

# The Current Landscape of the School Librarianship Curricula in USA

**Kwan Yi**

*Department of Curriculum and Instruction, College of Education, Eastern Kentucky University,  
E-mail: Kwan.yi@eku.edu*

**Ralph Turner**

*Department of Curriculum and Instruction, College of Education, Eastern Kentucky University*

The current landscape of the School Librarianship educational programs and curricula of master's degrees in the USA has been explored. The master's programs are currently offered in the following four venues: (1) programs that are American Library Association (ALA) accredited but not American Association of School Librarians (AASL) recognized, i.e., ALA Only; (2) AASL recognized but not ALA accredited, i.e., AASL Only; (3) both ALA accredited and AASL recognized, i.e., Both; and (4) neither recognized nor accredited, i.e., Neither. The objectives of this study are to examine the characteristics of the School Librarianship programs and to investigate and compare the topical coverage of School Librarianship curricula across four different venues. For this study, a total of 1,150 course titles and descriptions of 84 School Librarianship master's degree programs were collected. In the analysis, both manual classification and automated machine classification using Latent Semantic Analysis have been applied to discover the characteristics and the topical coverage of School Librarianship curricula. Some major findings of this study are as follows: First, the similarity of four School Librarianship curricula from four venues in terms of program features is uncovered as: AASL Only—Neither—Both—ALA Only. Second, the most popular topic/class in the coverage of library science courses is the "Services to User populations." Third, in terms of the topical coverage of non-library science courses, the AASL Only encompasses the broadest coverage, which is followed by, in decreasing order of coverage: AASL Only, Neither, and Both. The empirical results provide crucial comparative data for School Librarianship programs contemplating future or current changes in response to changing technological and vocational demands.

**Keywords:** school librarianship, curriculum, latent semantic analysis

## Introduction

With the availability of online resources and the advances in information and communication technology, the professional environment in library science has been greatly changed in the past two decades in the United States, a change that has directly and indirectly impacted School Library Media (SLM) and Library and Information Science (LIS) educational programming. To respond to the change,

the National Board for Professional Teaching Standards (NBPTS) and the American Association of School Librarians (AASL) have revised the guidelines and standards for School Library Media (SLM) specialists (Garry, 2010; Stephens & Franklin, 2009). LIS programs have implemented major curriculum changes (Robbins, 1998), including the launch of iSchools to support an interdisciplinary approach to the field (Wiggins & Sawyer, 2010). These changes may impact most school

library media programs since most American Library Association (ALA)-accredited LIS programs also offer school librarianship programs. In view of these changes a systematic examination of nationwide curricula components is needed.

While a few empirical studies of LIS curriculum in North America have been conducted (Beheshti, 1999; Markey, 2004), a review of the literature reveals that no attempt has been made to systematically analyze curriculum components of school library programs. Such a systematic analysis is needed, however, given the change in school library programs. This study examines the curriculum components of school library programs existing within ALA-accredited programs, AASL-recognized programs, and programs that have neither ALA accreditation nor AASL recognition.

## Review of the Literature

In one of the first attempts to map LIS curricula into subjects, Beheshti (1999) analyzed the titles and descriptions of courses offered by the 44 ALA-accredited Master of Library and Information Science (MLIS) programs and identified 57 major concepts with coverage intensity. The methodology was based on a hierarchical cluster analysis to create clusters of topics. According to this initial analysis, the four most intensive concepts were technology, management, organization of information, and searching and database development. Beheshti concluded that while the traditional LIS concepts were covered, newer concepts, such as database development, mathematical methods, non-print media, human-computer interface, and artificial intelligence, have also been incorporated into LIS curricula. Markey (2004) manually analyzed the LIS curricula of 56 institutional members of the Association for Library and Information Science Education (ALISE). Her study showed that a typical set of core requirements is comprised of five courses:

Organization, Reference, Foundations, and Management, and one course in either Research or Information Technology. She also identified a new trend, the focus on a user-centered approach to information delivery. Hall (2009) manually examined the core curricula of 55 ALA-accredited LIS programs, focusing on the required core courses, and found six main areas of emphasis: Foundations, Organization, Management, Reference, Research Methods, and Information Technology. He concluded that the core curricula have evolved "to meet the changing complexity of the information environment," but some areas such as information literacy and information ethics are not growing quickly enough (p. 66).

In examining the implementation of professional standards into LIS curriculum, various studies have reported contradictory findings. Comparing the LIS core curricula to the subjects listed in the 1976 International Federation of Library (IFLA) standards, Marco's study (1994) reported that no LIS program is required to cover all the basic subjects described in the standards. However, Irwin (2002), using the same IFLA standards, reported a quite different result, finding that the IFLA subjects are covered by LIS core curricula. McKinney's article (2006) examined 56 ALA-accredited LIS curricula against eight ALA core competencies and reported that 95% of the programs have courses that address all the core competencies, but only 15% satisfy all the proposed competencies through required courses.

## Research Questions

In the U.S., each of the school librarianship programs is accredited by the ALA, recognized by the AASL, or is neither ALA-accredited nor AASL-recognized. Thus, for this study, the authors categorized the educational programs of School Librarianship into the following four venues: (1) recognized by the AASL only, (2) accredited by the ALA only, (3) both rec-

ognized by the AASL and accredited by the ALA, (4) neither AASL-recognized nor ALA-accredited. Using these categories, the authors compared master's degree school library curricula. In addition to program types, the authors also compared different course offerings of the school library curricula. The study investigated the existing similarities and discrepancies existing across the different groups of curricula, based on program and course types. The following research questions guided this study:

- RQ1.* How similar/dissimilar are program features across different school library programs?
- RQ2.* How similar/dissimilar is the coverage of library science courses within school library curricula within the same group and across different groups of curricula?
- RQ3.* How similar/dissimilar is the coverage of non-library science courses within school library curricula within the same group and across different groups of curricula?

## **Methodology**

### ***Data Collection***

The authors manually collected a total of 1,150 course titles and descriptions from 84 school librarian master's degree programs from their respective academic websites during the period of January through March 2013. The AASL and ALA websites were reviewed to identify the programs and to record the course titles and descriptions: <http://www.ala.org/aasl/aasleducation/schoollibrary/AASL-Historical> (AASL-Recognized Programs Historical List, 1989–present) and <http://www.ala.org/accreditedprograms/> (ALA Accredited Programs). The 84 programs were mutually exclusively divided into four different groups: 34 programs that are AASL recognized but not ALA accredited

(Group 1: AASL Only); 37 programs that are ALA accredited but not AASL recognized (Group 2: ALA Only); 7 programs that are both AASL recognized and ALA-accredited (Group 3: Both); and 6 programs that are neither AASL recognized nor ALA accredited (Group 4: Neither). Note that this study encompassed only master's degree programs so that non-master's degree or non-degree programs, such as bachelor, certification, or endorsement, were excluded from the study. Overall, most school library programs offer both master's degree as well as non-degree programs, but only master's degree programs were included for this study. However, there are only a small number of institutions offering only non-degree school library programs that are not applicable to this study (e.g., University of Delaware and Missouri State University that offer school library certification programs only).

The lists of included programs examined for Groups 1, 2, and 3 are exhaustive, but the program list examined for Group 4 is not; in fact, a comprehensive list of programs for Group 4 does not seem to exist. Thus, to identify the programs for Group 4, the authors relied on the AASL-Recognized Program Historical List webpage above, which lists master's degree programs that were AASL-recognized in the past but do not presently belong to any other group. In addition, for purposes of comparison, the authors added to Group 4 the school library program at Eastern Kentucky University, which has never been AASL-recognized.

