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TYING INFORMATION LITERACY LEARNING GOALS TO A LIBRARY MATERIALS BUDGET: REPACKAGING THE FORMULA TO MEET LEARNING GOALS

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Introduction

Recently, Bunch Library's Director at Belmont University was given a directive by the University Provost to review the allocation formula applied to the library materials budget in order to meet two goals: 1) address a long-standing disparity in the allocation of funds among the academic departments and 2) link the new university learning goal of information literacy to the purchase of library materials.

Bunch Library's Coordinator of Reference Services and Collection Management Librarian worked together to analyze the library's materials budget and integrate new elements into the formula that would address the two goals. First, usage statistics for electronic resources and the average cost of continuing resources were incorporated into the formula. Secondly, a new measure of library usage will tie information literacy to allocations. Each department's course catalogs and syllabi will be analyzed to identify information literacy components and level of need for library resources. We have identified this new measure of usage, along with other key factors such as the average cost of continuing resources, as those that can address the disparities in the distribution of funds and other collection development needs.

Once course analysis is completed the results will be incorporated into the library's materials budget allocation formula, resulting in a more equitable distribution of funds. Each department will also have the beginnings of an information literacy plan and improved collection development due to the collaboration begun between library liaisons and teaching faculty through this project.

This paper will describe:

- 1) The current library allocations formula
- 2) Integration of electronic resources usage statistics and average cost of continuing resources into the formula
- 3) The development of the library resource needs scale
- 4) The collaborative work that has been done between library liaisons and classroom faculty to determine library resource needs across the curricula
- 5) The methodology used for determining how the library resource needs scale will be incorporated into the allocations formula
- 6) Progress on resource needs analysis and implementation

At this point, it is only the undergraduate formula that is being examined and evaluated.

History and Background: The Library Committee, Library Order Coordinators and the Library Materials Budget Allocation Formula

Part of Bunch Library's mission is to develop comprehensive collections that support the university's curricula, and in order to achieve this goal teaching faculty and administrators have always been included in collection development decisions and development of the allocations formula. In her 1996 article, Promis emphasizes the importance of selectors' input in the process, particularly regarding the relevance of student enrollment and usage reports in their disciplines, as well as the effectiveness of the entire budgeting and allocations process. For Bunch Library, this is where the Library Committee and Library Order Coordinators play an important role in decision-making.

The Library Committee is a Faculty Senate standing committee that "advises the Director of Library Services and the Provost in the allocation of funds for library resources and the formulation of an annual materials budget" ("Library Committee"). The Library Order Coordinators are a rotating group of faculty who serve as ordering liaisons between their departments and the library. They collect requests for new library materials from their colleagues, submit them to the library's Collection Management unit for ordering and track appropriate budgets. While the Library Order Coordinators serve as primary selectors of library materials, Library Faculty Liaisons serve in an advisory capacity, collaborating with Order Coordinators in the area of collection development.

Inherent problems with the previous formula

Literature supports that libraries have historically grappled with the issues of impartiality and effectiveness of formulas assigned to materials budgets and the allocation of funds (Promis 1996). Bunch Library's previous materials budget allocation formula had historically been viewed as inequitable by the Library Committee, teaching faculty and faculty librarians. The unbalanced formula focused heavily on enrollment data (85% of the formula), placing smaller programs at a distinct disadvantage in the allocation pool. Also, the usage data that was incorporated into the formula only accounted for Library of Congress classified print materials. Even though the Library Committee recognized that the allocation had serious flaws, a solution for addressing the unbalanced formula could not be identified.

In his 2007 article, Paris suggests "Varying levels of selection activity and interest in the Library's monograph collection among individual faculty members tended to result in an under selection of materials required to support core courses in some disciplines". We also found this to be true at Belmont. Belmont has traditionally been rooted in liberal arts courses of study. Over the past several years, Belmont University has experienced a shift toward more professional programs. The curricular needs of these programs have affected the ways in which the library collection is developed and the application of variables in the allocation formula. Most notably, the substantial increase in electronic resource acquisitions has directly affected the spending patterns of the academic departments.

After examining data from the past 5 years, we determined that the disparities in the allocations had the most noticeable impact on research-intensive programs. These

programs typically deplete their funds at the beginning of the fiscal year, primarily because they purchase the most expensive materials. While any remaining funds are released in March to purchase needs-based materials for any department, the research-intensive programs often go without essential curricular materials for the entire academic year.

