At the core of this paper is Drotter’s Leadership Pipeline, a leadership development model comprising six levels of leadership functions. Each level requires new responsibilities, competencies and thinking preferences (Charan et al. 2001: 17). If we want to develop the new generation to excel as library leaders, we have the responsibility to develop them to let go of the thinking preferences and habits that made them successful in the past.

In determining the thinking preferences of Library professionals, the Herrmann Brain Dominance Instrument (HBDI®) was used, providing the research with scientific validated data. Both the Leadership Pipeline and Herrmann’s Brain Dominance Instrument® are useful tools in growing library leaders to effectively operate at the next leadership level.

Although there exists a considerable body of research on traits, competencies and thinking preferences of library leaders, no research was found on a link between competencies, thinking preferences, and thinking requirements of library leadership positions.

This paper presents data of the thinking preferences of 120 middle managers from a diverse selection of library services and link documented library leadership traits, competencies and thinking skills requirements to leadership positions. In order to be able to make the mental shift required for the digital age and to be empowered and enabled to take up leadership responsibilities for the future of libraries, the paper provides innovative options that can be incorporated in a leadership development programme to empower the next generation of library leaders.

Introduction
The competence and effectiveness of library leadership, particularly in Africa, has been in the spotlight for a number of years. Several factors have been mooted as to why library leaders are not as effective as they should be, ranging from personal competence to environmental factors.

A grant from the Carnegie Corporation of New York was made available to the Department of Library Services (UPLS), University of Pretoria, to establish the Centre for African Library Leadership (CALL) at the UPLS and to design a Library Leadership programme (Carnegie Library Leadership Academy, (CLLA) with the aim of addressing some of the issues (http://www.library.up.ac.za/carnegie/carnegie.htm). The programme covered theoretical as well as practical aspects, including organisational leadership and behaviour, innovation, change management, descriptor tools (such as the Campbell Leadership Descriptor and the Herrmann Brain Dominance Instrument®), multiculturalism and diversity in the workplace, organizational ethics, knowledge management, effective communication, advocacy, branding and marketing and Web 2.0 and mobile technologies. The programme was contextualised through lectures on locating libraries on the national and international agendas and the next generation librarians. A total of 120 participants attended the six academies over the three year period.

Although there is a considerable body of research literature on traits and competencies of library leaders, we have not found any research linking competencies and thinking preferences and library leadership positions in the digital age.
The purpose of our paper is to report on the thinking preferences of future library leaders in South Africa (as evidenced by the six Academies), to link the results to the identified leadership traits found in the research, and that of library leadership positions. Our ultimate aim is to propose innovative options for consideration in designing a leadership development training programme, to build the much needed competencies for the digital age.

In order to make the link between thinking preferences and thinking requirements of leadership positions we reconceptualise the Leadership Pipeline of Drotter (2003) through the lens of the Whole Brain Model® (Herrmann 1995, 1996). The authors will show how the focus at each level of the pipeline needs to shift between the quadrants of the Whole Brain® model to successfully traverse the pipeline and move from being specialist to becoming leaders of the twenty first century.

Research questions
The research questions this paper addresses are:

- What are the thinking preferences of the future library leaders in South Africa?
- What are the thinking requirements of the various leadership positions?
- How can we link thinking preferences and thinking requirements to leadership traits?
- What innovative options can be built into a leadership development programme to develop thinking requirements for the digital age?

Literature review

Library Leadership Competencies

Ammons-Stephens, Cole, Jenkins-Gibbs, Riehie and Weare (2009) investigated various leadership competency models, and compiled a list of core competencies for library leaders. Although research exists on the competencies needed by practitioners in various areas of librarianship, very little literature is found addressing these competencies. Ammons-Stephens et al. (2009: 65) listed six areas of attributes, namely “leadership, planning, abilities, skills, individual traits, and areas of knowledge” based on the article made by Hernon, Powell and Young (2001); these attributes are all in alignment with leadership research for other professions. In a second article Hernon, Powell and Young (2002) “identified and categorized present and future attributes of prospective directors” (Ammons-Stephens et al. 2009: 65). They grouped the attributes under three major headings namely:

- Managerial attributes, which includes managing, leading and planning;
- Personal characteristics, which includes dealing with others, individual traits (general) and individual traits (leadership); and

Ammons-Stephens et al. (2009: 68-71) designed a “Core Leadership Competency Model”, which highlights four central leadership competencies for library leadership, namely cognitive ability, vision, interpersonal effectiveness and managerial effectiveness. Each emphasise a number of broad competencies:

In comparing data from the research done by Hernon and Rossiter (2006), Hopper (2005: 17) indicates that the results reveal the trait most mentioned from a total of 96 traits, was visionary. Vision, innovation and technology are important aspects for the digital age because if we are able to “see” and “read” the future demands of where libraries are going this knowledge can proactively implemented for innovative technology options for the digital age.

