Mapping the Infoscape of LIS Courses for Intersections of Health-Gender and Health-Sexual Orientation Topics

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The article explores the information landscape (i.e., infoscape) of library and information science (LIS) courses for intersections of health-gender and health-sexual orientation topics, concerns, and issues. This research was considered important because health information support services essential in today's society must include marginalized gender and sexual orientation-related content that is deemed taboo in an all-pervasive patriarchal and heterosexist culture. Research methods involved a content analysis of bibliographic course descriptions available on the homepages of graduate programs in Canada and the United States that are accredited by the American Library Association. Syllabi for LIS courses on health information support services, gender, and sexual orientation were also studied. Findings map the existing infoscape surrounding the teaching of health information support services in LIS and identify future directions for inclusion of gender and sexual orientation topics in the LIS curriculum.

Introduction

Health information support services are essential in today's society and it is urgent that their development, provision, and delivery reflect progressive cultural values in the 21st century (Braa, Monteiro, & Sahay, 2004; Mehra & Dessel, 2011; Saxena, Thornicroft, Knapp, & Whiteford, 2007). This is especially true regarding gender and sexual orientation-related content (e.g., information needs, values, and practices) that is considered taboo owing to patriarchal norms and heterosexist assumptions all-pervasive in our society and culture (Lugg, 2003; Reardon, 2001; Skelton, 2001). The intent of the article is to explore the information landscape (i.e., infoscape) of library and information science (LIS) courses for intersections of health-gender and health-sexual orientation topics, concerns, and issues.

The strategy of mapping to study the infoscape that LIS programs create via the public domain of the Internet in representing information about the courses they offer on their websites is explored. The *Merriam-Webster Dictionary* (2004) defines the term "mapping" as the act or *process* of making a map and identifies the following meanings of a map: as something that *represents with a clarity* suggestive of a map (noun); to *plan* in detail (transitive verb); and to *assign in a relation or connection to another* (intransitive verb) [italics added]. These meanings of mapping have been applied in LIS to represent: a conceptual analysis of disciplinary domains (e.g., science) (Klavans & Boyack, 2009); tools for understanding of information-related patterns in software development and use in various areas (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011); methods to create local, regional, and global maps (Klavans & Boyack, 2011); and, techniques to represent bibliometric research (Nees, Waltman, Dekker, & Berg, 2010; van Eck, Waltman, Dekker, & van den

Berg, 2010). This article adopts the term "map" in its conceptual meaning from popular vernacular and integrates its various dimensions (identified above) to just mean organizing or systematizing information in a way that reveals trends and patterns in a collection of LIS courses. The concept of LIS is used with reference to the entire gamut of information creation-organization-management-dissemination processes and their education in the contemporary context.

The term infoscape (etymology = info + scape) refers to the virtual and physical landscape of information and its interactions (Skovira & University, 2004). Mapping the infoscape of LIS course representations on the web (as conducted in this research) is important for identifying the patterns and course counts to track the intersections of health-gender and health-sexual orientation topics in the LIS curricula across the master's degree programs in Canada and the United States. The concept of infoscape helps holistically relate to an informational ecology or the environment of information use and information creation from the enterprise level to the personal level (in this case from the programmatic level in the LIS schools to the individual course level) (Davenport & Prusak, 1997; Hasenjager, 1996; Nardi & O'Day, 1999). Documenting the public representations of courses on the websites of LIS programs is significant since the Internet has now become unequivocally the primary information resource tool used by diverse populations in nearly every part of the world (Leu, Kinzer, Coiro, & Cammack, 2004; Peterson & Fretz, 2003; Rice, 2006). It is often the first place where potential students and other stakeholders will search and find information about LIS programs (Johnson, 2007; Manzari & Trinidad-Christensen, 2006). Analyzing what LIS programs are doing (or not doing) in representing information about their programs on the publicly accessible online domain can potentially identify marketing and public relations strategies for the profession as a whole, and by individual programs, to showcase their offerings and attract the best of students to their ranks (Kim & Sin, 2006; Wilde & Epperson, 2006).

Literature Review

An overview of the current health literature in LIS was developed in two steps: first, a review of the literature with LIS as a broad concept was conducted, encompassing theoretical and practical pursuits and the intersections therein, regarding health-gender and health-sexual orientation topics; second, a similar review of the literature was done but where LIS was instead more narrowly viewed as it relates specifically to education. In both the strategies it was evident that while much has been written in the field and each of the studied topics individually (i.e., LIS, health, and gender/sexual orientation separately), searching the literature for an intersection between LIS, health, and gender/sexual orientation topics does not produce a comparable wealth of available research. This section highlights the clear trends that were found within this limited pool of literature.

A review of existing literature on the intersection of health-gender and health-sexual orientation topics in the field of LIS provided diverse and multi-faceted results. The importance of these topics and the findings can be better understood in terms of a categorization scheme of the themes that emerged. Each work obviously had representation of multiple categories though the list of broad thematic categories was created from the topic/subject that emerged in the forefront based on an analysis of the descriptions in the title, abstract, and a review of the work. The emerging thematic categories allowed the authors to coalesce additional articles that were found into spheres of similar topics based on how they included health information and gender/sexual orientation content, and these spheres are akin

to the larger schools of thought and areas of interest found in LIS as a whole. The thematic categories are by no means exclusive but serve as a tool to make sense of the literature reviewed. Such a categorization scheme of health information can provide a potential framework to represent and market the LIS courses on intersections of health-gender and health-sexual orientation topics.

The first category included articles that are about a health issue, symptom, or disease-specific to particular populations based on gender and/or sexual orientation. This is akin to Buckland's (1991) information in terms of knowledge definition, since these articles represented health and gender/sexual orientation topics as the subject of the information (i.e. not the people involved, such as the user or the mediator). The category encompassed articles closely related to gender, including those that discussed pregnancy and maternal health (Pierce 2004) and endometriosis (Deevey 2005), and those that are traditionally linked to sexual orientation, such as HIV/AIDS (Harris, Veinot, & Bella. 2010). The category has corresponding similarities with the system-centric point of view in equating the "system" with the "disease" and focusing on the traits and characteristics of the disease without much attention to the person experiencing the disease or ailment.