In 2007, the Library Committee recognized that the existing formula did not address the curricular resource needs of new and changing programs. At that point, a Library Allocations Ad Hoc Committee was formed to examine how the formula could be adjusted. The committee consisted of the Library Director, a Library Committee member from the School of Health Sciences, the Coordinator of Reference Services and the Collection Management Librarian. The committee examined the current allocation formula, historical spending patterns, usage data and the historical expenditures for all formats of library materials. The committee concluded that there was an historical disconnect between the amount allocated to each department and the spending of the allocated funds.

Prior to the 2008/2009 fiscal year at Belmont University, the library materials budget allocation formula was configured as such (see fig. 1):

- Pre-determined amount for General fund
- A basic amount of \$10,000 allocated to each department or school
- 42.5% based on credit hours produced
- 42.5% based on majors
- 15% based on usage of Library of Congress classified print items

	Basic	Credit		42.5% Based			42.5% Based			15%	Total
	Amount	Hrs Prod.	%	on Credit Hrs Prod.	Majors	%	Majors	Usage	%	Based on Usage	Allocation
Education	\$10,000	929.0	0.9%	\$1,287	92	2.4%	\$3,433	2,618.00	10.1%	\$5,100	\$19,820
Health/Human	\$10,000	4,215.0	3.9%	\$5,579	65	1.7%	\$2,432	365.00	1.4%	\$707	\$18,718
English	\$10,000	6,973.0	6.4%	\$9,155	100	2.6%	\$3,719	2,186.00	8.5%	\$4,292	\$27,166
Foreign Languages	\$10,000	3,732.0	3.4%	\$4,864	50	1.3%	\$1,860	2,186.00	8.5%	\$4,292	\$21,016
Philosophy	\$10,000	2,523.0	2.3%	\$3,290	21	0.5%	\$715	402.00	1.5%	\$757	\$14,762
Biology	\$10,000	3,400.0	3.1%	\$4,435	129	3.3%	\$4,721	136.25	0.5%	\$253	\$19,409
Chem/Physics	\$10,000	3,048.0	2.8%	\$4,006	44	1.1%	\$1,574	136.25	0.5%	\$253	\$15,833
Math/Computer	\$10,000	6,507.0	6.0%	\$8,583	43	1.1%	\$1,574	911.25	3.5%	\$1,767	\$21,924
Psychology	\$10,000	2,695.0	2.5%	\$3,576	79	2.0%	\$2,861	549.25	2.1%	\$1,060	\$17,497
Media Studies	\$10,000	3,246.0	3.0%	\$4,292	97	2.5%	\$3,576	0.00	0.0%	\$0	\$17,868
Communication St.	\$10,000	2,714.0	2.5%	\$3,576	75	1.9%	\$2,718	0.00	0.0%	\$0	\$16,294
History	\$10,000	2,259.0	2.1%	\$3,004	34	0.9%	\$1,288	2,091.00	8.1%	\$4,090	\$18,382
Political Science	\$10,000	1,732.0	1.6%	\$2,289	56	1.4%	\$2,003	339.00	1.3%	\$656	\$14,948
Sociology	\$10,000	1,797.0	1.7%	\$2,432	29	0.7%	\$1,001	1,160.00	4.5%	\$2,272	\$15,705
Accounting	\$10,000	3,597.0	3.3%	\$4,721	80	2.1%	\$3,004	119.00	0.5%	\$253	\$17,978
Marketing	\$10,000	1,944.0	1.8%	\$2,575	76	2.0%	\$2,861	119.00	0.5%	\$252	\$15,688
Finance/Economics	\$10,000	4,205.0	3.9%	\$5,579	38	1.0%	\$1,431	119.00	0.5%	\$252	\$17,262
Management	\$10,000	9,376.0	8.7%	\$12,446	360	9.2%	\$13,161	119.00	0.5%	\$252	\$35,859
ISM	\$10,000	1,416.0	1.3%	\$1,860	3	0.1%	\$143	119.00	0.5%	\$252	\$12,255
Music Bus	\$10,000	11,552.0	10.7%	\$15,307	1,228	31.6%	\$45,205	0.00	0.0%	\$0	\$70,512
Nursing	\$10,000	5,739.0	5.3%	\$7,582	284	7.3%	\$10,443	928.00	3.6%	\$1,818	\$29,843
Social Work	\$10,000	690.0	0.6%	\$858	40	1.0%	\$1,431	0.00	0.0%	\$0	\$12,289
Art	\$10,000	3,223.0	3.0%	\$4,292	98	2.5%	\$3,576	1,006.00	3.9%	\$1,969	\$19,837
Music	\$10,000	10,427.0	9.6%	\$13,733	502	12.9%	\$18,454	6,978.00	27.0%	\$13,632	\$55,819
Theatre	\$10,000	1,630.0	1.5%	\$2,146	28	0.7%	\$1,001	0.00	0.0%	\$0	\$13,147
Religion	\$10,000	7,630.5	7.0%	\$10,014	112	2.9%	\$4,149	3,239.00	12.5%	\$6,311	\$30,474
Honors	\$10,000	1,177.0	1.1%	\$1,574	128	3.3%	\$4,721	0.00	0.0%	\$0	\$16,295
Total	\$270,000	108,376.5	100.0%	\$143,055	3,891	100.0%	\$143,055	25,826.00	100.0%	\$50,490	\$606,600