### ***Categorization by Course Types***

Each course in the school library programs is classified into one of two groups: library science courses and non-library science courses. Non-library science courses vary program by program depending on the nature of the particular college and department offering the program. That is, non-library science courses come from

various disciplines, such as education, communication, etc. No matter whether it is a library science or non-library science course, a course is recorded as one of the three different cases: (1) required, (2) required elective, (3) elective.

### ***Manual and Automatic Classification of the School Librarianship Courses***

The Association for Library and Information Science Education (ALISE) has published an LIS research areas classification scheme (available at: <http://www.alise.org/classification-scheme>) covering all LIS areas, including school libraries. Consisting of 10 major classes and 104 subjects, the classification scheme appears to be the only comprehensive map of the LIS field from the LIS community. For that reason, the classification scheme has been adopted as a map to classify all of the school librarianship courses in this study.

The authors were trained with an established coding protocol, by coding, comparing and discussing a random sample set consisting of about 10% of the collected course titles. After the training process, the authors manually classified all the library science courses (excluding non-library science courses) into the classification map on the basis of the titles and descriptions of the courses. A general coding rule is that only one out of the 104 subjects is assigned to each course, which is broad enough to cover all major topics of the target course. The single subject-based classification has the case of exception that two or three subjects can be assigned if the same number of subjects is explicitly specified with equal weight. Another study parameter was that if a course covered a specific topic in school library, then the authors assigned the topic to the course. Using Cohen's kappa for assessing inter-rater agreement for nominal level variables (Cohen, 1960), the authors achieved an inter-coder reliability score of 0.833, indicating more than substantial

agreement between the two coders (Carletta, 1996).

As an extended model of the classic Salton's vector space model (Salton, Wong, & Yang, 1975), Latent Semantic Analysis (LSA), proposed by Deerwester, Dumais, Furnas, Landauer, and Harshman (1990) was employed. This is a theoretical model for representing the contextual meaning of words by statistical computations applied for information clustering (Xu, Liu, & Gong, 2003) and information visualization (Landauer, Laham, & Derr, 2004). A distinctive feature of the LSA model is to identify latent patterns existing in the complex relationships between words and the various contexts, such as the documents in which they are found. LSA begins with the creation of a co-occurrence matrix  $M$ , where the columns represent different contexts and the rows represent different words. An entry  $(i, j)$  in the matrix  $M$  corresponds to the frequency of the word  $i$  appearing in the context  $j$ . The matrix is then analyzed by applying singular value decomposition (SVD) to derive the associated hidden semantic structures from the matrix.

Non-library science courses in the dataset are derived from various fields, such as education and communication. Refer to Appendix A for the list of the unique non-library science course titles. No single scheme was used as a common platform for classifying the non-library science courses. For that reason, manual classification of non-library science courses was not preferable. Instead, the authors attempted to cluster and visualize a collection of the non-library science courses. Due to the popularity and the unique latent feature, the authors intended to use LSA for automatically clustering and visualizing non-library science courses onto a Euclidean space. In implementation, a co-occurrence matrix for non-library science courses was created, wherein a column corresponds to each non-library science course and a row refers to a unique word from the titles and descriptions.

**Results**

The results of the analysis that follow are described according to the research questions.

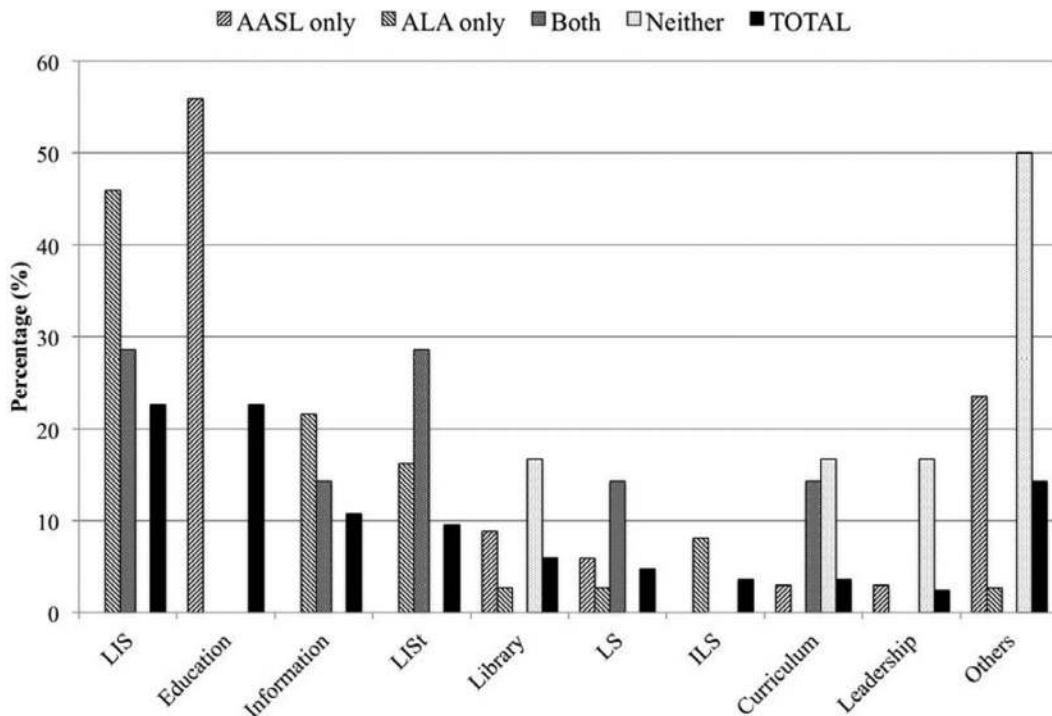
**RQ1. How similar/different are program features across different school library programs?**

To answer RQ1, each of the four school librarianship program groups has been

analyzed and compared for the following four distinct features: (a) names of academic units offering the programs, (b) levels of academic units offering the programs, (c) degree names, and (d) credit hours per program.

**Names of Academic Units**

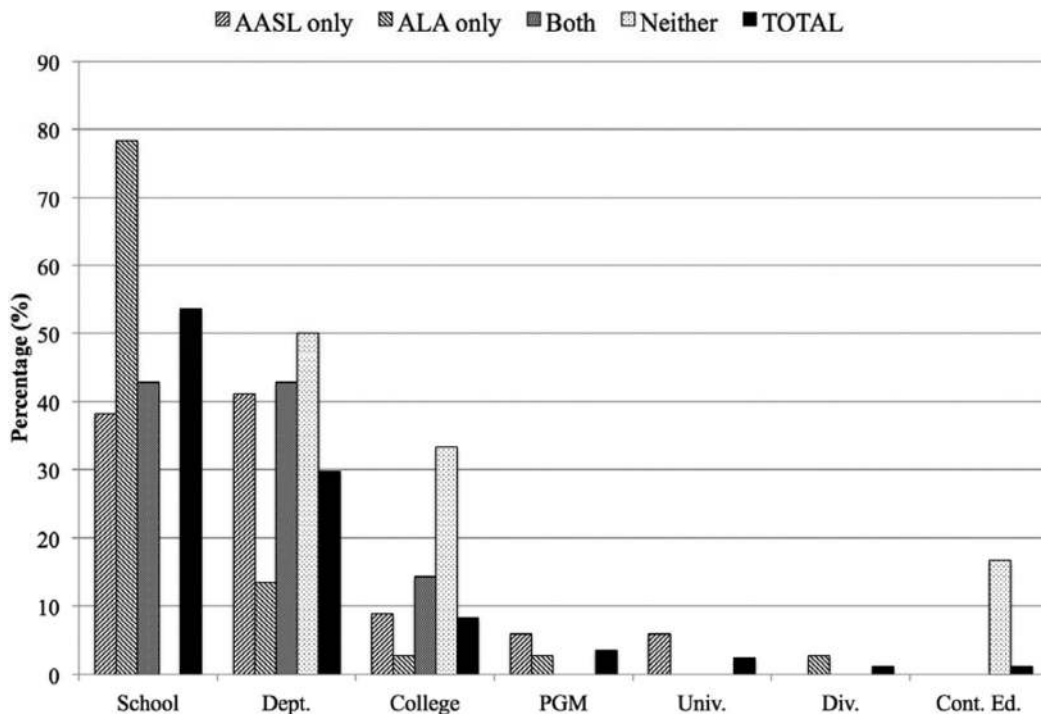
The academic unit shall be defined as the smallest unit in which school library master’s degree programs are offered. Fig-