On the other side of the equation, the second thematic category included articles that approached the intersection of health-gender and/or health-sexual orientation topics from the point of view or perspective of the information user. Whereas the previous thematic category focused on the disease per se, the articles in this user-centric category considered the ways consumers of information are involved in the access and use of health information based on gender/sexual orientation. Information needs, information seeking, information searching, information use, and attitudes of users within broader human information behavior research (Saleh & Lasisi, 2011)

were key sub-topics within this thematic category. Articles included those about the information needs of particular populations such as Anasi and Nwalo's (2012) exploration of the reproductive health information needs of adolescent girls in Nigerian public secondary schools. Others examined Kuhlthau's information search process (ISP) (1994) such as Genius' (2012) use of social positioning theory as a lens to understand women's health-related information seeking and decision-making and how they find and make sense of medical information. Another example was Warner and Procaccino's (2004) use of the ISP as a model to assess women's behaviors in seeking health and wellness information. Yoo and Robbins (2008) provided an insightful examination of how certain groups of women search for health information on the Web. Also included in this thematic category were articles on the information seeking behavior of women looking for treatments for specific diseases (e.g., symptomatic uterine fibroids) (Ankem, 2007). Further, included in this category were articles such as Odusanya and Bankole's (2006) study of resources Nigerian secondary school students use and their attitudes regarding HIV/AIDS and McKay's (2011) analysis of the health information needs specific to lesbian, gay, bisexual, and transgendered (LGBT) information seekers.

A third and closely-related thematic category grouped articles that examined how information mediators directly address issues pertaining to the intersection of health-gender and/or health-sexual orientation topics. These included articles on the strategies information professionals use to provide access to information related to particular diseases to the affected gender/sexual orientation-specific populations. Researchers studied the ways in which teachers, healthcare professionals, librarians, aid workers, and others directly affected the consumption of health information by individuals according to their needs keeping in perspective the us-

ers' gender and/or sexual orientation. Examples in this thematic category included a project providing information access to select community-based women's health agencies (Huber, Peek, Hughes, & Little, 2003); Allison's (2007) examination of the important roles librarians play in the dissemination and use of biomedical information; Fikar and Keith's (2004) work on the perceptions of medical librarians in assisting LGBT healthcare workers; and, Levine's (2002) study of librarians and sex education that included discussions on health, gender, and sexual orientation. There was also a tendency in some articles in this thematic category to focus on the attitudes, values, and practices of information mediators, such as Baker, Case, and Policicchio's (2003) research that explored ways in which information professionals provide access to health-related information to female inner-city sex workers.

The fourth thematic category included articles that addressed health-gender and/or health-sexual orientation topics from the institutional standpoint. These identified information-related institutions in a wide range of settings, from traditional public and school libraries to hospitals and governments. The research in these articles pertained to how the institutions assisted populations based on gender/sexual orientation-specific needs. An example of such an article examined how school librarians addressed and provided access to LGBT-themed literature (Hughes-Hassell, Overberg, & Harris, 2013). Other articles included how populations distinguished by gender and/or sexual orientation used information-related institutions, such as a historical overview of how women use public libraries for information on woman-centric health issues (Apple 2012). Also found were articles that explored how information-related institutions served as a bridge between the users and information, such as an analysis of Canadian provincial governments' use of the Internet to provide information for women on domestic violence (Wathen & McKeown 2010) or a

study of how the attitudes held by a community of women in Nigeria regarding HIV/AIDS had repercussions for public libraries (Shabi 2012).

Another less common thematic category included articles on the organization and retrieval of information as it related to the intersections of health-gender and/or health-sexual orientation topics. This involved ways in which health-related information itself was directly organized, such as López-Huertas and Ramírez's (2007) discussion of terminology and indexing—specifically in gender thesauri—regarding the body and health of women. It also included a broader approach to information packaging, such as Pinho and Guimarães' (2012) analysis of the ways sexual orientation is treated in Brazilian indexing languages, which also discussed health-related issues. Additional studies focused on information resources and included an article by Deevey (2005), who provided details on where to locate information on the gender-specific disease, endometriosis, and highlighted the necessity of information mediators for those suffering from the disease. Another example was Gross, Goldsmith, and Carruth's (2008) work that analyzed young adult literature's attitudes toward HIV/AIDS and gay and lesbian themes in the sample studied.

The final thematic category was the most pertinent to this particular study, namely, those articles which directly discussed the intersections of health-gender and/or health-sexual orientation and LIS education. These articles focused on health, gender, and/or sexual orientation in the LIS educational setting and their importance vis-à-vis the instruction and training of LIS professionals. Some of the articles found had explicit connections between health-gender and/or health-sexual orientation topics, such as Mehra and Dessel's (2011) analysis of community health information services for those with HIV/AIDS and the role of LIS education in developing these services. Others focused more closely on one of the topics (i.e. health, gender, or

sexual orientation), but included an inter-section between health and gender/sexual orientation. For example, Detlefsen and Huber's (1991) work on the way HIV/AIDS is discussed in the LIS classroom, an analysis which included mention of both gender and sexual orientation. Detlefsen and Galvin (1986) provided an examination of health science/biomedical librarianship education, wherein the role of women (i.e. gender) was included in the conversation surrounding LIS scholarship. Mehra and Braquet's (2011) research on the reference services for LGBT and questioning students included a discussion of both LIS education (regarding community involvement) and the health of students.

Methodology

In order to pinpoint the LIS courses with health, gender, and sexual orientation-related topics, during September–December 2012 a content analysis was conducted of the bibliographic course descriptions on the homepages of the 53 graduate programs in Canada and the United States that are accredited by the American Library Association (ALA). Though the bibliographic course descriptions ranged in length from a handful of sentences to several pages of detailed information, they were found appropriate for this analysis, as they are publicly accessible and represented online the pithiest summaries of a course's content. Ease of access was deemed as particularly important. Even though the bibliographic course descriptions simply do not allow for in-depth understanding of course content and approach, yet, for this study, the goal was to see what could be discovered simply from a program's homepage, without any direct contact with the faculty or staff from an individual LIS program. Additionally, within the limited descriptions, what the various LIS programs include, what they exclude are revealed, as are any intentional or unintentional biases regarding gender and sexual orientation topics, as reflected on their web course representations.

After this initial step was completed, the descriptions were first examined through a health-oriented lens. The bibliographic descriptions were searched using keyword terms related to health content (e.g. "health" and "medic"), and after these were compiled, they were in turn searched for keyword terms that were related to gender and sexual orientation content (e.g., "wome/woma," "fem," and "reproduct" for courses with gender content; "sexual minorit," "gay," "lesbian," and "LGBT/GLBT" for sexual orientation content). For a more holistic approach, the search was conducted from different angles as well. The research strategy included a second, gender-oriented lens, where the bibliographic descriptions were searched for gender keyword terms first, followed by a search for health-related content. A third, sexual orientation-oriented lens, was also employed where the descriptions were searched for sexual orientation keyword terms and then health terms.

