



# Collection Evaluation for Interdisciplinary Fields: A Comprehensive Approach

by Cynthia Dobson, Jeffrey D. Kushkowski, and Kristin H. Gerhard

**Interdisciplinary fields pose particular problems for collection evaluation. A model is proposed for describing the materials needed by interdisciplinary scholars, and the application and limitations of both traditional and newer evaluation methodologies to interdisciplinary areas are discussed. Further measures are suggested as valuable supplements in evaluating interdisciplinary areas.**

**C**ollection evaluation in academic libraries is an essential element in collection development, serving to inform those who select and manage collections how well they are meeting the needs of their local and distant constituents. Typically, methods of evaluation have relied on use-centered and materials-centered measures. Their application has been most fully described for traditional, focused subject areas. Today, however, interdisciplinary programs are increasingly prominent in academia. Librarians must develop measures that take into account the particular nature of interdisciplinary fields. Further, these measures must consider two additional factors that complicate collection evaluation: the introduction of electronic resources and the use of access as well as ownership as a means of supplying information.

## THE NATURE OF INFORMATION IN INTERDISCIPLINARY AREAS

Any discussion of the nature of information academics use must first address the basic unit of the university, the established disciplines. Freides discusses scientific disciplines as "a number of specialized groups, each functioning as the scientific community in relation to a limited area of knowledge and a limited range of scientific concerns."<sup>1</sup> She further states that

[w]hat distinguishes one field from another is not subject matter as such, but a distinctive approach that relates particular concepts and ideas to the subject and gives the subject its interest as a focus of inquiry. Each discipline views its subject matter through the unique lens provided by its history as a field of study and the explanatory propositions it has created. In consequence, each raises its own questions about a subject, seeks answers in distinctive ways, and relates

what is found to its own body of cumulated knowledge.<sup>2</sup>

Freides notes, however, that this division into fields is arbitrary and artificial, despite its usefulness as an organizing principle for universities and professional associations. The work of one scholar is likely to have relevance and implications for the work of a scholar in another discipline, particularly where major research questions are concerned. Hazen supports this perspective in his discussion of collection development policies, noting the increasingly interdisciplinary, boundary-crossing nature of current library resources. He argues that "airtight taxonomies" do not describe the universe of materials with which we work. Rather, "[i]nterdisciplinary, multimedia research is the byword of our postmodern academy, and both scholars and the materials they produce routinely cross traditional boundaries."<sup>3</sup> Additional research by Hurd provides empirical data, employing citation analysis to demonstrate how chemists use information outside chemistry.<sup>4</sup>

## Development of Interdisciplinary Fields

Keresztesi outlines three stages for the development of a focused discipline:

- The pioneering stage;
- An elaboration and proliferation stage; and
- An establishment stage.<sup>5</sup>

According to Keresztesi, each stage produces its own information resources: the first stage produces pamphlets, bulletins, and newsletters; the second, many monographs, more journals and reports, and standard guides; the third, subject bibliographies, specialized directories, and databases. Keresztesi's model is predicated on the assumption of a coherent, focused subject matter, with scholars initially follow-

Cynthia Dobson is Associate to the Dean, Iowa State University, Ames Iowa 50011 <cdobson@iastate.edu>.

Jeffrey D. Kushkowski, is Business Selector and Reference Librarian, Iowa State University <kushkows@iastate.edu>.

Kristin H. Gerhard is Women's Studies Selector and Catalog Librarian, Iowa State University <kgerhard@iastate.edu>.

ing a "great thinker" and only later breaking into subgroups that reflect the specialization and stratification within the developing discipline.

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Interdisciplinary fields often result from the coming together of ideas and researchers from several established disciplines. There are important differences in the development of interdisciplinary fields that affect the composition of library materials in those fields; these include:

- The complete map of the intellectual content is much broader. Shapiro and Whaley note that:

selection of materials in the applied and interdisciplinary fields leads the bibliographer down a variety of paths perhaps not trod by collection developers in the more traditional subjects ... those librarians ... need to search more widely for appropriate titles.<sup>6</sup>

- Appropriate research methodologies in an interdisciplinary area are likely to vary more widely, requiring a broader array of library materials to adequately support research.
- Bibliographic control may be weak or lacking, making it difficult to identify appropriate materials for a given collection.
- Specialization and stratification are part of an interdisciplinary field from the beginning of its development.