The second most valued trait documented was to the ability to motivate people. To inspire people with a shared vision is an objective for any leadership position. Natural leaders that inspire others create followers and in doing so ensure that the company or institution they lead, will move forward into the future.

Both studies are in agreement that a highly valued trait is therefore being flexible and comfortable with change (Hopper 2005: 12). This implies to actually anticipate change, especially in the digital age in which we find ourselves today. Lynch (1988: 77) writes: “Clearly what is before us is the realisation that we must know and learn as much as we can about the present and future technologies so as to participate in a meaningful way in the necessary decision-making regarding our libraries and the services they provide”. Riggs (2001: 10) puts it in another way: “Managing change is not good enough. We must anticipate, plan, and lead change. With the impact of the evolving library technology, some librarians who have been successful in the past may not be successful in the future if they continue doing things they have been doing in the past. They will have to talk with different people, listen to different people, and in a sense they will have to unlearn those activities that brought them success in the past”.

The ability to be visionary, to embrace change and to anticipate future information technologies, thereby providing strategic direction for their libraries and the ability to motivate their colleagues to share the vision will empower library leaders for the digital age of the 21st century.

Herrmann’s Whole Brain® model

The Herrmann Brain Dominance Instrument® is an assessment tool that quantifies the degree of a person’s preference for specific thinking modes, how we prefer to think, learn, understand and express ourselves (Herrmann 1995:17).
Herrmann describes the Whole Brain® model as a metaphoric model since the operation of the brain is immeasurably more complex and versatile than the simple dichotic model implied (Herrmann 1995:64). The four quadrant metaphoric model and profile describes how a person prefers to acquire and process information, not how fast or accurately he/she does it (Herrmann 1995:70). The concept of applied Whole Brain® thinking is based on our application of these specialised modes shown in Figure1.

![Figure 1: Herrmann’s Whole Brain® model](image)

A preference for the A-quadrant (upper left mode) indicates that a person favours activities that involve analytical, fact-based, quantifying, logical, critical, rational, information. (Herrmann 1996: 30) Figure 2 is a typical example of a strong A-quadrant thinking preference.

![Figure 2: An example of a profile indicating A-quadrant thinking preference](image)

The B-quadrant thinking preferences (left lower mode) typically exhibit a highly traditional and conservative approach. They prefer organised, sequentially planned and detailed information (Herrmann 1996: 30). Figure 3 is an example of a strong B-quadrant thinking preference.

![Figure 3: An example of a profile indicating B-quadrant thinking preference](image)

The C-quadrant thinking preferences (lower right mode) feel comfortable with face-to-face engagement, are sensitive to others, supportive and expressive and maintain interpersonal relationships. They are more people-focused individuals. Figure 4 is an example of a strong C-quadrant thinking preference.

![Figure 4: An example of a profile indicating C-quadrant thinking preference](image)

D-quadrant thinking (the upper right mode) favours holistic, conceptual, imaginative and integrative
mental processes (Herrmann 1996: 107). Figure 5 is an example of a strong D-quadrant thinking preference.

Herrmann (1996) concludes that, although an individual may favour cognitive activities associated with a specific quadrant, there is an equal distribution of preferences of individuals across the four quadrants and that both left and right and upper and lower modes contribute to everything, but they contribute to a different degree. Although each quadrant is different, they are all equal in importance. In fact, no person is linked to a single perspective—we are indeed hard-wired to be whole, based on the principle that we all have a whole brain.