Using this approach, no overlap was discovered between health and gender courses, and the same was true for health and sexual orientation courses. The search was then expanded to include the syllabi of courses identified in the first phase of each lens (i.e. courses with health-related keyword terms, courses with gender-related keyword terms, and courses with sexual orientation-related keyword terms). As with the bibliographic course descriptions, the goal was to locate the syllabi without assistance from the faculty or staff of the LIS programs, so only those courses for which syllabi could be found online were considered in this study. A reflective analysis of these course syllabi mapped the infoscape surrounding the teaching of gender and sexual orientation topics in LIS courses on health information support services and vice-versa.

Some limitations of this research include a focus of data collection only on courses considered part of the ALA-accredited master's degree. Even though a range of bibliographic course descriptions

was found (mostly short blurbs, although a few included course objectives and course content covered), all the relevant course syllabi were not made publicly accessible on the LIS program website. Some issues that emerged include the following: First, it was not always clear if the website course description itself was outdated and incomplete or it was the most current and complete version for the individual courses. Second, it was not clear if the courses described on the LIS program website had been offered recently or not been offered for a long time. The assumption was that they would have been removed from the public resource if the latter was true, otherwise, it would be quite misleading and show poorly on the individual LIS program. However, from the information found, some materials were for courses taught a while back, and the suggestion for administrators and developers of the LIS program websites is that they must make efforts to rectify such lapses. Moreover, if health, gender, and sexual orientation topics were included in a "special topic course" with a generic number then that might not have been included in the dataset that was studied.

Findings

Appendix 1–3 provides a list of LIS course titles with health, gender, and sexual orientation-related content respectively. Table 1 summarizes health-related courses in LIS programs in Canada and United States. One hundred and forty-five courses in 47 programs were found on the websites with health-related content based on the analysis of the bibliographic descriptions available on the homepages of LIS programs in Canada and the United States (a total of 53 programs). However, only 40 courses (27.60%) had their syllabi available online without password access to the general public. In addition, within this pool of bibliographic course descriptions, there were no courses identified in the collection that had vocabularies associated with intersections of health-gender or health-sexual orientation content.

Table 2 summarizes gender-related courses in LIS programs in Canada and United States. Thirty-one courses in 13 programs were found on the websites with gender-related content based on the analysis of the bibliographic descriptions available on the homepages of LIS programs in Canada and the United States (a total of 53 programs). However, only 10 courses (32.26%) had their syllabi available online without password access to the general public. In addition, within this limited pool of bibliographic course descriptions, there were no courses identified in the collection that had vocabularies associated with intersections of gender-health content.

Table 3 summarizes sexual orientation-related courses in LIS programs in Canada and United States. Seven courses in four programs were found on the websites with

Table 1. Health-related LIS Courses.

	Number of LIS Programs	Number of LIS Programs with ONE Health-Related Course	Number of LIS Programs with MORE THAN ONE Health-Related Course	Total Number of LIS Courses with Health-Related Content
Canada	7	1	5 [2, 2, 3, 6, 7]	21
United States	46	14	27 [2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 4, 4, 4, 4, 4, 4, 5, 5, 7, 8, 9, 17]	124
TOTAL	**53**	**15**	**32**	**145 courses in 47 programs with 40 online syllabi**

Table 2. Gender-related LIS Courses.

	Number of LIS Programs	Number of LIS Programs with ONE Gender Course	Number of LIS Programs with MORE THAN ONE Gender Course	Total Number of LIS Courses with Gender Content
Canada	7	0	3 [2, 4, 5]	11
United States	46	6	4 [2, 2, 2, 8]	20
TOTAL	**53**	**6**	**7**	**31 courses in 13 programs with 10 online syllabi**

sexual orientation-related content based on the analysis of the bibliographic descriptions available on the homepages of LIS programs in Canada and the United States (a total of 53 programs). However, only one course (14.29%) had its syllabus available online without password access to the general public. In addition, within this limited pool of bibliographic course descriptions, there were no courses identified in the collection that had vocabularies associated with intersections of sexual orientation-health content.

With the expansion of the dataset to include publicly accessible syllabi of the courses already identified by their bibliographic descriptions, even though the number of courses shrank, the increased amount of data meant that there was an increased potential to find intersections of health-gender and/or health-sexual orientation content in the LIS courses. Including the syllabi resulted in more than just the succinct, single paragraph summaries that the researchers often found in the bulk of bibliographic course descriptions.

Content analysis now included lecture topics, assigned and suggested readings, and homework assignments, amongst other information, as a result of the widened scope. Analysis of the LIS health course syllabi showed four courses with gender-related content and one course with sexual orientation-related content. Analysis of gender course syllabi showed one course with health-related content, and an analysis of one sexual orientation course syllabus found no course with health-related content.

Discussion

The bibliographic course descriptions for none of the health courses contained intersections of content with gender and/or sexual orientation vocabularies or vice-versa, and although this is disappointing the results are still significant, as they reveal a need for greater integration of these topics in LIS courses. This being said, there still exists a potential to include gender/sexual orientation-related topics

Table 3. Sexual-orientation-related LIS Courses.

	Number of LIS Programs	Number of LIS Programs with ONE Sexual Orientation-Related Course	Number of LIS Programs with MORE THAN ONE Sexual Orientation-Related Course	Total Number of LIS Courses with Sexual Orientation-Related Content
Canada	7	1	1 [2]	3
United States	46	1	1 [3]	124
TOTAL	**53**	**2**	**2**	**7 courses in 4 programs = 1 online syllabus**

and vocabularies in current bibliographic health course descriptions within the existing framework. For example, the health-related course offered at the University of Wisconsin-Madison, "LIS 517: Consumer Health Information: Resources, Users, and Services," displays a potential opportunity to demonstrate the intersection of health-gender and health-sexual orientation topics. The current online bibliographic description of this course includes "special domain of consumer health" and refers to the special needs of consumer health information users, ethical issues, and the way users find access to such information. To start with, terms associated with women's concerns/behaviors and "lesbian, gay, bisexual, and transgender" populations, amongst others, can easily be included to represent a diversity of users and their interaction with health information resources and services. Similarly, current gender/sexual orientation courses also have the potential to include health-related vocabularies in their online bibliographic course descriptions. Simmons College's "LIS 530J: Information Services for Diverse Users" bibliographic course description notes the "special needs" of users, focusing on those who are "traditionally underrepresented in information settings." Adding examples and populations related to diversity issues including race, social class, gender, and sexual orientation should not be difficult. In such courses, terms associated with health should be included in the bibliographic course description and course content since health is a key area where information resources and services in specific health information institutions are provided to diverse users to meet their specific needs, wants, and expectations.