Figure 1. Example of previous library materials budget allocation formula

Upon examination of the formula it was determined that two critical elements were missing: usage data for electronic resources and the cost of materials. Despite the increased acquisition and usage of electronic resources, the only usage data that was factored into the formula was that of Library of Congress classified print materials. Although seventy percent of the library materials budget is currently spent on continuing resources, including subscriptions, standing orders and electronic resource licenses, nowhere in the formula was the cost of materials figured.

The first problem to be addressed was the inclusion of electronic resources usage data in the allocations formula. For fiscal year 2008/2009, the allocation formula was adjusted as such: (see fig. 2)

- Pre-determined amount for General fund
- Basic amount of \$10,000 allocated to most schools and departments (The basic amount was dropped from those departments that historically did not spend their entire allocation. These funds were re-allocated to the General fund and used to purchase cross-disciplinary databases)
- 40% based on credit hours produced
- 40% based on majors
- 15% based on Library of Congress classified print materials usage
- 5% based on online database usage

	Basic Amount	Credit Hrs. Prod.	%	40% Based on Credit Hrs Prod.	Majors	%	40% Based on Majors	Usage	%	15% Based on Usage	Online Usage	%	5% Based on Online Usage	Total Allocation
Education	\$10,000	945	0.9%	\$1,212	109	2.8%	\$3,770	2665.0	9.7%	\$4,897	401724.0	18.4%	\$3,097	\$22,976
Health/Human	\$10,000	4514	4.2%	\$5,655	67	1.7%	\$2,289	237.0	0.9%	\$454	0.0	0.0%	\$0	\$18,398
English	\$10,000	7304	6.7%	\$9,021	89	2.3%	\$3,097	2262.0	8.3%	\$4,191	38862.5	1.8%	\$303	\$26,612
Foreign Languages	\$0	4631	4.3%	\$5,790	39	1.0%	\$1,346	2262.0	8.3%	\$4,191	256307.5	11.7%	\$1,969	\$13,296
Philosophy	\$10,000	2368	2.2%	\$2,962	24	0.6%	\$808	330.0	1.2%	\$606	32829.0	1.5%	\$252	\$14,628
Biology	\$10,000	3402	3.1%	\$4,174	125	3.2%	\$4,309	154.5	0.6%	\$303	4512.5	0.2%	\$34	\$18,820
Chem/Physics	\$10,000	2842	2.6%	\$3,501	33	0.8%	\$1,077	154.5	0.6%	\$303	4512.5	0.2%	\$34	\$14,915
Math/Computer	\$10,000	6809	6.3%	\$8,482	44	1.1%	\$1,481	928.5	3.4%	\$1,717	353.0	0.0%	\$0	\$21,680
Psychology	\$10,000	2766	2.6%	\$3,501	69	1.8%	\$2,424	614.5	2.2%	\$1,111	16538.0	0.8%	\$134	\$17,170
Media Studies	\$10,000	3402	3.1%	\$4,174	92	2.3%	\$3,097	0.0	0.0%	\$0	0.0	0.0%	\$0	\$17,271
Communication St.	\$10,000	2642	2.4%	\$3,231	94	2.4%	\$3,231	0.0	0.0%	\$0	32087.0	1.5%	\$252	\$16,714
History	\$10,000	2487	2.3%	\$3,097	26	0.7%	\$943	2669.0	9.7%	\$4,898	0.0	0.0%	\$0	\$18,938
Political Science	\$10,000	2087	1.9%	\$2,558	53	1.4%	\$1,885	317.0	1.2%	\$606	440.0	0.0%	\$0	\$15,049
Sociology	\$10,000	1731	1.6%	\$2,154	29	0.7%	\$943	1129.0	4.1%	\$2,071	68198.5	3.1%	\$522	\$15,690