Drotter’s Leadership Pipeline model

Drotter’s concept of a Leadership Pipeline comprises a basic level of ability and self-knowledge (managing self) that is followed by six higher levels of leadership functions. Each level requires new responsibilities, competencies and thinking requirements. The focus of the Leadership Pipeline model is to grow leadership talent within an organisation. When organisations want to develop a leader’s talent, the individual much too often gets promoted based only on their high technical ability. The specific thinking requirements needed by the individual to excel at the level of promotion are often overlooked (Charan et al. 2001: 16). Organisations need to also ask the question whether the promoted manager can adapt to the thinking processes required by the level concerned. If the answer is “no”, the individual cannot or does not understand that different thinking skills are required. Charan et al. (2001: 9) argue that the pipeline gets clogged and positions operate at a lower level, affecting the whole organisation.

Challenges for libraries in the digital age

A great deal has been written about the library in the digital age, largely from a perspective of information technology. Information technology changes the whole working paradigm of the past decades. The internet has moved into all the corners of our life. In cyberspace every source seems as authoritative as every other; libraries no longer are the dominant players or the suppliers of information as first choice. Online searching has become daily practice by millions of people. Social networks like Facebook, MySpace, LinkedIn, are choices offering information. Google transformed the information landscape. Encyclopaedias are no longer considered means to finding what you want, but connected consumers are empowered to find information, and they think what they find in Wikipedia, represents the “wisdoms of crowds” according to Nicholas and Rowlands (2008: 71). Therefore, the majority of library professionals “require a new mindset” (Nicholas and Rowlands 2008: 213).

We need to think more innovatively and our thinking needs to be directed at what is going to be relevant to the user in the information age. It is only through vision and strategy that we will maintain sense of purpose for the library in the digital age. “Connected consumers now have access at any time of the day or night, through multiple devices and platforms, to all aspects of their information needs. If the traditional ‘gatekeeper’ is not there (at best) or gets in the way of this communication (at worst) consumers will abandon them to go their own way” (Nicholas and Rowlands 2008: 3).

Empirical Study

The HBDI® is a survey of 120 items, based on 35 years of extensive research on brain dominance with over three million profiles in the Herrmann database worldwide. It is an assessment tool that quantifies thinking style preferences for each of the four modes. It displays the mental preferences of the individual but does not report on ability or competence. The results are displayed on a four-
quadrant grid that emulates the four principal thinking structures in the brain as illustrated in figure 1.5.

All 120 candidates selected for the Carnegie Library Leadership Academies completed the online assessment, and received the profile during a one-day intervention debriefing the content. The aim was to determine the thinking preferences of the individuals as well as the group, and to link the results to the thinking requirements of the leadership pipeline, positions they will be holding in the future, and evaluate possible areas that can be addressed, be it through coaching, mentoring or development programmes.

Knowledge of one’s preferred thinking styles can be helpful in understanding the degree of comfort experienced in utilizing one’s strength on the one hand, and, on the other, understanding the degree of discomfort experienced in areas of avoidance or lesser preferred modes. Preference and avoidance are equally significant. Not being able to stretch beyond our comfort zones can have a severe influence on both professional and personal life.

Analysis of results

The data collected from the 6 groups will be discussed on the total group. We have created a group average, and this is expressed as a generic profile in the form of preference for the A-, B-, C-, and D-quadrants, where 1 = strong thinking preference, 2 = lesser preference signifying comfortable usage when the situation requires, and 3 = potential avoidance for the respective quadrant thinking (Figure 7a). The composite profile of the group (map with superimposed individual profiles) is provided in Figure 7b and finally a preference map of the group in Figure 7c.

The generic profile of this team is significant in indicating a double dominance 2112 preference. The double dominant primary is for the B- and C-quadrant modes of thinking. The B-quadrant typically represents characteristics that include being in control, playing it safe, planning things first, getting things done, attending to detail, structure tasks in a sequence, provide support and keeping administrative tasks up to date. This profile also indicates a strong preference for the C-quadrant, indicating a preference for people, working in groups or teams, building relationships, engaging with others on a personal level rather than e-mail, being part of a team, coaching and supporting others. The composite profile (all 120 profiles
put on top of one another) confirms the fact that there is a strong preference for the B- and C-quadrant thinking.