**KEY:**

- LIS = Library and Information Science or Sciences
- Education = Names beginning with Education or Educational such as “Education,” “Education and Allied Professions,” “Educational Studies,” “Educational Technology,” etc.
- Information = Names beginning with Information such as “Information,” “Information Sciences,” “Information Studies,” etc. except ILS
- LISt = Library and Information Studies
- Library = Names beginning with Library, such as “Library, Information, and Media Studies,” “Library Media,” etc. except LIS, LISt, and LS
- LS = Library Science
- ILS = Information and Library Science
- Curriculum = Names beginning with Curriculum, “Curriculum and Instruction,” and “Curriculum, Leadership, and Technology”
- Leadership = Names beginning with Leadership, “Leadership Studies” and “Leadership and Educational Studies”
- Others = Names bearing words Professional, Special, Graduate, Teacher, Teaching, and not belonging to any other categories

**Figure 1.** Names of Academic Units Offering the School Librarianship Programs.



## KEY:

PGM = Program

Div. = Division

Cont. Ed. = Continuing Education

**Figure 2.** Levels of Academic Units Offering the School Librarianship Programs.

ure 1 demonstrates a bar chart summarizing the percentage of academic units with various names. In compiling the names, words referring to unit levels, such as school, department, college, etc., were excluded.

Of all the 84 programs (i.e., referring to the TOTAL series in Figure 1), nineteen units (22.6%) are named Library and Information Science or Sciences (LIS). The same number of units has names beginning with "Education" or "Educational." Fourteen entities (14.3%) have unique names bearing the words "Graduate," "Special," "Teacher," etc. Examples include [School of] Graduate and Continuing Studies, [Department of] Special Educational Services and Instruction, and [Department of] Teaching, Learning, and Technology.

Within the group of AASL Only, names beginning with "Education" or "Educational" occur at a rate of more than 50 per-

cent. However, in the group of ALA Only, LIS is the most commonly occurring term. Meanwhile, in the Both group (i.e., both in AASL and ALA), LIS and LIS<sub>t</sub> are equally cited as the most frequently used terms. In the Neither group, unlike the other groups, the most frequently cited term occurring is Others, meaning that a single dominant name does not exist for the programs in the group.

### *Levels of Academic Units*

Figure 2 summarizes the levels of the academic units for the school library programs. School and department are the two most popular unit levels in the groups of AASL Only, ALA Only, and Both. Department is the most popular in the AASL Only group, but School is the most popular in the ALA Only group. Unlike the other groups, department and college are the

two most popular in Neither. An interesting fact is that no School occurs in the Neither group. Although it is less prevalent, the programs in Neither are also offered under program, division, or university.

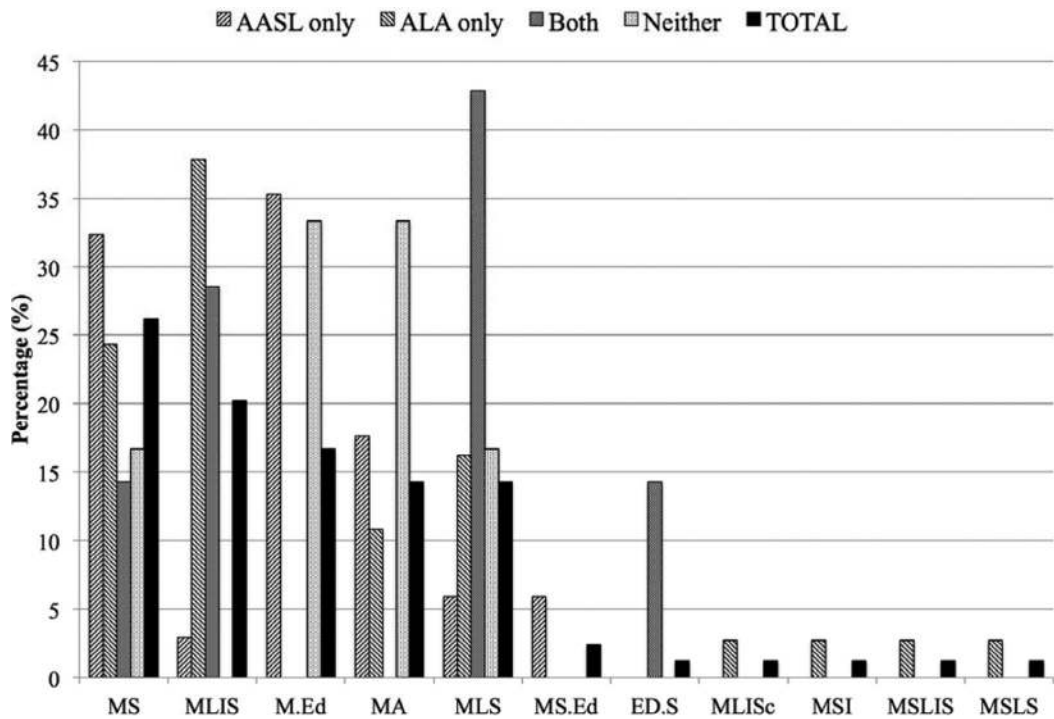
in ALA Only, MLS is in Both, and both M.Ed and MA are equally the most popular in Neither.

**Professional Degrees**

As shown in Figure 3, overall, the frequency of degrees awarded are: MS > MLIS > M.Ed > MA = MLS. The professional degree names vary considerably across different groups: M.Ed is the most frequently offered degree in AASL Only, MLIS is the most frequently offered

**Credit Hours per Program**

Figure 4 plots the credit-hour requirements for program completion for 84 programs. The most popular range of credit hours per program is between 35 and 39 credit hours across all the groups. A total of at least 60 credit hours occur only in the group of ALA Only, due to the fact that the programs are quarter-based, not semester-based. The lowest number of credit hours



- KEY:
- MS = Master of Science
  - MLIS = Master of Library and Information Science
  - M.Ed = Master of Education
  - MA = Master of Arts
  - MLS = Master of Library Science
  - MS.Ed = Master of Science in Education
  - ED.S = Education Specialist
  - MLISc = Master of Library and Information Science
  - MSI = Master of Science in Information
  - MSLIS = Master of Science in Library and Information Science
  - MSLS = Master of Science in Library Science