Table 4 summarizes intersections of health-gender and health-sexual orientation content and vice-versa in LIS courses based on a content analysis of the course syllabi.

Content analysis of specific course syllabi found on the websites of the different LIS programs helped identify select ways that instructors of these courses represented intersections of health, gender, and sexual orientation topics. Such efforts provide practical suggestions and best practices for other course instructors across various LIS programs to insert such important information into their curriculum. One example

Table 4. Intersections of Health-Gender and Health-Sexual Orientation in LIS Courses.

Sr. No.	Course Title and University	Select Example Specifics from Course Syllabi
1.	Gender in Health Course Syllabi	
1.1	SI 657/757: Info. Tech. and Global Development, University of Michigan–Ann Arbor	*1.1.1. Inclusion in specific assignment description [Policy Assessment Paper 20%]:* "A clear impacts statement that describes the specific impacts your project will have, including poverty impacts, inequality, gender, etc."
		1.1.2. Materials for specific weeks included gender resources: (1) "For Week 9 [Urbanization and Infrastructure]: Lebanon, First Female Electrician, (2010) Produced by Karen Neksa Iguchi on behalf of United Nations Television." (2) "For Week 7 [ICTs and Development]: Anita Gurumurthy, "Promoting gender equality? Some development-related uses of ICTs by women," Development in Practice 16:6 (Nov 2006), pp 611–616."
		1.1.3. Under "Other Resources": "Swasti Mitter and Celia Ng, eds. Gender and the Digital Economy: Perspectives from the Developing World (Sage 2005)."

Table 4 (continued). Intersections of Health-Gender and Health-Sexual
Orientation in LIS Courses.

Sr. No.	Course Title and University	Select Example Specifics from Course Syllabi
1.2	LIS 2585: Health Consumer Resources and Services, University of Pittsburgh–Pittsburgh	*1.2.1. In the "Course Introduction" and "Thematic Option" descriptions:* "Among the "special populations" whose health-related information needs will be discussed . . . are gay/lesbian/bisexual people, the homeless, those with mental illnesses, pet owners, the poor, prisoners, refugees, teens, women, and men."
		1.2.2. Title of specific sessions: "Session 13 Gender Issues in CHI Materials and Services: Services and Materials for Women; the Men's Health Movement."
		1.2.3. General directions for writing assignments [Language Courtesy]: "Inclusive language: Gender-inclusive language is required in all course work. The use of respectful language in any situation is not a matter of political correctness but one of simple courtesy."
		1.2.4. Inclusion in specific assignment description [Review Exercise 3]: "Choose a magazine or newsletter that is consumer health-oriented . . . read at least a year's worth of it, and write an evaluative review for your colleagues . . ." List of magazines included: "American health for women, A Friend indeed: for women in the prime of life, Harvard women's health watch, Mayo Clinic women's health, etc."
1.3	LS 556: Bibliography of the Sciences, Clarion University of Pennsylvania–Clarion	*1.3.1. Under "General Texts":* "Women and science: an annotated bibliography / Marilyn Bailey Ogilvie with Kerry Lynne Meek. Z7963.S3 O35 1996."
1.4	INF 382K: Information Resources in the Health Sciences, University of Texas-Austin	*1.4.1. Description of specific sessions:* "February 8: Read Kane, pages 27–51 on diabetes, HIV/AIDS, and women's health."
2.	Sexual Orientation in Health Course Syllabi	
2.1	LIS 2585: Health Consumer Resources and Services, University of Pittsburgh–Pittsburgh	*2.1.1. In the "Course Introduction" and "Thematic Option" descriptions:* "Among the "special populations" whose health-related information needs will be discussed . . . are gay/lesbian/bisexual people, the homeless, those with mental illnesses, pet owners, the poor, prisoners, refugees, teens, women, and men."
		2.1.2. Title of specific sessions: "Session 14 Minority Issues in CHI Materials and Services: Gay/Lesbian/Bisexual Materials and Services; Services and Materials for Refugees."
3.	Health in Gender Course Syllabi	
3.1	INF 386G Gender, Technology, and Information: University of Texas–Austin	*3.1.1. Health-related reading included in a list of "References":* "Taylor, George H. (2001). Improvement in medical rubbing apparatus. In Carroll Pursell (Ed.), American technology (pp. 131–133). Oxford, UK: Blackwell. (Original work published 1876)."
4.	Health in Sexual Orientation Course Syllabi: None.	

of such an intersection was represented in the syllabus of "LIS 2585: Health Consumer Resources and Services," a course offered at the University of Pittsburgh, where the following introductory course description included vocabularies reflecting health-gender and health-sexual orientation topics: "Among the "special populations" whose health-related information needs will be discussed are persons living with AIDS/HIV disease, children, those with chronic diseases, persons of color, the disabled, the dying, the elderly, those of limited literacy, gay/lesbian/bisexual people, the homeless, those with mental illnesses, pet owners, the poor, prisoners, refugees, teens, women, and men. The role of their family, friend, or neighborhood caregivers as information seekers will also be discussed." Another strategy adopted in this course to represent health-gender and health-sexual orientation topics was under the following "Thematic Option" description for completing the course exercises: "IF you choose this option, you may focus ALL your written work for this class on a particular special population—i.e., persons living with AIDS/HIV disease, children, those with chronic diseases, persons of color, the disabled, the dying, the elderly, gay/lesbian/bisexual people, the homeless, those of limited literacy, those with mental illnesses, pet owners, the poor, prisoners, refugees, teens, women, men, or any other population that you would like to investigate." Such an option provided flexibility to individual students to tailor the course content and include health-gender and/or health-sexual orientation topics in the context of their own uniquely selected population and areas of interest. This course also went further to create inclusive titles of specific sessions covered during the semester to reflect health-gender and/or health-sexual orientation topics, as seen in the following examples: "Session 13: Gender Issues in CHI Materials and Services: Services and Materials for Women; the Men's Health Movement" and "Session 14: Minority Issues in CHI Materials

and Services: Gay/Lesbian/Bisexual Materials and Services; Services and Materials for Refugees."

The following example of the description of a specific subtopic under a particular date in the calendar included in the syllabus of the University of Texas-Austin's "INF 382K: Information Resources in the Health Sciences" course provided language reflecting a health-gender intersection: "February 8—Read Kane, pages 27–51 on diabetes, HIV/AIDS, and women's health."