Accounting	\$10,000	3159	2.9%	\$3,905	64	1.6%	\$2,154	144.6	0.5%	\$252	0.0	0.0%	\$0	\$16,311
Marketing	\$10,000	1560	1.4%	\$1,885	66	1.7%	\$2,289	144.6	0.5%	\$252	0.0	0.0%	\$0	\$14,426
Finance/Economics	\$10,000	3573	3.3%	\$4,443	50	1.3%	\$1,750	144.6	0.5%	\$252	531723.0	24.3%	\$4,090	\$20,535
Management	\$10,000	8048	7.4%	\$9,963	376	9.6%	\$12,925	144.6	0.5%	\$252	0.0	0.0%	\$0	\$33,140
ISM	\$0	1422	1.3%	\$1,750	4	0.1%	\$135	144.6	0.5%	\$252	0.0	0.0%	\$0	\$2,137
Music Bus	\$0	9724	9.0%	\$12,118	1261	32.0%	\$43,085	0.0	0.0%	\$0	128054.0	5.8%	\$976	\$56,179
Nursing	\$10,000	6160	5.7%	\$7,674	336	8.5%	\$11,444	832.0	3.0%	\$1,515	295440.0	13.5%	\$2,272	\$32,905
Social Work	\$10,000	770	0.7%	\$942	41	1.0%	\$1,346	0.0	0.0%	\$0	68198.5	3.1%	\$522	\$12,810
Art	\$10,000	3925	3.6%	\$4,847	105	2.7%	\$3,635	1104.0	4.0%	\$2,020	130866.0	6.0%	\$1,010	\$21,512
Music	\$10,000	10923	10.1%	\$13,599	524	13.3%	\$17,907	7305.0	26.6%	\$13,430	12356.0	0.6%	\$101	\$55,037
Theatre	\$10,000	2125	2.0%	\$2,693	33	0.8%	\$1,077	0.0	0.0%	\$0	0.0	0.0%	\$0	\$13,770
Religion	\$10,000	7693	7.1%	\$9,559	100	2.5%	\$3,366	3749.0	13.7%	\$6,917	164463.0	7.5%	\$1,262	\$31,104
Honors	\$0	1435	1.3%	\$1,750	84	2.1%	\$2,827	0.0	0.0%	\$0	0.0	0.0%	\$0	\$4,577
Total	\$230,000	108447	100.0%	\$134,640	3937	100.0%	\$134,640	27436.0	100.0%	\$50,490	2187465.0	100.0%	\$16,830	\$566,600

Figure 2. First revision of allocations formula to include electronic resources usage data

The purpose of this shift was to focus more on actual library materials usage and curricular resource needs rather than just enrollment data. The addition of this data supports the idea that libraries are concerned with responding to the present and future information and resource needs of our primary customers (Promis 1996). In Belmont University's case, our primary customers are faculty and students. Aligning the formula to meet these needs represents a user-centered focus on the allocation of library funds.

However, incorporating electronic resources usage data into the formula was not without its flaws. While the Library of Congress usage statistics specified areas of usage, the only way to include electronic resources usage data was to allocate the funds to the departments that paid for each database. As we started to examine literature related to library materials budgets and allocation formulas, it became clear that the cost of materials also needed to be incorporated into the formula.

Analysis of formula revisions

As we started to examine revisions of the formula that were implemented for fiscal year 2008/2009, two questions surfaced. The questions were 1) Are the departments with the largest allocations purchasing the most expensive resources? 2) Did the departments with the largest allocations have research-intensive library resource needs? The answer to these questions was not always a resounding "yes".