#### **Interdisciplinary Scholars**

The faculty and students involved in interdisciplinary fields and their broadly-based materials are more dispersed through central and branch collections than is the case in traditional disciplines. These users are not concentrated in one department or even in one college. Librarians must cope with materials in multiple classifications and locations, and they may find it difficult to build consensus among scattered faculty as to what comprises an

adequate local collection or adequate remote access.

Scholars associated with an interdisciplinary field will have a deep understanding of the core area and their departmental subjects but may lack a broad understanding of the interdisciplinary field as a whole. In their work, they will draw on materials from both the core interdisciplinary area and from associated areas, but an individual scholar's particular needs may rely as much on her or his associated area of specialization as on the interdisciplinary area itself. For example, a sociologist doing women's studies research draws on different associated areas than a historian doing women's studies research. This heavy reliance on work from multiple areas complicates the determination of the topical and methodological literature needed by faculty and students.<sup>7</sup>

#### **Defining Variables of Interdisciplinary Fields**

Any discussion of interdisciplinary literature must address the differences among interdisciplinary fields. The variables that describe the variance between interdisciplinary areas include:

- *Degree of independence*, or relationship of an area to its parent discipline or disciplines;
- *Breadth*, or number of related or parent disciplines; and
- *Degree of establishment*, or age of the interdisciplinary area.

Each of these variables must be taken into account when looking at appropriate evaluation methods for interdisciplinary collections. Literature in a field like ecology continues to be largely dependent on the biological disciplines from which it came; the literature of peace studies remains closely tied to political science. In contrast, the literature of African-American studies evolved out of the broader social sciences and is now largely independent of any one discipline.

Some interdisciplinary fields are quite broad while others are more narrowly defined. Native American studies tends to be university-wide while industrial relations is usually concentrated in one or two colleges. Information sources in these fields will be accordingly broad or narrow in focus. For a collection to provide adequate coverage of a broad interdisciplinary field, more sources, each covering some small portion, are required than for a narrower area. Collection evaluation of broad fields will involve a more complex

information model and will require more varied methods. The age of the field is a particularly significant variable for interdisciplinary as well as for disciplinary fields. Emerging interdisciplinary areas are apt to be extremely underdeveloped in the area of basic reference sources and electronic resources. Young interdisciplinary areas may even lack these basic materials altogether. Women's studies, for example, still lacks a centralized electronic database, and a women's studies periodical index on CD-ROM only became available in 1995. Coverage of the field's periodical literature in standard indexes is idiosyncratic at best.<sup>8</sup> A collection cannot be faulted for lacking access to materials that have not yet been created. Collection evaluation methods need to address initially the question of whether basic sources exist.