Both the "SI 657/757: Information Technology and Global Development" course offered at the University of Michigan–Ann Arbor, and the "LIS 2585: Health Consumer Resources and Services" course offered at the University of Pittsburgh, had language reflecting health-gender intersections in their assignment description. The first course included the following select description of the "Integrative Information Assessment and Design Project: (40%)" for master's students that served as a writing guideline to follow in a specific assignment: "Working in groups of 3–4, students will be required to produce a 12–15 page (single-spaced) project proposal that: a) identifies a clearly-defined development problem, barrier, or challenge; and b) proposes an innovative programmatic, institutional, or design intervention that shows reasonable promise of addressing or improving the problem identified. Your proposal must include . . . a clear impacts statement that describes the specific impacts your project will have, including poverty impacts, inequality, gender, etc." The second course, on the other hand, included the following select description entitled "A note on Language Courtesy" that served as a general assignment guideline to follow in all course writings: "Inclusive language: Gender-inclusive language is required in all course work. The use of respectful language in any situation is not a matter of political correctness but one of simple courtesy."

Representation of readings, resources, literature, and other materials reflecting

health-gender/sexual orientation intersections were seen in three courses. The University of Michigan–Ann Arbor offered the "SI 657/757: Information Technology and Global Development" course that included such information in materials for a specific week as: "Week 7—ICTs and Development: Projects and Programs (Mar. 8th) . . . Anita Gurumurthy, "Promoting gender equality? Some development-related uses of ICTs by women," Development in Practice 16:6 (Nov. 2006), pp 611–616." This course also included such information under "Other Resources" to be used throughout the semester: "Beyond the materials dealt with in class, there is a (huge!) variety of books, journals, blogs, lists, websites, and other online and offline resources featuring material highly interesting, relevant and useful to the themes of the course. We'll create a more active list of these (to which you'll be encouraged to contribute) on the wiki section of the course Ctools site. But here's a good starting point . . ." and included the following reading: "Swasti Mitter and Celia Ng, eds. Gender and the Digital Economy: Perspectives from the Developing World (Sage 2005)." The Clarion University in Pennsylvania offered the "LS 556: Bibliography of the Sciences" course that included "Women and science: an annotated bibliography/Marilyn Bailey Ogilvie with Kerry Lynne Meek. Z7963.S3 O35 1996" as a representation of a resource reflecting a health-gender intersection under the heading "General texts" and "Specific audiences." The University of Texas-Austin offered the gender-specific "INF 386G Gender, Technology, and Information" course that included "Taylor, George H. (2001). Improvement in medical rubbing apparatus. In Carroll Pursell (Ed.), American technology (pp. 131-133). Oxford, UK: Blackwell. (Original work published 1876) CD" in a reference list.

Conclusion

There is a limited representation of

health-gender/sexual orientation intersections in the existing LIS courses and faculty need to extend their courses to address these important topic areas that are currently not getting addressed in the LIS curricula in Canada and the United States. Yet, efforts of select LIS programs/instructors to include health-gender and/or health-sexual orientation topics in their course syllabi need to be commended. Strategies included content integration of health-gender and/or health-sexual orientation vocabularies in: (1) Introductory course description; (2) General guidelines for writing all assignments; (3) Specific guidelines for completing a particular assignment; (4) Alternate option description for fulfilling course expectations; (5) Title and description of a specific session; (6) Materials/readings assigned for a specific week; (7) Required course text; (8) Reference list; (9) Other course resources. Based on the preference of individual instructors, such strategies can be included selectively in all courses since any aspect of information-related work has a conceptual and/or thematic potential to make connections with health, gender, and sexual orientation concerns and intersections. Additionally, the authors suggest as part of a "must do" list for instructors to include health-gender and/or health-sexual orientation content in courses that focus specifically on any one of these areas. Similar practices may also apply to represent diversity information concerning health issues related to disability, aging, or other populations who have special health needs and are discriminated against.

As reflected in the data collected during this research, current efforts, although well-intentioned, are ad hoc, isolated, and fragmented and there is a need for a strategic plan to develop more comprehensive and systematic development of health gender and health-sexual orientation intersections. Examples from limited number of course syllabi do show a range of strategies that various instructors in different LIS programs have adopted to include vocabularies reflecting health-gender/

sexual orientation intersections in their courses. There is potential to include such language and content across the syllabi in other syllabi components where such descriptions have been missing (e.g., course objectives). They need to be integrated across the LIS curriculum more systematically and in an encompassing manner instead of the limited ways that we have seen in a few courses. Moreover, the lack

of such language in the bibliographic descriptions of the LIS courses online can be perceived as a callous disregard and low prioritization of these topics and concerns. A valid question that arises based on this trend is whether such a gap is intentional and if there is a need to change the existing representations to reflect the importance of these intersections in the future. Only follow-up feedback from LIS faculty, in-
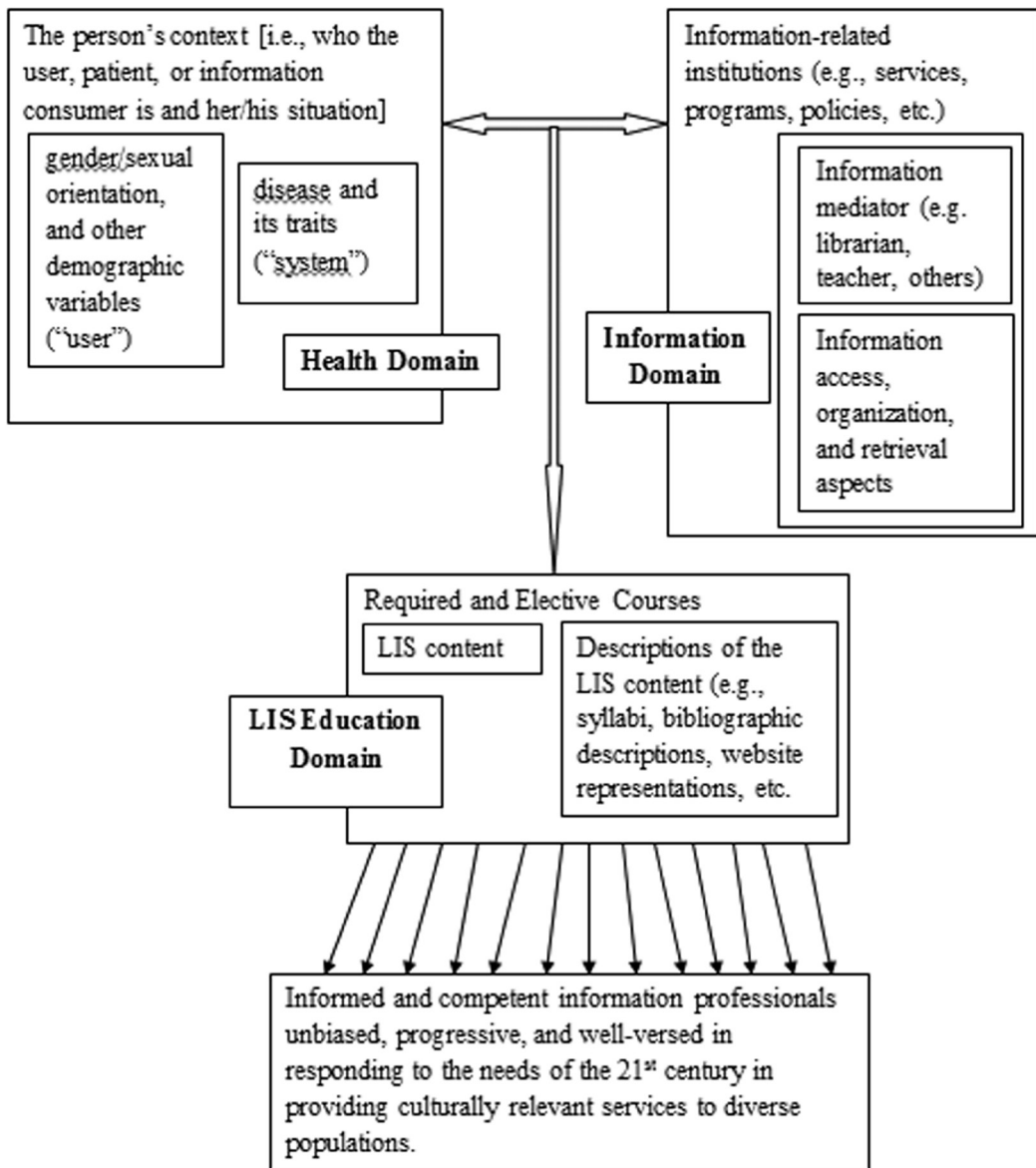