Figure 3 is a summary of variables being considered for the formula revision. It represents the departments that most consistently generate the largest figures in each of the variable categories. Clearly, enrollment data historically drove the same three departments to the top of the allocation pool. The summary demonstrates that those variables more closely associated with a library materials budget, specifically usage and cost of materials, represented a more diverse cross-section of academic departments. Several of these departments are also those that purchase more expensive resources and have research-intensive library resource needs.

Variable	Department
Credit hours produced	1. Business 2. Music 3. Entertainment & Music Business
Majors	1. Entertainment & Music Business 2. Business 3. Music
Most LC usage	1. Music 2. Religion 3. History

Most electronic resource usage	<ol style="list-style-type: none"> 1. Business 2. Education 3. Nursing
Average cost of continuing and integrating resources	<ol style="list-style-type: none"> 1. Chemistry/Physics 2. Math & Computer Science 3. Philosophy
Largest budget	<ol style="list-style-type: none"> 1. Business 2. Entertainment & Music Business 3. Music

Figure 3. Allocation formula variables and the departments generating the largest figures in each category.

Incorporating the cost of materials into the formula

Current literature on the subject of library materials budgets supports the idea that Bunch Library has consistently implemented a standard allocations formula, which includes student enrollment data and usage data of collection resources. As the authors reviewed the literature, it became clear that a crucial element was missing from Bunch Library's formula, the cost of materials. Two problems were considered while developing the method for incorporating this element into the formula: 1) the cost of materials was not figured anywhere into the library materials budget allocation formula and 2) seventy percent of the library materials budget is spent annually on continuing and integrating resources.

Several configurations of this element were calculated while developing the method for incorporating it into the allocations formula. The various configurations were:

- total cost of all materials (books, media, electronic resources, periodicals)
- average cost of all materials
- total cost of continuing and integrating resources (basically anything that is renewed annually – electronic databases, periodicals, standing orders)
- average cost of continuing and integrating resources.

A formula incorporating the average cost of continuing and integrating resources was applied to 2008/2009 figures and compared to the allocations without that variable. Figure 4 demonstrates the increases and decreases in allocations with the incorporation of the new variable.

	Formula	Formula Using	
	For	Avg Cost of	
	2008/2009	Subscription	
		Resources	
Education	\$22,976	\$19,690	↓
Sports Sciences	\$18,398	\$19,320	↑
English	\$26,612	\$24,714	↓
Foreign Languages	\$13,296	\$11,646	↓
Philosophy	\$14,628	\$15,959	↑
Biology	\$18,820	\$22,144	↑
Chem/Physics	\$14,915	\$23,997	↑
Math/Computer	\$21,680	\$24,573	↑
Psychology	\$17,170	\$18,965	↑
Media Studies	\$17,271	\$18,194	↑
Communication St.	\$16,714	\$17,188	↑
History	\$18,938	\$17,782	↓
Political Science	\$15,049	\$17,079	↑
Sociology	\$15,690	\$16,183	↑
Accounting	\$16,311	\$16,769	↑
Marketing	\$14,426	\$15,119	↑
Finance/Economics	\$20,535	\$16,886	↓
Management	\$33,140	\$31,495	↓
ISM	\$2,137	\$3,117	↑
Music Bus	\$56,179	\$53,138	↓
Nursing	\$32,905	\$30,861	↓
Social Work	\$12,810	\$14,963	↑
Art	\$21,512	\$19,481	↓
Music	\$55,037	\$48,480	↓
Theatre	\$13,770	\$14,227	↑
Religion	\$31,104	\$27,175	↓

Figure 4. Comparison of allocations with and without average cost of continuing and integrating resources applied. Increases and decreases are indicated by the arrows.

Incorporating the new variable into the formula resulted in some interesting implications. Several departments that typically purchase more expensive continuing and integrating resources experienced increases in their allocations. By contrast, several departments whose average costs were ascertained to be lower experienced decreases in their allocations. After a thorough examination of the data and discussions with the Library Committee, Library Director and Faculty Librarians, it was determined that the average cost of continuing and integrating resources would be the most equitable configuration at this time.

Incorporating the average cost of continuing and integrating resources into the allocation formula

Literature on the subject of library materials budgets and allocations formulas also suggests that libraries have recognized the need to account for the acquisition of more electronic resources in their allocations formulas (Paris 2007). Like many libraries, Belmont has been carefully reviewing subscriptions to determine overlap in content with aggregator databases. Two years ago, we were able to cancel \$12,000 worth of subscriptions and apply the available funds toward acquiring selected cross-disciplinary databases.