**Figure 3.** Names of Degrees.

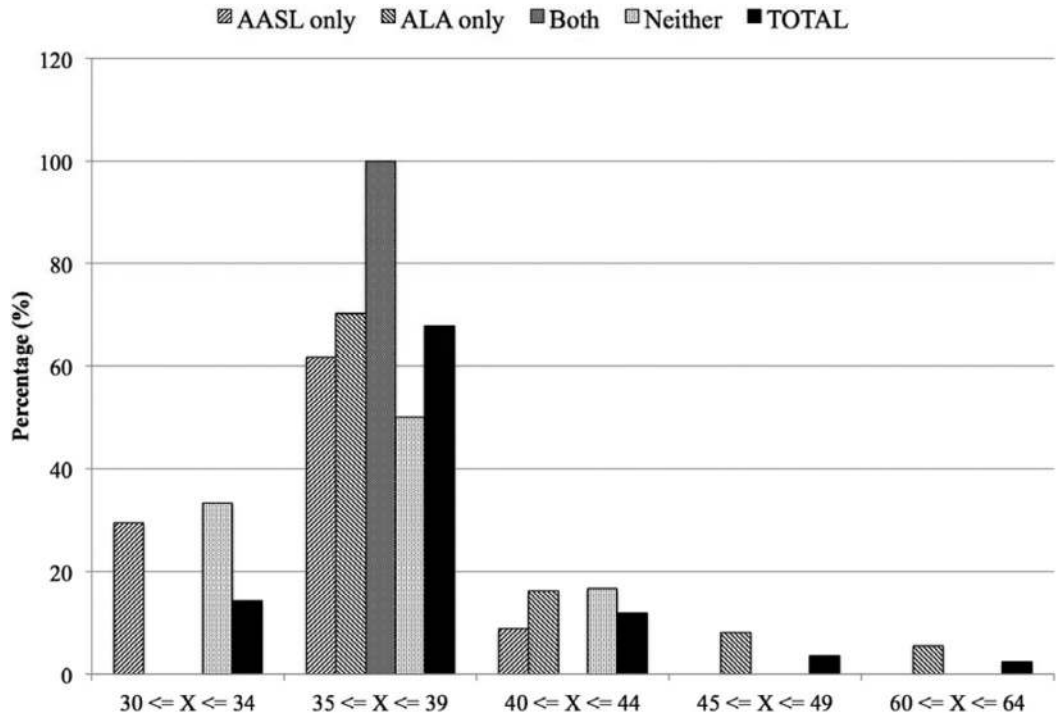


Figure 4. Credit Hours Per Program.

is 30, and the highest number of credit hours is 48 excluding quarter programs or 63 including quarter programs. Also, note that the programs from the ALA Only group require the largest number of credit hours (i.e., 45 ≤ X ≤ 49) and those from both the AASL Only and Neither groups require the smallest number of credit hours (i.e., 30 ≤ X ≤ 34).

**RQ2. How similar/dissimilar is the coverage of library science courses within school library curricula within the same group and across different groups of curricula?**

To answer the question, the authors manually classified the courses using the ALISE classification scheme, a two-level

hierarchical structure of scheme consisting of 10 major classes and 104 sub-classes (i.e., subjects). The 10 major classes are used and shown as X-axis labels in Figure 5 and 6. The manual classification result is presented in two different formats: according to (a) course type (i.e., required, required elective, and elective) and (b) program type (i.e., AASL Only, ALA Only, etc.).

The authors have collected a total of 833 different library science courses offered from the 84 school library programs. Only traditional courses are included in the library science courses, excluding non-traditional such as practicum, internship, field experience, capstone courses, etc. Out of 833, 64 courses are classified with more than one subject (i.e., sub-class).

Table 1. Classification of Library Science Courses by Course Type.

Type of Course	Required	Elective	Required Elective	Grand Total
Frequency (Percentage)	765 (85.0%)	100 (11.1%)	35 (3.9%)	900 (100%)
Frequency per program	9.1	1.2	0.4	10.7

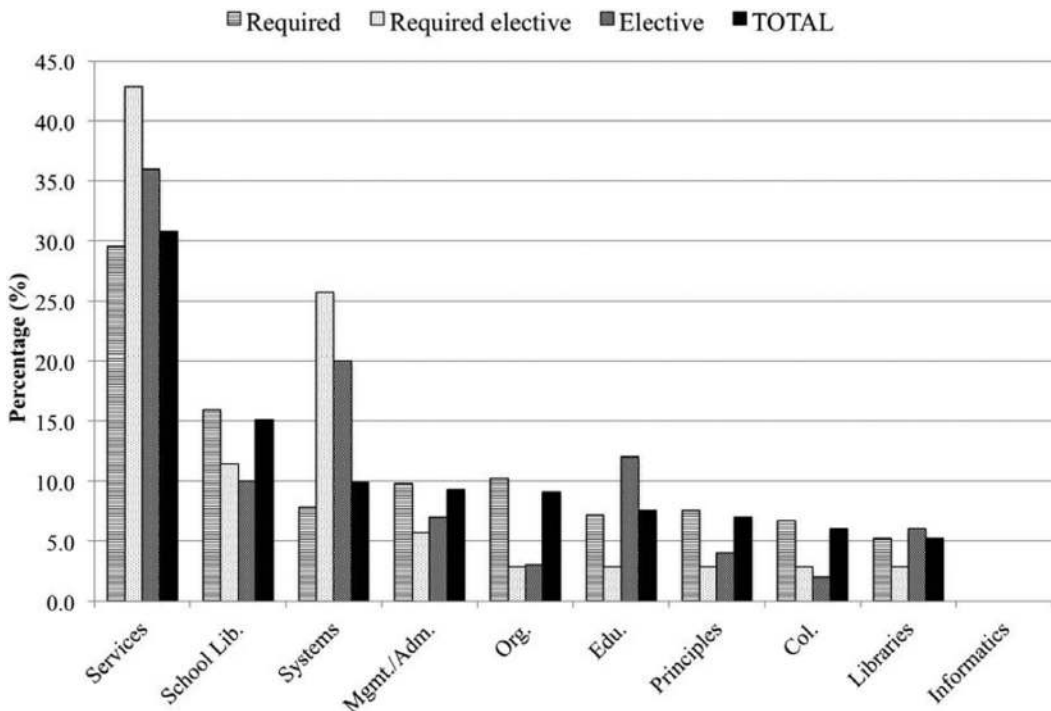


Consequently, we have a total of 900 pairs of course types and categories. Table 1 shows the distribution of the course pairs by course type. A required elective connotes the need for an elective course as part of the required core curriculum. As shown in the table, pairs of required courses take the largest portion (i.e., 85%), followed by pairs of elective courses (11.1%). The last row of the table shows the average frequency per program.

Figure 5 lists the result of the manual classification according to three course types, required, required elective, and elective. The ‘Service to User Populations’ class turns out the most frequently used and the ‘Informatics’ class is the

least frequently used across the three course types. In fact, there is not any single course assigned to the “Informatics” class. In the required courses, the “School Libraries” class is the second most popular class, and the remaining seven classes are of relatively similar popularity. In both the required elective and the elective courses, the second most popular class is “Information Systems and Retrieval.”

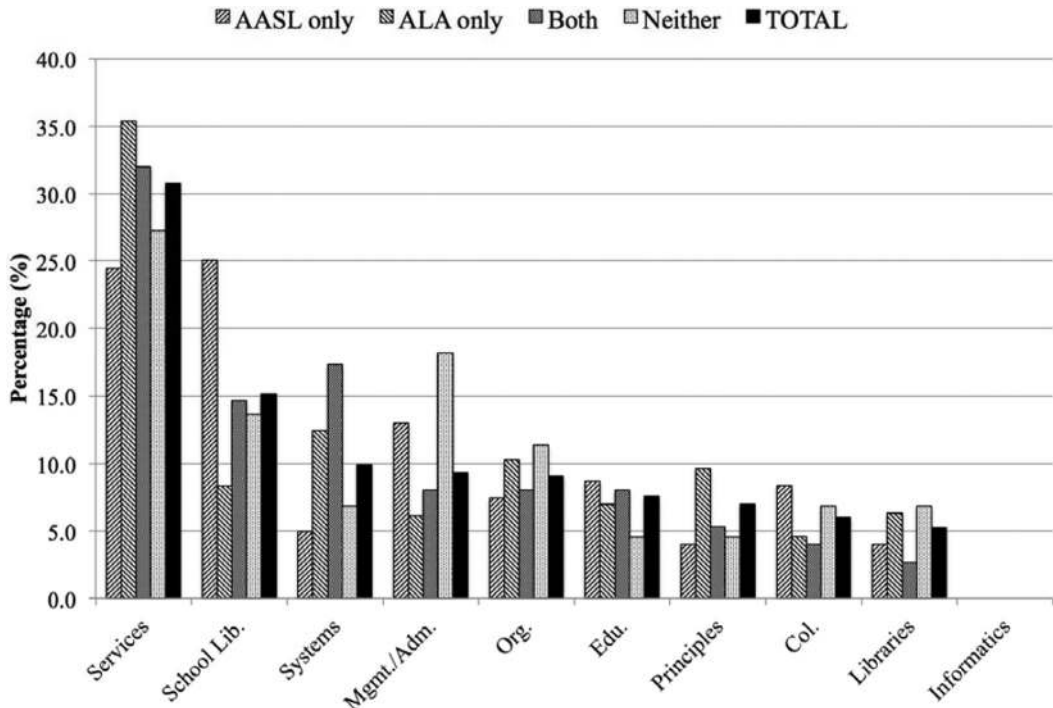
Table 2 shows the resulting distribution of the course pairs by program type. Directly comparing the absolute frequencies among program types is meaningless because a different number of courses were collected from different program types. Instead, the last row of the table indicates