Figure 1. A conceptual representation of the health infoscape of LIS courses that the information professional of the 21st century should be aware of.

structors, and administrators can help clarify answers and directions in this regard.

A review of the background literature discussed earlier is mapped in Figure 1 that represents a conceptual understanding of the infoscape discussed in this article. In the context of this article's content the informational landscape comprises of the health domain and the information domain and their intersections that should be holistically delivered via the LIS education domain. The goal is to educate progressively trained professionals who are responsive to the contemporary demands and expectations of the 21st century with its increased awareness of intercultural and international intersections and a respect for diversity and marginalized populations in a globally networked information society.

The health domain includes representing the entirety of the human condition and the person's context. This means providing relevant medical/health information services will require an understanding of who is the user, patient, or information consumer, and, what are her/his socio-cultural, socio-economic, and other aspects of experience. Demographic characteristics (e.g., gender, sexual orientation, age, race, ethnicity, income, education, etc.) as they shape the reality of the patient or health information user are as important

as the "system-centric" traits such as various aspects about the disease (e.g., symptoms, medications, etc.) that have been considered more important by the health professional (and consequently the health information provider) in the past. The information domain includes information-related institutions comprising of the information mediator and the information access, organization, and retrieval systems that are getting used. The interactions between these contributes to an awareness of the health infoscape that is provided by LIS education to train an informed, competent, skilled, and knowledgeable generation of professionals to meet the needs, expectations, demands, and urgencies in the 21st century. In addition to the instructor-student-information literacy dynamics, an important component in the LIS education domain is the creation of authoritative, current, complete, accurate, unbiased, and culturally appropriate content in its required and elective courses as well as their public web-based representations. There is a tremendous responsibility of LIS educators to insure their development and delivery in providing culturally relevant information services to diverse populations in order to send progressive and positive signals that are welcoming to all and hostile to none.

Appendices

Appendix 1. Titles of LIS Health-Related Courses in Canada and the United States.

Course Title	Name of University
LS 534: Medical Librarianship	University of Alabama-Tuscaloosa
IST 647: Health Sciences Information and Communications Systems	University at Albany, State University of New York
LIS 520: An Introduction to Health Sciences Librarianship	University of Alberta-Edmonton
LIS 598: Special Topics (Consumer Health Resources and Services)	University of Alberta-Edmonton
IRLS 533: Medical Online Searching	University of Arizona-Tucson
IRLS 556: Health Information in Ethnic Cultural Communities and Environments	University of Arizona-Tucson

Appendix 1 (continued). Titles of LIS Health-Related Courses in Canada and the United States.

Course Title	Name of University
IRLS 565: Health Sciences Library Administration and Practice	University of Arizona-Tucson
IRLS 624: Health and Medical Informatics	University of Arizona-Tucson
IRLS 634: Data Management and Healthcare	University of Arizona-Tucson
IRLS 646: Managing Healthcare Information	University of Arizona-Tucson
IRLS 662: Issues in Health Information	University of Arizona-Tucson
LIBR 514E: Taxonomies: Research and Evaluation	University of British Columbia-Vancouver
LIBR 534: Health Information Sources and Services	University of British Columbia-Vancouver
LIBR 553: Understanding Information Users in Diverse Environments	University of British Columbia-Vancouver
M253. Medical Knowledge Representation	University of California-Los Angeles
M254. Medical Information Infrastructures and Internet Technologies	University of California-Los Angeles
M255. Medical Decision Making	University of California-Los Angeles
457. Health Sciences Librarianship	University of California-Los Angeles
LSC 524: Information Analysis and Communication	Catholic University of America-Washington, DC
LSC 638: Science and Technology Information	Catholic University of America-Washington, DC
LSC 838: Health Sciences Literature	Catholic University of America-Washington, DC
LSC 871: Health Informatics	Catholic University of America-Washington, DC
LS 556: Bibliog of The Sciences	Clarion University of Pennsylvania-Clarion
INFO 6682: Information Seeking Behaviour	Dalhousie University-Halifax
INFO 6750: Health Sciences Literature and Information Sources	Dalhousie University-Halifax
LIS 780: Health Science Librarianship	Dominican University-River Forest
LIS 781: Reference Sources in Health Sciences	Dominican University-River Forest
LIS 782: Seminar in Health Sciences	Dominican University-River Forest
LIS 802: Seminars	Dominican University-River Forest
INFO 634: Data Mining	Drexel University-Philadelphia
INFO 648: Healthcare Informatics	Drexel University-Philadelphia
INFO 675: Resources in the Health Sciences	Drexel University-Philadelphia
INFO 731: Organization & Social Issues in Healthcare Informatics	Drexel University-Philadelphia
INFO 732: Healthcare Informatics: Planning & Evaluation	Drexel University-Philadelphia
LIS 5916: Health Informatics	Florida State University-Tallahassee
LIS 693b: Information Resources in the Health Sciences	University of Hawaii-Manoa
LIS 660: Information Sources & Systems in Science	University of Hawaii-Manoa
LIS530B: Health Sciences Information Services and Resources	University of Illinois-Urbana-Champaign

Appendix 1 (continued). Titles of LIS Health-Related Courses in Canada and the United States.