It was determined that a rather significant portion of the budget should be allocated toward continuing and integrating resources. For fiscal year 2009/2010, the allocation formula was configured as follows (see fig. 5):

- Pre-determined amount for General fund
- Pre-determined amounts for new and cross-disciplinary programs
- Basic amount of \$10,000 allocated to most departments and schools
- 35% based on credit hours produced
- 35% based on majors
- 10% based on usage (5% Library of Congress classified print materials, 5% electronic resources usage)
- 20% based on average cost of continuing and integrating resources

	Basic Amount	Credit Hrs. Prod.	%	35% Based on Credit Hrs Prod.	Majors	%	35% Based on Majors	LC Usage	%	5% Based on LC Usage	Online Usage	%	5% Based on Online Usage	Combined Usage	Average Cost of Subscription Resources	%	20% Based on Average Cost of Subscription Resources	Total Allocation
Education	\$10,000	865	0.8%	\$977	120	3.0%	\$3,665	2085.0	8.3%	\$1,448	460052.0	14.0%	\$2,443	\$3,891	267.13	3.3%	\$2,303	\$20,836
Sport Science	\$10,000	4559	4.0%	\$4,886	78	1.9%	\$2,321	172.0	0.7%	\$122	0.0	0.0%	\$0	\$122	247.11	3.0%	\$2,094	\$19,423
English	\$10,000	5980	5.3%	\$6,474	86	2.1%	\$2,565	964.5	3.9%	\$680	37436.3	1.1%	\$191	\$871	149.87	1.8%	\$1,257	\$21,167
Foreign Languages	\$0	5820	5.1%	\$6,230	36	0.9%	\$1,099	964.5	3.9%	\$680	293850.3	8.9%	\$1,553	\$2,233	291.86	3.6%	\$2,513	\$12,075
Philosophy	\$10,000	2268	2.0%	\$2,443	21	0.5%	\$611	499.0	2.0%	\$349	32932.3	1.0%	\$174	\$523	511.55	6.2%	\$4,328	\$17,905
Biology	\$10,000	3494	3.0%	\$3,664	124	3.1%	\$3,787	104.5	0.4%	\$70	74220.0	2.3%	\$401	\$471	572.63	7.0%	\$4,886	\$22,808
Chem/Physics	\$10,000	3180	2.8%	\$3,420	61	1.5%	\$1,832	104.5	0.4%	\$70	73930.0	2.2%	\$384	\$454	1,098.73	13.4%	\$9,353	\$25,059
Math/Computer	\$10,000	7289	6.4%	\$7,818	44	1.1%	\$1,344	615.5	2.5%	\$436	4821.0	0.2%	\$35	\$471	502.85	6.1%	\$4,258	\$23,891
Psychology	\$10,000	2961	2.6%	\$3,176	60	1.5%	\$1,832	562.5	2.2%	\$384	146268.0	4.4%	\$768	\$1,152	435.38	5.3%	\$3,699	\$19,859
Media Studies	\$10,000	3743	3.3%	\$4,031	94	2.3%	\$2,809	97.2	0.4%	\$70	29606.5	0.9%	\$157	\$227	213.23	2.6%	\$1,815	\$18,882
Communication St.	\$10,000	2924	2.6%	\$3,176	108	2.7%	\$3,298	964.5	3.8%	\$663	29606.5	0.9%	\$157	\$820	277.98	3.4%	\$2,373	\$19,667
History	\$10,000	2988	2.6%	\$3,176	24	0.6%	\$733	2336.0	9.3%	\$1,623	0.0	0.0%	\$0	\$1,623	113.60	1.4%	\$977	\$16,509
Political Science	\$10,000	1974	1.7%	\$2,077	48	1.2%	\$1,466	391.0	1.6%	\$279	511.0	0.0%	\$0	\$279	345.33	4.2%	\$2,932	\$16,754
Sociology	\$10,000	1667	1.5%	\$1,832	37	0.9%	\$1,099	663.0	2.6%	\$454	145213.0	4.4%	\$768	\$1,222	259.76	3.1%	\$2,164	\$16,317
Accounting	\$10,000	2894	2.4%	\$2,932	57	1.4%	\$1,710	97.2	0.4%	\$70	145423.0	4.4%	\$768	\$838	168.51	2.0%	\$1,396	\$16,876
Marketing	\$10,000	1906	1.7%	\$2,076	70	1.7%	\$2,077	97.2	0.4%	\$70	0.0	0.0%	\$0	\$70	168.51	2.0%	\$1,396	\$15,619
Finance/Economics	\$10,000	4543	4.0%	\$4,886	54	1.3%	\$1,588	97.2	0.4%	\$70	800461.0	18.2%	\$3,176	\$3,246	168.51	2.1%	\$1,466	\$21,186
Management	\$10,000	6013	5.3%	\$6,474	361	9.0%	\$10,994	97.2	0.4%	\$70	0.0	0.0%	\$0	\$70	168.51	2.1%	\$1,466	\$29,004
ISM	\$0	642	0.6%	\$733	8	0.2%	\$244	97.2	0.4%	\$70	0.0	0.0%	\$0	\$70	168.51	2.0%	\$1,396	\$2,443
Music Bus	\$0	12798	11.3%	\$13,803	1404	34.8%	\$42,508	263.0	1.1%	\$192	145212.0	4.4%	\$768	\$960	507.00	6.2%	\$4,328	\$61,599
Nursing	\$10,000	8073	7.1%	\$8,673	358	8.9%	\$10,871	708.0	2.8%	\$488	583775.0	17.7%	\$3,089	\$3,577	432.20	5.3%	\$3,699	\$36,820
Social Work	\$10,000	751	0.7%	\$855	28	0.7%	\$855	663.0	2.6%	\$454	145213.0	4.4%	\$768	\$1,222	349.52	4.3%	\$3,001	\$15,933
Art	\$10,000	3847	3.4%	\$4,153	98	2.4%	\$2,932	868.0	3.5%	\$611	149404.0	4.5%	\$785	\$1,396	208.83	2.5%	\$1,745	\$20,226
Music	\$10,000	12020	10.6%	\$12,948	518	12.9%	\$15,757	7299.0	29.1%	\$5,078	18220.0	0.6%	\$105	\$5,183	234.18	2.9%	\$2,024	\$45,912
Theatre	\$10,000	2553	2.2%	\$2,687	49	1.2%	\$1,466	964.5	3.8%	\$663	0.0	0.0%	\$0	\$663	118.68	1.4%	\$977	\$15,793
Religion	\$10,000	7978	7.0%	\$8,550	87	2.2%	\$2,687	3271.0	13.1%	\$2,286	179653.0	5.5%	\$960	\$3,246	227.47	2.8%	\$1,954	\$26,437
Total	\$230,000	113530	100.0%	\$122,150	4031	100.0%	\$122,150	25046.2	100.0%	\$17,450	3295807.9	100.0%	\$17,450	\$34,900	8,207.44	100.0%	\$69,800	\$579,000