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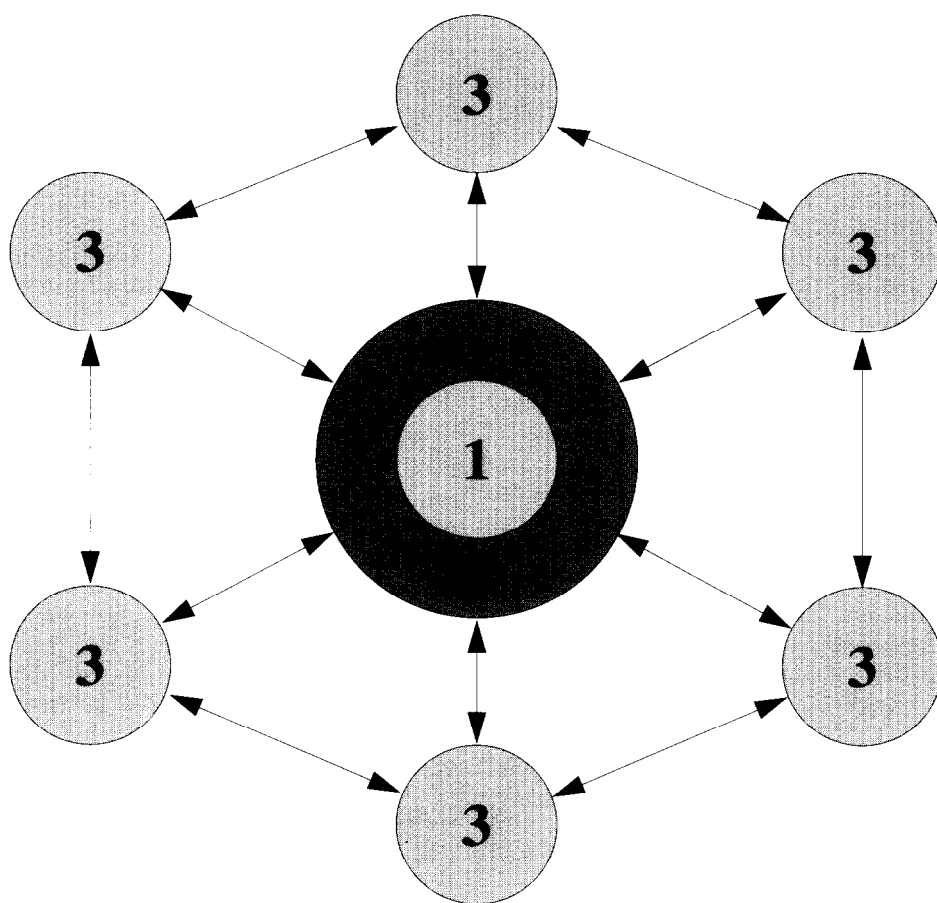
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Once a field becomes more established, it will develop more centralized reference sources, including electronic resources. The development of specific reference materials for anthropology or religious studies, neither of which existed as academic disciplines at the turn of the century, is illustrative. Other interdisciplinary fields, such as peace studies or medieval studies, have tended to develop over time as administrative units or focuses within traditional disciplines. The bulk of the reference materials in these fields can be found within the current reference sources for their home areas. Evaluation, thus, needs to be sensitive to the degree of independence of the field as well as its degree of establishment.

#### **An Interdisciplinary Model**

Both focused and interdisciplinary fields have a central core, but interdisciplinary areas generally have a smaller central core and a much broader set of related materials than focused disciplines. The model of interdisciplinary information, presented in Figure 1, has elements of traditional disciplinary information, but it also has a web-like quality that is distinctive. The interdisciplinary core identifies basic materials for the field. In a particular library, the secondary layer of closely-

**Figure 1**  
**Model Interdisciplinary Information**



Notes: 1. Interdisciplinary core materials.  
2. Closely related, interdisciplinary materials.  
3. Related materials in traditional disciplines.

related materials will reflect the emphases of the program at that institution, the strength and size of the program, and the size and level of the collection. For a research library, this second layer can be quite large and wide-ranging. The third layer of related materials in traditional disciplines, where webbing becomes the dominant feature, will be the most varied layer, tailored to the specific research being carried out at the institution.

### EVALUATION METHODS AND INTERDISCIPLINARY AREAS

#### Traditional Evaluation Methods

Nisonger provides an excellent summary of the voluminous literature of collection evaluation.<sup>9</sup> Traditional methods of collection evaluation fall into two major categories: use-centered and materials-centered.<sup>10</sup> Use-centered studies concentrate on the use of the collection and how

well a collection meets patrons' needs. Examples of these methods include user surveys and evaluation of library circulation and interlibrary loan patterns. Materials-centered approaches use the library collection as a base for their analyses and include methods such as citation analysis, overlap studies, and national efforts like the National Shelflist Count and the RLG Conspectus. Gwinn and Mosher's work, and more recently, the article by Blake and Tjourmas provide useful introductions to the history and development of the Conspectus.<sup>11</sup>

Both use-centered and materials-centered methods may be employed to analyze interdisciplinary subject areas. A major problem in evaluating interdisciplinary areas with some use-centered and materials-centered methodologies is the difficulty of specifying particular call number areas that encompass the multi-

disciplinary nature of a field. Core titles may be linked directly to the interdisciplinary subject and its specific classification numbers, but associated subjects essential to the study of the interdisciplinary topic quickly expand the evaluation and present real difficulties in definition.

The major problem for use-centered studies is defining users and then interpreting their responses. The question of which patrons to include can be answered by specifying those faculty and students who are formally part of a program. These patrons will have ties to associated, focused subject fields as well as to the interdisciplinary area. Measures of such factors as their satisfaction with library resources or use of interlibrary loan will inevitably reflect both of their affiliations. Careful attention to the wording of questions will be necessary to counter this problem. In addition, analysis of results by subgroups defined by the traditional fields may reveal if major differences by subgroup exist within the broad group of interdisciplinary users.