From the preference map it is important to note that the least preferred modes are for the A- and D-quadrant thinking. For the A-quadrant, this implies that the group is less comfortable analyzing data, logical processing, applying formulas, solving problems in logic ways, challenging decisions and results, taking up the financial planning and responsibilities, being challenged on areas outside their expertise and working with technology. For the D-quadrant this implies that the group is less comfortable generating alternatives, taking risks, inventing innovative solutions, providing vision, creating experimenting opportunities, selling their ideas, embracing change, looking at the big picture and seeing the end from the beginning.

In analyzing the individual results, only three participants from 120 had a strong preference (100+) for A-quadrant thinking, representing 2.5% of the group, while 2 of the 120 participants had a strong preference (100+) for the D-quadrant, representing 1.6% of the group. The majority of participants, 25 out of 120, had a strong preference (100+) for the B-quadrant representing 20.8% of the group, while 23 out of 120 had a strong preference (100+) for the C-quadrant representing 19.1% of the group.

Implications of results

Linking the thinking preferences of future library leaders in South Africa to the Leadership Pipeline, and the leadership traits and competencies outlined in this paper, it becomes evident that we need to keep embracing the dominant C-quadrant thinking identified, but at the same time we have to let go of the dominant B-quadrant thinking of doing things.

The emphasis should be to develop stronger A- and D-quadrant thinking preferences and competencies in the younger generation if we want to ensure we develop leaders who are knowledgeable about the latest technologies, comfortable to inspire and drive the organisational vision and leaders who are able to see the big picture as identified traits of library leaders.

The following from our research is evident: we need to develop Whole Brain® leadership programmes focusing on developing thinking skills as well as providing opportunities to unlearn activities that brought past success (Riggs 2001:10). At the core the programme should be Drotter’s Leadership Pipeline model and Herrmann’s Whole Brain® model and the traits and competencies identified by researchers as important in giving direction to what thinking skills needs to be developed, for which level, to make a successful transition to a next level. Through a development programme future leaders can be sensitised to using thinking requirements previously ignored (Charan et al. 2001: 17).

Recommendations

In order to make the mental shift required for the digital age and be ready to take up the leadership responsibilities for the future, we recommend the following innovative options to be included in a library leadership programme:

- Both the Leadership Pipeline and Herrmann Brain Dominance Instrument (HBDI®) are useful tools in growing library leaders, through coaching and mentoring individuals to make the mental shift and acquire the skills necessary effectively to operate at the next level of promotion
- Information with regards to thinking preferences has proven valuable. By expanding their thinking skills and flexibility, leaders will be empowered and equipped with the necessary thinking tools that will enable them to make smooth transitions to every next level of the leadership pipeline in their organisations and throughout their career.
- Understanding the thinking requirements of the position of the different levels of Drotter’s Leadership Pipeline is essential to prevent clogging of the pipeline. According to Hermann (1996:102), it is often one’s own preference that leads to the clogging, as one would naturally want to revert to one’s comfort zone and emphasise one’s own preferences. The willingness of the leader to stretch and develop his /her thinking skills in all four quadrants will ultimately determine whether the leadership pipeline can be successfully unblocked.
- Certain quadrants in the Whole Brain® model are more dominant during certain stages. The higher one moves up in the pipeline the more analytical skills (A-quadrant) and strategic innovation skills (D-quadrant) and skills to motivate others (C-quadrant) are necessary, and the less controlled (B-quadrant) thinking needs to play a role.

Conclusion

This paper aimed to create an awareness of different thinking requirements for different levels of the leadership positions. The Whole Brain® model and the Herrmann Brain Dominance Instrument® can serve as a model and a tool, to understand oneself and others better. Through coaching, mentoring and development programmes individuals can develop thinking skills required for specific roles which they are assigned to and not become a prisoner of his or her thinking style preferences.

As additional research is conducted and shared in the professional library science literature, more librarians and library administrators should begin to employ thinking style research for both personal and organisational growth. Benfari (1995) created a four step plan to modify skills for effective personal growth. The steps are:
• Reflect: Take time to understand yourself and your co-workers in terms of strengths and weaknesses concerning thinking preferences and the organisations culture.

• Identify: Find work situations in which you have been effective and those in which you have been ineffective.

• Determine: Recognise what aspects of your thinking style play both the positive and negative outcomes in these situations.

• Modify: Work towards achieving positive outcomes at all times by using the thinking style most appropriate for the situation, and try to align these outcomes with the mission of the organisation.

References