Figure 5. Incorporating average cost of continuing and integrating resources into the formula for fiscal year 2009/2010.

Library Usage and Information Literacy

At this point in the process, the ad hoc committee reconvened to consider other ways to measure library resource usage. One member of the ad hoc committee, the Coordinator of Reference Services, was simultaneously working to integrate information literacy throughout the general education curriculum in order to satisfy new university learning goals. The Provost had been involved in developing the original information literacy plan and was also overseeing the revision of the allocation formula. He asked that library faculty link the two projects, thereby tying information literacy to the distribution of library funds. This would necessitate an examination of all departments' courses to identify where information literacy skills or library use was taking place, and then somehow quantifying that assessment to be used in the formula. No easy task to be sure! We decided that a syllabus study would help us meet both goals: 1) identifying information literacy components and 2) giving us a more equitable measurement of usage based on evidence found in the syllabi.

The literature revealed that syllabus studies have been used to measure library use but mainly for collection development and library instruction purposes. Fewer studies quantified syllabi in order to assess need for the library allocation formula.

Rambler's 1982 syllabus study was one of the earliest identified in the literature and one of the few to employ the results in an allocation formula. Rambler used scaling categories of "much," "some," and "none" to measure planned library use in a sample of courses. She argued that a syllabus study can lead to a curriculum-integrated library resulting in more accurate distribution of funds than traditional measurements such as circulation statistics. Rambler noted that cooperation from faculty is crucial to success, which we found to be very true. Since the allocation of funds was our main objective we felt it necessary and fair to measure use for all courses listed in the catalog, not a sample. This made for a much larger project which involved faculty from every department. As with most library initiatives this worked best with departments with which we already had solid relationships.