**KEY:**

- Services = Services to User Populations
- School Lib. = School Libraries
- Systems = Information Systems and Retrieval
- Mgmt./Adm. = Management and Administration
- Org. = Organization of Information
- Edu. = LIS Education
- Principles = Development and Principles of LIS
- Col. = Collection Development
- Libraries = Types of Libraries and Information Providers

**Figure 5.** Coverage of Library Science Courses by Course Type.



**KEY:**

- Services = Services to User Populations
- School Lib. = School Libraries
- Systems = Information Systems and Retrieval
- Mgmt./Adm. = Management and Administration
- Org. = Organization of Information
- Edu. = LIS Education
- Principles = Development and Principles of LIS
- Col. = Collection Development
- Libraries = Types of Libraries and Information Providers

**Figure 6.** Coverage of Library Science Courses by Program Type.

the order of the number of library science courses on average for different program types: ALA Only > Both > AASL Only > Neither.

Figure 6 plots the result of the coverage of library science courses by four program types, AASL Only, ALA Only, Both, and Neither. The most commonly frequent class across the program types is the “Services to User Populations” although the

class is the second most popular among AASL Only programs. Nevertheless, the bar chart also illustrates the noticeable characteristics of each program type; in AASL Only, the most frequent class is “School Libraries”; in Both and Neither, the relatively frequent classes are the “Information Systems and Retrieval” and the “Management and Administration” classes, respectively.

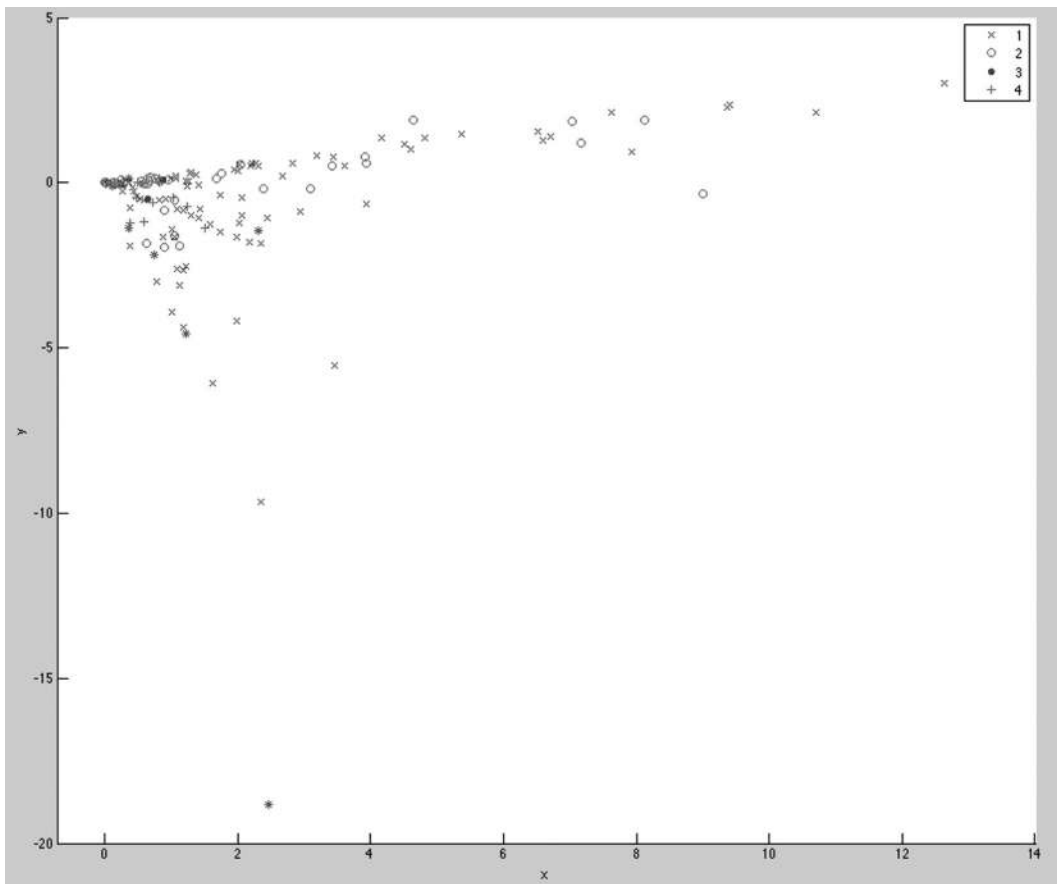
Table 2. Division of Library Science Courses by Program Type.

Type of Program	AASL Only	ALA Only	Both	Neither	Grand Total
Frequency (Percentage)	323 (35.9%)	458 (50.9%)	75 (8.3%)	44 (4.9%)	900 (100%)
Frequency per program	9.5	12.4	10.7	7.3	107

**RQ3. How similar/dissimilar is the coverage of non-library science courses within school library curricula within the same group and across different groups of curricula?**

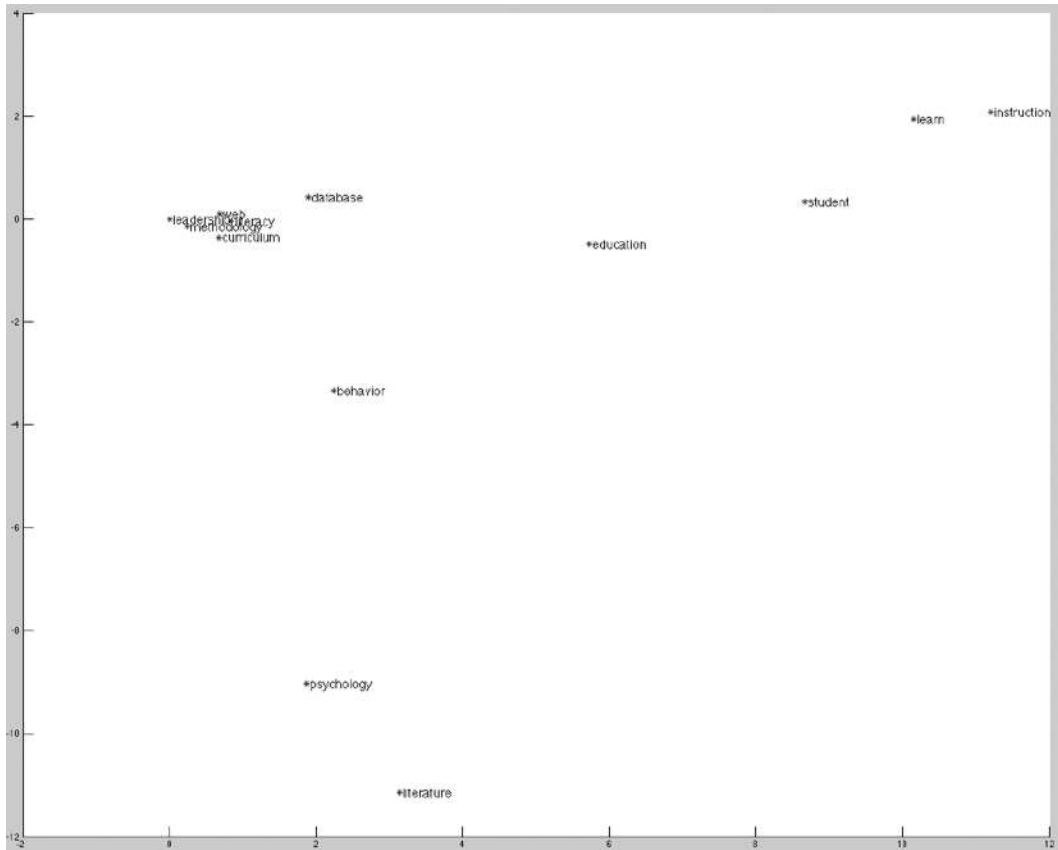
To answer the research question, a total of 165 non-library science courses from the school library programs were manually collected. Non-traditional courses, such as seminar, practicum, projects, etc. were not included to the dataset. The authors divided the collected non-library science courses into different program types: 106 (64.2%) in AASL Only, 36 (21.8%) in ALA Only, 2