The materials-centered Conspectus was designed to describe and classify library collections using the Library of Congress (LC) classification system and provides a basis for evaluating and comparing collections on a given subject at different libraries. One major criticism of the RLG Conspectus is that the terminology used was not adequate to describe even traditional disciplines such as psychology.<sup>12</sup> In an attempt to make the Conspectus more responsive to the needs of individual disciplines, supplemental guidelines have been written for both music and women's studies which take into account the idiosyncratic needs of these disciplines.<sup>13</sup> A recent attempt to apply the women's studies Conspectus to the evaluation of an individual collection at Pennsylvania State University has reportedly been successful.<sup>14</sup>

Which aspects of psychology, sociology, economics, and management should be rated in an evaluation of industrial relations? To solve this problem, the librarian must have a clear understanding of the subject area and must consult with program faculty to determine local emphases. An incomplete list of classification areas, and thus an incomplete evaluation, may result unless careful consideration is given to sources in a variety of associated fields.

#### Evaluation Methods and Field Maturity

Regardless of the evaluation methodology used, difficulties may be encountered

if the interdisciplinary field has not matured. Keresztesi suggests that reference sources may be lacking until the third stage, and this may interfere with use of some methods of analysis.<sup>15</sup> For example, in a discipline that lacks a published bibliography or specific indexing and abstracting tools, the librarian will have to exert special effort to identify core monographic and serial titles.

Very young fields present another complexity. According to Keresztesi's model of literature development, articles will first appear in the parent literature and only later in journals which focus on the emerging subject.<sup>16</sup> At the beginning of the development of women's studies, for example, articles on this topic were spread through a large number of literatures ranging from English to social work.<sup>17</sup> In such cases, the librarian will need to develop a working list of titles in parent fields that contain significant material in the interdisciplinary core area as well as titles that contain articles that relate to interdisciplinary interests more directly linked to the associated fields.

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#### **Newer Evaluation Methods**

Electronic resources such as OCLC/AMIGOS software, CD-ROM databases, and the Internet provide new tools and methods for collection evaluation. OCLC/AMIGOS software is a powerful tool for analyzing monographic collections. Distributed on CD-ROM, AMIGOS allows users to define sets of monographic materials by Library of Congress class number and then compare holdings across libraries. Futas and Intner point out that using AMIGOS to evaluate a collection in an interdisciplinary subject like women's studies would be an onerous task because of the multitude of class numbers which contain women's studies materials.<sup>18</sup> AMIGOS would be much improved by the development of a search engine that allows materials to be identified by a more multi-faceted approach, drawing on subject headings and allowing Boolean combination. Because more than one subject heading is generally assigned to non-fic-

tion works, the complexity of interdisciplinary materials is more clearly brought out by subject headings than the single Library of Congress classification number assigned to each title.

CD-ROM databases may be used in the evaluation of serials collections. A major contribution is their assistance in developing lists of core journals in both broad and narrow interdisciplinary fields. Burnham and others used the CD-ROM versions of MEDLINE and CINAHL to develop a set of core journals that published articles about the narrow field of gait, how humans walk.<sup>19</sup>

The Internet also holds promise as a collection evaluation tool. Libraries in the United States and abroad have set up Internet access to their online catalogs.<sup>20</sup> Through this access to other catalogs, collection development librarians can easily check the holdings of individual libraries either for information about specific titles or for titles listed under particular subject headings. The latter avoids relying on the call number approach of such materials-centered approaches as the RLG Conspetus or AMIGOS. Demas and others offer one approach for applying the principles of selection to such resources, and their guidelines provide a beginning for the development of ways to incorporate such materials in the collection evaluation of interdisciplinary areas.<sup>21</sup>

The Internet seems to be partially fulfilling Hazen's conception of discipline-specific resource maps.<sup>22</sup> A number of sites provide subject access to Internet resources, with items ranging from syllabi for university courses to bibliographies and full-text electronic journals.<sup>23</sup> In addition, many professional associations and their publications are Internet accessible.<sup>24</sup> Such resources change quickly, but they offer new avenues for the evaluation of interdisciplinary collections.