Course Title	Name of University
LIS590DM: Document Modeling	University of Illinois-Urbana-Champaign
LIS590HI: Healthcare Infrastructure	University of Illinois-Urbana-Champaign
LIS590ON: Ontologies in Natural Science	University of Illinois-Urbana-Champaign
LIS590SR: Ref Sources for Rare Books	University of Illinois-Urbana-Champaign
ILLINOIS LIS590TR: Information Transfer and Collaboration in Science	University of Illinois-Urbana-Champaign
LIS590X19: Building Literate Communities	University of Illinois-Urbana-Champaign
LIS590X21: Information Resources, Services and Technology in the Aging World	University of Illinois-Urbana-Champaign
021:275 Health Informatics I	University of Iowa-Iowa City
021:280 Health Informatics II	University of Iowa-Iowa City
LIS 60620: Health Information Resources	Kent State University-Kent
LIS 80620: Health Information Resources	Kent State University-Kent
IS 539: Health Informatics	University of Kentucky-Lexington
LIS 639: Introduction to Medical Informatics	University of Kentucky-Lexington
LIS 640: Health Information Resource Services	University of Kentucky-Lexington
LIS 607: Health Science Sources	Long Island University-New York
LIS 749: Health Sciences Libraries	Long Island University-New York
LIS 765: Knowledge Representation	Long Island University-New York
LIS 7202: Resources for Science and Technology	Louisiana State University
LIS 7404: Health Sciences Information Centers	Louisiana State University-Baton Rouge
LBSC 762: Information Access in the Health Sciences	University of Maryland-College Park
GLIS 671: Health Sciences Information	McGill University-Montreal
SI 525: Empirical Methods for Health Informatics	University of Michigan-Ann Arbor
SI 542: Introduction to Health Informatics	University of Michigan-Ann Arbor
SI 551: Information Seeking Behavior	University of Michigan-Ann Arbor
SI 562: Microeconomics for Information Professionals	University of Michigan-Ann Arbor
SI 626: Management of Nonprofit Libraries and Information Services	University of Michigan-Ann Arbor
SI 627: Managing the IT Org	University of Michigan-Ann Arbor
SI 642: Advanced Topics in Health Informatics	University of Michigan-Ann Arbor
SI 653: Evidence-Based Health Information Practice	University of Michigan-Ann Arbor
SI 654: Critical Policy Issues in Health IT	University of Michigan-Ann Arbor
SI 657: Information Technology and International Development	University of Michigan-Ann Arbor
SI 686: User-Generated Content	University of Michigan-Ann Arbor
SI 742: Current Concepts and Case Studies in Health Informatics	University of Michigan-Ann Arbor

Appendix 1 (continued). Titles of LIS Health-Related Courses
in Canada and the United States.

Course Title	Name of University
SI 757: Information Technology and International Development	University of Michigan-Ann Arbor
SI 786: User-Generated Content	University of Michigan-Ann Arbor
SI 546: Personal Privacy: Policy, Practice and Technology Issues	University of Michigan-Ann Arbor
SI 643: Professional Practice in Libraries and Information Centers	University of Michigan-Ann Arbor
SI 721: Data Mining: Methods and Applications	University of Michigan-Ann Arbor
LIS 534: Resources and Services for Children	State University of New York-Buffalo
LIS 535: Resources and Services for Young Adults	State University of New York-Buffalo
LIS 586: Health Science Librarianship	State University of New York-Buffalo
INLS 515: Consumer Health Information	University of North Carolina-Chapel Hill
INLS 705: Health Sciences Information	University of North Carolina-Chapel Hill
INLS 706: Biomedical Informatics Research Review	University of North Carolina-Chapel Hill
INLS 748: Health Sciences Environment	University of North Carolina-Chapel Hill
LSIS 5245: Health Sciences Resources and Services	North Carolina Central University-Durham
LIS 5133: Biomedical Biblio & Reference	University of Oklahoma-Norman
LIS 5163: Biomedical Databases	University of Oklahoma-Norman
LIS 2581: Collections and Resources in Healthcare Environments	University of Pittsburgh-Pittsburgh
LIS 2585: Health Consumer Resources and Services	University of Pittsburgh-Pittsburgh
LIS 2586: Health Sciences Resources and Services	University of Pittsburgh-Pittsburgh
LIS 2587: Applications in Healthcare Informatics	University of Pittsburgh-Pittsburgh
LIS 2781: Libraries in Healthcare Environments	University of Pittsburgh-Pittsburgh
LIS 2881: Reference Service and Instruction in Healthcare Environments	University of Pittsburgh-Pittsburgh
LIS 2910: CAS Individual Research	University of Pittsburgh-Pittsburgh
LIS 2935: Field Experience Health Resources & Services Specialization	University of Pittsburgh-Pittsburgh
LIS 2970: Special Topics in Library in Library and Information Science	University of Pittsburgh-Pittsburgh
LIS 614: Health Sciences: Services and Sources	Pratt Institute-New York
LIS 624: Online Databases: Health Sciences	Pratt Institute-New York
LIS 685: Medical Librarianship	Pratt Institute-New York
LBSCI 784: Health Sciences Librarianship	Queens College, City University of New York
523: Special Library Service	University of Rhode Island-Kingston
537: Health Sciences Librarianship	University of Rhode Island-Kingston
17:610:545: Information Resources in the Health Sciences	Rutgers University-New Brunswick
17:610:542: Information Resources in Science and Technology	Rutgers University-New Brunswick
LIS 434: Medical Librarianship	Simmons College-Boston

Appendix 1 (continued). Titles of LIS Health-Related Courses
in Canada and the United States.