(1.2%) in Both, 21 (12.7%) in Neither. To visually examine the coverage of non-library science courses across program types, we plotted non-library science courses on a two-dimensional Euclidean space based on the LSA method, which is shown in Figure 7. As shown in the figure, the coverage of the non-library science courses from the AASL Only program is the largest and broad enough to encompass almost all areas covered by the courses in the other program types. An interesting finding is the rather distinctive coverage between ALA Only and Neither. The ALA Only courses cover the flattened area on the top, whereas the



**KEY:**  
 1: AASL Only  
 2: ALA Only  
 3: Both  
 4: Neither

**Figure 7.** Coverage of Non-Library Science Courses by Program Type.



**Figure 8.** Location of Terms from non-Library Science Courses.

Neither courses tend to congregate at the central area on the top left.

Figure 8 plots some key terms from the titles and descriptions of the non-library science courses at the same Euclidian space that the courses were plotted in Figure 7. Comparing the terms and courses reveals that all program types commonly cover the concepts of leadership, web, literacy, methodology, and curriculum. Concepts of instruction, psychology, and literature are primarily dealt with in AASL Only programs but not in the other types.

The non-library science courses are divided into three course types: 81 (49.1%) required, 40 (24.2%) required elective, and 44 (26.7%) elective courses. Figure 9 plots the three course types of the non-library science courses based on the LSA method. Figure 9 demonstrates that three

course types appear to have their own coverage areas. The three areas have a common zone near the (0, 0) coordinate. Nevertheless, the area for required courses has a tendency of being more centered at (0, 0). However, the areas for required elective and elective courses stretch out farther along the positive x-axis (i.e., for the case of required elective courses) and the negative y-axis (i.e., for the case of elective courses). Figure 8 can be referenced to identify the further extended areas by required elective and elective cases.

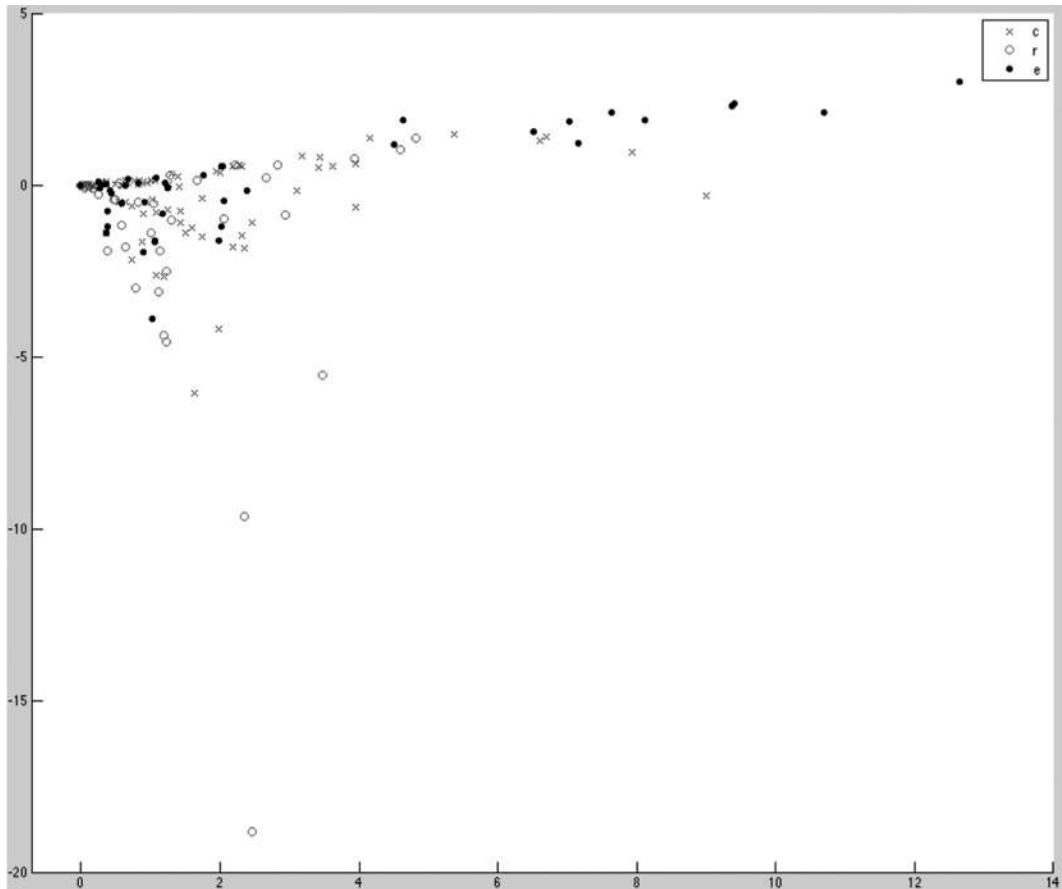
## Discussions and Conclusion

Compared to previous studies of LIS programs, the authors believe that this is the first comprehensive study on the close examination of school librarianship curricula.

In terms of program features, programs between AASL Only and ALA Only turn out to be the most dissimilar. Also, programs in Neither are located between those in AASL Only and Both in program features, and programs in Both are between those in Neither and ALA Only. Thus, the similarity among the programs can be presented as: AASL Only ↔ Neither ↔ Both ↔ ALA Only.

Out of the 84 school library programs, only two are quarter-based programs (both of which fall in the category of ALA Only), and the remaining 82 are semester-based. Thus, in comparing school library vs. LIS programs based on semester

programs only, the range of credit hours requirements in school library programs is larger than the range in LIS programs, i.e., 30 to 48 in school library programs vs. 36 to 48 in LIS programs (Markey, 2004). School library programs in AASL Only are toward lower range of the credit hours, but a similar range of credit hours, especially at the upper range, are currently required at both the school library and LIS programs. A number of recent studies indicate the expanded role and competencies required of school library media specialists (Mardis, 2007; Shannon, 2002, 2008; Tiley & Callison, 2001). In addition, the recent technological and



**KEY:**  
 c: Required courses  
 r: Required elective courses  
 e: Elective courses

**Figure 9.** Coverage of non-Library Science Courses by Course Type.

instructional demands and change have arisen in the school library community. The current circumstances may request offering more credit hours in school library programs than as it is now and/or curriculum revisions accordingly.

