on top?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Right thumb on top.</td>
<td>O Left thumb on top.</td>
<td>C Parallel thumbs or either thumb on top.</td>
</tr>
<tr>
<td>2. How much imagination do you use in your style of productive thinking?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Uses logic much more than imagination.</td>
<td>O Active imagination with many creative ideas.</td>
<td>C Has many new ideas but seldom uses them in productive outcomes.</td>
</tr>
<tr>
<td>3. Determine which way your eyes move when you ponder as you are seeking an answer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Eye movement is to the right.</td>
<td>O Eye movement is to the left.</td>
<td>C Eyes move up or down equally to left or right, or do not move.</td>
</tr>
<tr>
<td>4. Think of a place that you are totally responsible to keep orderly and organized.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Always neat and orderly (organized).</td>
<td>O Mostly cluttered and disorganized.</td>
<td>C Starts organized, moves to disorganized, then back to organized.</td>
</tr>
<tr>
<td>5. To determine how you think when you are learning new information:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Good at numbers and math. Good at details.</td>
<td>O Doesn't like to memorize. Math is difficult. Visual thinker.</td>
<td>C Wide view of ideas but not talented in math or creative arts.</td>
</tr>
<tr>
<td>6. Determine how you relate to others.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Relationships are based on logic and organized outcomes.</td>
<td>O Relationships are based on emotions without reasons or explanations.</td>
<td>C Doesn't like to make a lot of decisions or face problems in a relationship.</td>
</tr>
<tr>
<td>7. To determine how you plan for tomorrow.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Everything is scheduled. Uses time wisely. Tight agenda.</td>
<td>O Doesn't like tight time schedules. Often does not write appointments down.</td>
<td>C Likes a lot of variety in schedule with little detail or responsibility.</td>
</tr>
<tr>
<td>8. Which ear do you use most when using the telephone?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Dominate use of right ear.</td>
<td>O Dominate use of left ear.</td>
<td>C No preference.</td>
</tr>
</tbody>
</table>

Figure 1. Analytical Test—The Squires Thinking Styles Test
Express your ideas and feelings about the library in the box below by adding words, drawings, or both words and drawings to the end of each line.

Figure 2. On-Task Test—The Squires Thinking Styles Test
The percentage of the 133 library participants are indicated in parentheses, followed by some of the job classifications that correlate with the category.

Category I  
*On-Task Independent Thinkers.* These thinkers tend to be somewhat reserved and detached emotionally, aloof or distant, independent, intelligent, and noninteractive. They have a low creative profile. They also resist pressures, avoid limits, and have strong opinions. (3.7%) (All five individuals work independently, with little interaction or direction. Only one of these five is a paraprofessional.)

Category II  
*Extended Thinkers.* These visual thinkers usually consider themselves noncreative. They tend to be quite narrow in talent areas, very efficient within narrow interests, yet may not apply ideas as well as others. They have a sense of exactness, are quite efficient, like single tasks that are uncluttered, avoid diversity, and observes limits, yet may lack flexibility. (6%) (All the nine individuals have high self-initiative, work independently, and need little direction. Only three are paraprofessionals.)

Category III  
*Verbal Convergent Thinkers.* These thinkers tend to be efficient and organized, to be productive within somewhat narrow limits, and to focus on the system more than on individuals. They have computational skills and logical imaginations, and they have reserved and controlled emotions. (21.7%) (Most of the thirty individuals are efficient and have tasks that are instrumental in organizing the departments within the library. Only seven are paraprofessionals.)

Category IV  
*Verbal Divergent Thinkers.* These thinkers have many of the same traits as those in Category III; however, they tend to be more flexible in their thinking skills. Many management-level personnel fit into this group. They tend to have strong logical and computational skills, to seek leadership roles, to have logical ideas but are able to expand ideas, to have controlled emotions, and to avoid tight limits. (15.7%) (Nine out of the twenty individuals have key leadership roles in library departments or assignments in the library directors’ office, and the others are key support people who have major responsibilities. Five individuals in this category are paraprofessionals.)

Category V  
*Verbal with Visual Support Thinkers.* Verbal thinking dominates more creative talents, which are often not developed to a productive stage. They tend to be good organizers but may not become top-level managers as often as those in Category IV. They tend to be quite efficient; to live by the system, to prefer hands-on skills over performing arts, to be task oriented, to be creative on demand, and to seek personal reinforcement. (18.7%) (Of the twenty-five individuals in this category, eleven are paraprofessionals, two are in department leadership roles, and the remaining are in key positions within the departments.)

Category VI  
*Orchestrated Visual and Verbal Thinkers.* These thinkers have wide interests but may not develop talents well. They tend to be indecisive at times, to be understanding of others, to like change and diversity, to not fully develop talents, to avoid exact outcomes, to not set goals, and possibly to lack precision. (13.4%) (Of the nineteen individuals in this category, eleven are paraprofessionals, two are in leadership roles, and most are in positions where they are not required to make decisions in developing library policy.)

Category VII  
*Visual Dominance with Some Verbal Thinking.* These thinkers tend to be imaginative, to have a strong sense of personal identity, to have strong emotions usually expressed in words, and to not openly display feelings. They are flexible in the use of details, seek security, have limited computational skills, avoid repetitive tasks, leave some tasks undone, and do not seek leadership positions but can be good managers. (14.9%) (In this category of eighteen individuals, there are ten paraprofessionals, and many in this category are managers of independent support systems, such as conservation, book repair, and Learning Resource Centers.)

Category VIII  
*Total Visual Thinkers.* These thinkers tend to struggle in traditional learning systems, to have strong individual talents, to like freedom within systems, and to develop strong emotional ties. They are imaginative, are performers, are ideas visually, avoid tight limits and order, have low computational skills, and avoid tedious tasks and repetition. (3.7%) (There are only five individuals in this category, and they all tend to be highly creative and have strong emotional ties, yet they like to work on their own projects without interference and like freedom within their assigned areas.)

Category IX  
*Abstract Visual Thinkers.* These thinkers tend to live in a world of emotions and creative freedom, to have flowing thought patterns, and to have difficulty in traditional learning systems. They are often involved in the creative and performing arts, are strongly emotional, avoid limits, have limited computational and verbal recall skills, are strong visual thinkers, adopt a nonlogical approach to life, are frustrated by inflexible systems, avoid record keeping and strict regimentation, and may ignore time limits. (2.2%) (There are not many similarities among the four people in this category, although each has characteristics that are strongly abstract.)

Figure 3. The Nine Thinking Styles Categories—The Squires Thinking Styles Text
<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>&lt;LOGICAL&gt;</th>
<th>ORCHESTRATED</th>
<th>IMAGINATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Thinker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extended Thinker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III (29)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Convergent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV (21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Divergent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V (25)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI (18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orchestrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII (20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Verbal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIII (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IX (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstract Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The highlighted figure represents YOUR individual ranking. Within each category, the figure at the extreme left indicates the MOST logical thinker within your group. The figure at the extreme right represents the MOST imaginative thinker within your group.

Figure 4. Individual Ranking: Tendencies—The Squires Thinking Styles Test