Course Title	Name of University
SLIS 727: Health Sciences Library Services	University of South Carolina-Columbia
SLIS 743: Health Information Retrieval in Electronic Environments	University of South Carolina-Columbia
SLIS 749: Health Sciences Information Resources	University of South Carolina-Columbia
SLIS 758: Consumer Health Resources and Information Services	University of South Carolina-Columbia
LIS 6475: Health Sciences Librarianship	University of South Florida-Tampa
ILS 619: Medical Bibliography and Libraries	Southern Connecticut State University-New Haven
LIS 7800: Health Sciences Librarianship	St. Catherine University-St. Paul
LIS 7810: Reference Sources in Health Science	St. Catherine University-St. Paul
256: Medical Information & Librarianship	St. John's University-New York
IST 609: Biomedical Information Services and Sources	Syracuse University-Syracuse
INF 382K: Information Resources in the Health Sciences	University of Texas-Austin
INF 383E: Interpreting Implicit Information on the Web	University of Texas-Austin
INF 385N: Informatics	University of Texas-Austin
INF 385V: Health Informatics	University of Texas-Austin
LS 5253: Electronic Information Resources in the Health Sciences	Texas Woman's University-Denton
LS 5363: Health Sciences Information Services	Texas Woman's University-Denton
LS 5473: Health Reference Information Sources and Services	Texas Woman's University-Denton
LS 5483: Consumer Health Information Resources	Texas Woman's University-Denton
LS 5463: Medical Specialties and Specialized Information Resources	Texas Woman's University-Denton
INF2135H: Health Sciences Information Resources	University of Toronto-Toronto
INF2183H: Knowledge Management and Systems	University of Toronto-Toronto
INF2199H: Selected Topics in Health Informatics	University of Toronto-Toronto
MHI2001H: Health Informatics I	University of Toronto-Toronto
MHI2002H: Health Informatics II	University of Toronto-Toronto
INF2186H: Metadata Schemas and Applications	University of Toronto-Toronto
INF3001H: Research in Information: Foundations	University of Toronto-Toronto
MLIS 7111: Info Retrieval in Sci, Tech, and Med	Valdosta State University-Valdosta
MLIS 7170: Health Sciences Librarianship	Valdosta State University-Valdosta
LIS 528: Health Sciences Information Needs, Resources, and Environment	University of Washington-Seattle
LIS 7610: Health Sciences Information Services and Resources	Wayne State University-Detroit
Lies 7620: Intro to Health Inform. and E-Science	Wayne State University-Detroit

Appendix 1 (continued). Titles of LIS Health-Related Courses in Canada and the United States.

Course Title	Name of University
LIS 7650: Practicum: Health Science	Wayne State University-Detroit
LIS 9319: Information Sources and Services in Science, Technology and Medicine	University of Western Ontario-London
LIS 9320: Consumer Health Information Sources and Services	University of Western Ontario-London
LIS 9322: Evidence-Based Health Care for Info Pr.	University of Western Ontario-London
LIS 9501: Human Resource Management	University of Western Ontario-London
LIS 9650: Management of Special Libraries and Information Services	University of Western Ontario-London
LIS 9350: An Introduction to Information Behaviour	University of Western Ontario-London
LIS 517: Consumer Health Info: Resources, Users	University of Wisconsin-Madison
LIS 617: Health Info Systems	University of Wisconsin-Madison
835: Info Sources and Services in Health Sci	University of Wisconsin-Madison

Appendix 2. Titles of LIS Gender-Related Courses in Canada and the United States.

Course Title	Name of University
LIBR 548F: History of the Book	University of British Columbia-Vancouver
LIBR 559B Topics In Computer-Based Information Systems: New Media for Children and Young Adults	University of British Columbia-Vancouver
LSC 636: Social Science Information	Catholic University of America-Washington, DC
LS 540 Multic Src & Serv Ed & Libr	Clarion University of Pennsylvania-Clarion
LIS 590X34 Female Historical Narratives	University of Illinois-Urbana-Champaign
LIS390RGI Race, Gender, and Info Tech	University of Illinois-Urbana-Champaign
LIS527 Literacy, Reading, and Readers	University of Illinois-Urbana-Champaign
LIS590RGS Race Gender Sexuality in the Info Professions	University of Illinois-Urbana-Champaign
LIS590X14 Feminism, Librarianship, and Information	University of Illinois-Urbana-Champaign
LIS590X16 Children's Literature Goes to the Movies	University of Illinois-Urbana-Champaign
LIS590X45 Gender and Culture in Children's Picture Books	University of Illinois-Urbana-Champaign
021:232 Race, Gender & Technology	University of Iowa-Iowa City
021:256 History of Readers and Reading	University of Iowa-Iowa City
624 Media for Children and Young Adults	University of Michigan-Ann Arbor
LIS 2544 Social Sciences Resources and Services	University of Pittsburgh-Pittsburgh
17:610:548 Materials for Young Adults	Rutgers University-New Brunswick
17:610:571 Leadership in Theory and Practice	Rutgers University-New Brunswick
LIS 530J - Information Services for Diverse Users	Simmons College-Boston
IS 575 Valuing Diversity: International and Intercultural Resources for Youth	University of Tennessee-Knoxville

Appendix 2 (continued). Titles of LIS Gender-Related Courses
in Canada and the United States.

Course Title	Name of University
INF 304D - Introduction to Information Studies	University of Texas-Austin
INF 386G—Gender, Technology, and Information	University of Texas-Austin
INF2196H Special Topics in Information Studies: New Media and Information Practices of the Young	University of Toronto-Toronto
INF2331H The Future of the Book	University of Toronto-Toronto
MSL1300H Contemporary Theories of Art and Culture	University of Toronto-Toronto
INF2198H Critical Histories of Information Technologies	University of Toronto-Toronto
INF2242H Studying Information and Knowledge Practices	University of Toronto-Toronto
LIS 9351 Library and Information Services for a Diverse Society	University of Western Ontario-London
LIS 9361 Children's Materials (Birth–7 years): Evaluation and Use	University of Western Ontario-London
LIS 9380 Genres of Fiction, the Reader and the Public Library	University of Western Ontario-London
LIS 9381 Literary Appreciation	University of Western Ontario-London

Appendix 3. Titles of LIS Sexual Orientation-Related Courses
in Canada and the United States.

Course Title	Name of University
LIBR 531: Client Centred Services for Adults	University of British Columbia-Vancouver
LIBR 563: Information Ethics and Intellectual Freedom	University of British Columbia-Vancouver
LIS590X30 GLBTIQ Resources and Services	University of Illinois-Urbana-Champaign
LIS590X38 GLBTIQ Literature for Young Adults	University of Illinois-Urbana-Champaign
LIS590RGS Race Gender Sexuality in the Info Professions	University of Illinois-Urbana-Champaign
LIS 530J Information Services for Diverse Users	Simmons College-Boston
LIS 9351 Library and Information Services for a Diverse Society	University of Western Ontario-London

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