#### **APPROACHES TO EVALUATION OF INTERDISCIPLINARY COLLECTIONS**

##### **Subject Analysis**

Collection evaluation should begin by building an information model of the interdisciplinary area that reflects both the field itself and the unique qualities of a particular program. From complex tasks such as developing the model to concrete activities like defining call number areas, collection evaluation relies on familiarity with the topic. Such familiarity also is important for answering questions related to the area's degree of independence, breadth, and degree of establishment. The

individual librarian's knowledge of an interdisciplinary field is critical for conducting successful collection evaluation.

In addition to having an understanding of their subject fields, librarians need to be informed about the local environment in which they work. Knowledge of how their institution structures interdisciplinary programs and information about recent program changes and current faculty research interests are essential for evaluating the collection. Library education and ongoing staff development of collection development librarians should reflect this priority on both subject and program knowledge.

##### **Use-Centered and Materials-Centered Evaluation**

As noted earlier, users of interdisciplinary materials are likely to come from across campus and also to be heavy users of materials in traditional fields. In use-centered evaluations, clearly defining the user group, writing questions that distinguish between use as an interdisciplinary scholar and as a scholar in a traditional field, and conducting evaluations that examine responses by the scholars' traditional fields will help to improve use-centered interdisciplinary evaluation.

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In materials-centered evaluations, the librarian should first consider whether methods that require a call number-based analysis are feasible. If they are not, the evaluator will need to look instead for subject bibliographies, work with key word and subject heading approaches, examine holdings using citation analyses, develop core serials lists with CD-ROM technologies, and explore Internet resources. With all methods, the information model will define the variety of subjects and the depth of collecting involved.

##### **Developing Access-Centered and Service-Centered Evaluation Methods**

A library environment that includes both access to and ownership of materials requires the application of new evaluation

methods. This is particularly true for interdisciplinary fields, where materials may be widely scattered not only within a library's classification system but across regional and national collections as well. Use-centered and materials-centered evaluation methods yield information about whether appropriate materials are available locally, but an evaluation which focuses only on the local collection will provide only a partial evaluation of the resources available to the patrons of that library. Harloe and Budd describe the library as a gateway to both internal and external resources.<sup>25</sup> They note that one needs to think in terms of a locally-available core collection, which includes both primary and secondary materials, and core access, which involves selection of resources, document delivery, and cooperative collection development.

Evaluation methods of the future should look at the ability of the library to deliver materials not within its immediate control. These methods could incorporate measures not usually thought to be part of collection evaluation. For example, if access to electronic materials is involved, then an investigation of the adequacy of equipment, its maintenance, and bibliographic instruction in its use may need to be part of the evaluation. In areas such as interlibrary loan, the literature provides a number of key variables for analysis: limits on who may use the service, fill rate, turn-around time, and cost to the patron.<sup>26</sup>

Evaluation of an interdisciplinary area may also include analysis of existing cooperative collection development agreements, including a review of the success of such agreements or the need for additional ones. Finally, the evaluation may examine how well in general the library provides access to remote resources for patrons. Management techniques such as total quality management may be used to evaluate library services, including reference and circulation, in the context of information delivery.<sup>27</sup>

## CONCLUSION

Collection evaluation for interdisciplinary areas is more complex than for traditional disciplines, and traditional measures applied in traditional ways are inadequate. The development of new evaluation methods is an important task, and one that deserves the attention of collection development librarians. As Brin and Cochran point out,

the library will continue to wrestle with balancing between access services and

local collections, between cooperative collection policies and independent activities, and between the various formats available and the methods available to deliver those formats.<sup>28</sup>

Measures of the local collection will continue to be important, but they need to be supplemented with measures which evaluate the ability of a library actually to deliver materials from external sources.<sup>29</sup>

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Library education and on-going staff training in the interdisciplinary nature of information and its evaluation are essential if librarians are to develop competency in dealing with increasingly interdisciplinary collections. This includes the assessment of both print and electronic resources and, in some fields, may include an advocacy role in the development of new reference resources.

The breadth of materials used in many interdisciplinary areas illustrates the growing need to evaluate local collections in terms of the interplay of access and ownership. Supplementing traditional use-centered and materials-centered methods with access-centered and service-centered measures involves the review of activities not traditionally considered when doing collection evaluation. In the end, the overall question becomes "How well do access, service, and ownership serve the information needs of interdisciplinary researchers?"

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