In coverage of library science courses, the most popular area is the "Services to User Populations" for all program types, and the most contributing subject within the area "Services to User Populations" is "Children's/YA Literatures" (see Appendix A). The AASL Only programs appear to remain relatively strong in the "School Libraries" area but relatively weak in the "Information Systems and Retrieval" area compared to the other program types. A noticeable characteristic of ALA Only programs can be found in the fact that the ALA Only courses contribute somewhat evenly to all the areas except "Services to User Populations" and "Informatics." Programs in the Both group can be characterized as being relatively strong in the "Information Systems and Retrieval" area. Meanwhile, programs in the Neither group appear to be relatively strong with offerings in "Organization of Information," "Types of Libraries and Information Providers," and particularly "Management and Administration" areas.

The "Services to User Populations" class frequently occurs across all course types. Beyond that, the largest number of required courses comes from the "School Libraries" area, whereas, that of required elective or elective courses are from the "Information Systems and Retrieval" area.

The experimental result of this study identifies the subject areas of school librarianship curricula and clearly demonstrates the distinction between school librarianship and LIS programs—not only in program features but also in course coverage, particularly in the coverage of required courses. The top three primary areas of required courses in LIS programs were reported as Technology, Management, and Organization (Beheshti, 1999), Organization, Reference, and Management

(Markey, 2004), and Foundations, Organization, and Management (Hall, 2009), differing from school library programs, "Services to User Populations," "Information Systems and Retrieval," and "School Libraries."

In coverage of non-library science courses, the AASL Only programs encompass the broadest area. ALA Only provides the second broadest concept space. The area represented by Neither programs falls within the area covered by AASL Only or ALA Only. The region created by Both programs is the smallest and is completely overlapped by those represented in other program types. In summary, the relationship among the areas is: ALA Only ? AASL Only ? Neither ? Both.

The plotted coverage aids in identifying the subject scopes from different course types in the school librarianship curricula. The coverage by required elective courses and the coverage by elective courses can be represented by two oval shapes with some overlap. The coverage by required courses is slightly larger than the overlapping area of the two ovals. The result seems to align with the expectation that elective courses complement the core curricula.

Data in Table 1 indicate that 85% of all school library courses are required courses, which seems to point to a solid common foundation to students; however, it also indicates a lack of student flexibility in selecting courses or subjects. In twenty-first century library education the areas of technology and information literacy are arguably two emerging subjects of importance to students in school library media programs. Some previous studies of LIS programs have pointed to a greater incorporation of technology into curricula (Beheshti, 1999; Hall, 2009; Markey 2004). As shown in Figure 5, the results of this study confirm that technology has become a major subject across all school library programs. Information literacy belongs to the area of "Service to User Populations," the most frequently covered in school library programs. Note that while the im-

portance of information literacy within K-12 curriculum is commonly accepted, information literacy is not a major component in "Service to User Populations." This lack of emphasis seems to suggest a need for great incorporation of information literacy into school librarianship curricula.

Revising or changing curriculum is not an easy process. Nevertheless, the rapidly changing technological and vocational "landscape" requires educational programs to adjust existing curricula to meet new educational and professional needs. This study offers an empirical "snapshot" of current school librarianship programming, program similarities and contrasts, which can provide valuable insights and foundations as school library programs evaluate present and/or future changes or alterations to course offerings and program requirements.

## References

- Beheshti, J. (1999). *Mapping the LIS curriculum*. Paper presented at the 27th Annual Conference of the Canadian Association for Information Science, Sherbrooke, Quebec. Retrieved from [http://www.caais-acsi.ca/proceedings/1999/Beheshti\\_1999.pdf](http://www.caais-acsi.ca/proceedings/1999/Beheshti_1999.pdf)
- Carletta, J. (1996). Assessing agreement on classification tasks: The kappa statistic. *Computational Linguistics*, 22(2), 249–254.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 20(1), 37–46.
- Deerwester, S., Dumais, S. T., Furnas, G. W., Landauer, T. K., & Harshman, R. (1990). Indexing by latent semantic analysis. *Journal of the American Society for Information Science*, 41(6), 391–407.
- Garry, C. P. (2010). The revised National Board Library Media Standards and you. *School Library Monthly*, 27(3), 9–11.
- Hall, R. A. (2009). Exploring the core: An examination of required courses in ALA-accredited. *Education for Information*, 27(1), 57–67.
- Landauer, T. K., Laham, D., & Derr, M. (2004). From paragraph to graph: Latent semantic analysis for information visualization. *Proceedings of the National Academy of Sciences of the United States of America*, 101(Suppl 1), 5214–5219.
- Irwin, R. (2002). Characterizing the core: What catalog descriptions of mandatory courses reveal about LIS schools and librarianship. *Journal of Education for Library and Information Science*, 43(2), 175–184.
- Marco, G. A. (1994). The demise of the American core curriculum. *Libri*, 44(3), 175–189.
- Mardis, M. A. (2007). From one-to-one to one-to-many: A study of the practicum in the transition from teacher to school library media specialist. *Journal of Education for Library and Information Science*, 48(3), 218–235.
- Markey, K. (2004). Current educational trends in the information and library science curriculum. *Journal of Education for Library and Information Science*, 45(4), 317–339.
- McKinney, R. D. (2006). Draft proposed ALA core competencies compared to ALA-accredited, candidate, and precandidate program curricula: A preliminary analysis. *Journal of Education for Library and Information Science*, 47(1), 52–77.
- Robbins, J. B., Roy, L., & Sheldon, B. E. (1998). Curriculum reform in library and information science education. In L. Roy & B. E. Sheldon (Eds.), *Library and Information Studies Education in the United States* (pp. 17–31). Washington, DC: Mansell.
- Salton, G., Wong, A., & Yang, C. S. (1975). A vector space model for automatic indexing. *Communications of the ACM*, 18(11), 613–620.
- Shannon, D. M. (2002). The education and competencies of school library media specialists: A review of the literature. *School Library Media Research*, 5.
- Shannon, D. M. (2008). School library media preparation program review: Perspectives of two stakeholder groups. *Journal of Education for Library and Information Science*, 23–42.
- Stephens, C. G., & Franklin, P. (2009). Managing AASL's new standards for the 21st-century learner. *School Library Monthly*, 26(1), 34–36.
- Tilley, C. L., & Callison, D. (2001). Preparing school Library media specialists for the new century: Results of a survey: KALIPER project: Final report. *Journal of Education for Library and Information Science*, 42(3), 220–227.
- Wiggins, A., Sawyer, S. 2010. Intellectual diversity in iSchools: Past, present and future. Proceedings of the *iConference*, Champaign, IL. Retrieved from <http://www.anikarenina.com/research/WigginsSawyer2010iConference.pdf>
- Xu, W., Liu, X., & Gong, Y. (2003). Document clustering based on non-negative matrix factorization. In J. Callan, A. Smeaton, & D. Hawking. (Eds.), *Proceedings of the 26th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval* (pp. 267–273). New York, NY: ACM.

## Appendix A

### *LIS Research Area Classification Scheme by the Association by Library and Information Science Education\**

<b>Development / Principles of LIS</b>	<b>Organization of Information</b>
History of Information Science	Organization of Information
LIS as a Discipline	Descriptive Cataloguing/AACR
LIS as a Profession	Archival Description/RAD
Philosophy, Values, and Ethics of LIS	Classification and Subject Analysis
Critical Perspectives on LIS	Indexing and Abstracting
Libraries and Society/Culture	Metadata and Semantic Web
Information and Society/Culture	Knowledge/IR Management
Information Policy	Records Management
Political Economy of Information	
Copyright/Intellectual Property	
Books, Printing, Publishing Industry	
Intellectual Freedom and Censorship	
Preservation and Archiving	
<b>LIS Education</b>	<b>Management/Administration</b>
LIS Education and Programs	Administration and Management
LIS Faculty, Students	Personnel
Pedagogy in LIS	Buildings/Facilities
Research Methods	Funding
Distance Education in LIS	Strategic Planning, Marketing, Lobbying
Continuing Education in LIS	Evaluation of Service
International/Comparative Librarianship	
<b>Collection Development</b>	<b>Types of Libraries and Information Providers</b>
Collections Development	Digital/Virtual Libraries
Acquisitions Theory and Practice	Public Libraries
Preservation of Collections	Academic Libraries
Licensing	School Media Centers/Libraries
Archival Collections	Special and Corporate Libraries
Special Collections/Rare Books	Medical Libraries
Science and Technology Literatures	Law Libraries
Arts/Humanities Literatures	Government Libraries
Social Science Literatures	Archives and Records Centers
Government Documents	Community Information Centers
Serials	Museums
Graphic Materials: Maps, Art, etc.	Other Providers
Music	
Electronic Documents	
Other Materials Types	



Services to User Populations	Information Systems and Retrieval
Reference and Information Services Electronic Reference Services Adult Services Young Adult Services Children’s Services Services for Senior citizens Services for Multicultural Populations Services for People with Disabilities Services for Gay, Lesbian, Bisexual, and Trans- gendered (GLBT) Populations Diversity Issues Reading Advisory Services Children’s/YA Literatures Storytelling Reading and Literacy Information Literacy and Instruction Information Needs and Behaviors/Practices Information Needs/Behaviors of the Public Information Needs/ Behaviors of Specific Groups Scholarly and Scientific Communication New Literacies	Information Systems and Technologies Information Retrieval Theory and Practice Online Catalog Retrieval Systems Database and Other Retrieval Systems Information Architecture Information Visualization Computer/Information Networks Information Technology Management Users and Uses of Information Systems Human-Computer Interaction Bibliometrics/Informetrics/ Webometrics Social Software Applications Information Integrity and Security
Informatics	Types of Libraries and Information Providers
School Libraries Social/Community Informatics Health Informatics Legal Informatics Museum Informatics Digital Archive Informatics	Curriculum Integration Production of Materials Role of the School Library Media Specialist Instructional Design

\*The version on 2/13/2013 available at: <http://www.alise.org/classification-scheme>

**Appendix B. List of Unique Non-library Science Course Titles**

21st century research and data  
 21st century learning spaces  
 21st century master teacher  
 Accomplished Practices Seminar  
 Administration and Use of Instructional  
 Media  
 Administration of Media Programs  
 Administration of Public Library Work  
 with Children and Young Adults  
 Advanced Children’s Literature

Advanced Computer Applications in the  
 Classroom  
 Advanced Data Management  
 Advanced Educational Technology  
 Applications of Technology  
 Applications of Technology in Education  
 Applied Developmental Psychology  
 Applied Educational Research  
 Applied Research Methods in Education  
 Applied Statistics  
 Assessing Educational Achievement with  
 Technology  
 Assessing Information Needs

- Balanced Literacy  
 Becoming a Master Teacher  
 Children's Literature  
 Children's Literature and Materials for Teaching Reading  
 Classroom Management  
 Computer Applications in Education  
 Computers in Libraries  
 Creativity in Education  
 Current Issues and Trends in Education  
 Curriculum & Philosophical Foundations  
 Curriculum for leaders in education  
 Curriculum Issues in the Middle School  
 Decision-Oriented Research and Evaluation  
 Design & Production of Media Resources  
 Design and Production of Media Materials for All Learners (available online)  
 Designing and Facilitating Technology-Integrated Learning  
 Digital Media Production  
 Ecological Perspectives on Development: The Childhood Years  
 Educational Research  
 Educational Research for Practitioners  
 Educational Technology Foundations  
 Electronic Media and Design  
 Elementary Education  
 Emergent and Early Literacy Development  
 Exceptional Child  
 Exceptionality, Diversity & Difference  
 Foundational Theories in Instructional Technology  
 Foundations of Educational Technology  
 Foundations of Learning Disabilities  
 Foundations of Multicultural Education  
 Foundations of Special Education  
 Foundations of the Information Professions  
 Fundamentals of Curriculum Development  
 Global Perspectives in Cultural Diversity  
 Government Documents  
 History and Philosophy of Education  
 History of education philosophy  
 Human Growth and Development  
 Human Information Interactions  
 Humanities and Social Science Information
- Information Architecture and Web Design  
 Information Literacy for Teaching and Learning  
 Information Resources and Services  
 Information Tools  
 Instructional Applications of the Internet  
 Instructional Design  
 Intermediate/Middle School/High School Reading Instruction  
 Internet Resources  
 Introduction to Educational Technology  
 Introduction to Information Policy  
 Introduction to Research Methods in Education  
 Issues for Children and Technology  
 Issues in Psychology & Measurement  
 Issues in psychology and measurement  
 Issues in School, Community & Family Leadership and Learning Technologies  
 Leadership skills for teachers  
 Leading change for student achievement  
 Literacy programs P-5  
 Literature for Adolescents  
 Literature for Children, Adolescents and Adults  
 Literature for Young Adults  
 Literature for Young Children  
 Literature in the Middle Grades  
 Management of Information Agencies  
 Management of Instructional Systems  
 Managing Technological Change  
 Master of education thesis proposal writing  
 Media and Telecommunications in Education  
 Media Utilization & Curriculum  
 Multi-Media Instructional Design  
 Multicultural Contexts of Teaching Learning  
 Multicultural education  
 Multiculturalism and Acculturation  
 Multimedia for Educators  
 Organization of Information  
 Orientation to Graduate Teacher Education Program  
 Pedagogy and Application of Children's Literature in the K-12 Classroom  
 Philosophy, ethics, and education  
 Principles and Techniques of Storytelling

Problems in Education  
Procedures and Evaluation in Research  
Production of Instructional Materials  
Professional Preparation Seminar  
Program Evaluation in Education  
Project in Educational Research  
Qualitative Research  
Read instruction middle school  
Reading Institute  
Reading Workshop on Children's Books  
Recent Trends in Children's Literature  
Research and Instruction: Elementary  
    Language Arts  
Research Design  
Research Design & Methodology  
Research Design and Analysis  
Research in Education  
Research in Information Studies  
Research Methods  
Researching Current Issues in Inst. Tech  
Resource Selection and Evaluation  
School and Society  
School law  
Science Information  
Secondary Education  
Selection and Utilization of Educational  
    Media  
Social behavior in a diverse society  
Social Foundations of Education  
Social psychology and mythology across  
    cultures  
Special Education Assistive Techniques  
Standards for Proposal Writing in Educa-  
    tion  
Strategies for Content Area Reading  
Strategies for Teaching Reading with  
    Literature  
Supervision & Assessment for Teachers  
    & Learners  
Survey of Emerging Technologies  
Survey of Intellectual Property  
Systems Analysis  
Teach reading in sec school  
Teacher Education Simulation  
Teacher leader research to improve in-  
    struction  
Teaching Reading in Content Areas  
Teaching the Exceptional Learner in the  
    Regular Education Classroom  
Teaching with literature  
Techniques of Research  
Technology and Learning  
Technology and Transformational Culture  
    in Education  
Technology as a Catalyst for Change in  
    Education  
Technology Integration into Instructional  
    Design  
Technology Leadership and Planning  
Technology-Mediated Learning  
The American High School  
The Psychology of Adolescence  
The Teaching of Reading  
Theories of Thinking and Learning  
Tools for Teaching and Learning  
Workshop: Preservation of Instructional  
    Materials  
Young Adult Literature