Lauer, Mertz, and Craig (1989) followed Rambler's model to compare the type and intensity of library use at two institutions. Their objective was to determine how much library use was required of students at different institutions, in different programs, and at different levels. As expected the lowest-use disciplines included those with lots of studio and lab work such as art and foreign languages, but use was low overall at both institutions and only increased slightly as course level increased. Lauer et al. conclude that students will only use the library if required to do so by their professors. We quite agree and hope that our review of syllabi will prompt faculty to be more aware of this fact when planning courses and especially when writing syllabi.

Using the scale developed by Lauer et al., Dewald (2003) examined two years worth of syllabi to discover how much research and what kind of library use was required of business students. Her objective was to improve service, communication, and outreach to the business faculty. Learning about the types of assignments given especially helped her plan future information literacy initiatives. Similarly, Sayles (1984) argued that analyzing syllabi would aid librarians when providing service to students and faculty. By knowing specific assignments and the context in which they are given librarians can better serve students, who oftentimes cannot articulate their information needs. Librarians can also create assignment or course guides, promote the use of relevant resources, and make informed collection development decisions, all leading to a more curriculum-integrated library. Williams, Cody, and Parnell (2004) also describe how a syllabus study increased collaboration with faculty and improved library services, especially collection development and instruction. Their project increased communication between librarians and faculty leading to greater awareness of library resources by faculty and of the curriculum by librarians.

VanScoy and Oakleaf (2008) conducted a syllabus study in order to provide evidence for curriculum-integrated instruction. The authors cite a number of studies that promote a tiered approach to instruction, the thinking being that freshmen should be introduced to skills that can then be built upon as the research requirements become

more rigorous. Rather than relying on librarians' assumptions or anecdotal evidence, a study of the syllabi can reveal the actual needs of students based on the assignments given and the level of research required of students throughout the curriculum. We hoped a study would do just that for us. While we assumed that we knew which research-intensive departments needed more library funding we needed evidence to apply to a formula.

Our project most closely resembled the Rambler model, but we adapted the scale used by Lauer et al. While our main objective was to assess need in order to revise the library allocation formula we also hoped to improve communication between librarians and faculty, strengthen the library liaison program and improve collection development and library instruction, as mentioned in the other studies found in the literature.

Development of the scale

In order to measure the library resource needs of departments based on the curriculum and assignments in each course a four-point scale was developed. Called the Course-Related Library Resource Needs Scale, it was used to assign a point value to each course listed in the catalog. After reviewing scales developed by Rambler, Lauer et. al. and those included in *Allocation Formulas in Academic Libraries* (1995), we developed the following four-point scale:

0 - No usage/need

1 – Light usage/need Assignments requiring library resources 1-4 times per semester

2 – Medium usage/need Assignments requiring library resources 5-7 times per semester (Short assignments or projects requiring library resources, papers less than 10 pages, presentations or performances less than 15 minutes, requiring fewer than 7 library sources)

3 – Heavy usage/need Assignments requiring library resources 8 or more times per semester (Longer, more substantial assignments or projects requiring library resources, papers more than 10 pages, presentations or performances more than 15 minutes, requiring more than 7 library sources)

We included some examples, but since types of assignments vary greatly between departments we tried not to make the scale too prescriptive. We really wanted to consider both the frequency and intensity of library use. For example, a course with no major projects but that assigned readings or use of music scores on a weekly basis would receive three points. Alternately, a course with one major project, occurring once during the semester but requiring more than seven library sources, would also receive three points. We omitted certain courses listed in the catalog such as study abroad, zero credit hour courses, internships, and special studies.

Collection of syllabi and meeting with faculty

The syllabus studies reviewed in the literature took a sample of courses, but we felt we needed to score each course listed in the catalog in order to be fair in the allocation of funds. We began collecting syllabi by contacting departmental office managers, most of whom keep courses taught in the last few years on file. In many cases it was as simple as visiting their offices and downloading a few folders to a flash drive. We identified at least one faculty contact in each department to work with, usually the order coordinator or department chair. Our faculty contacts in each department helped us collect missing syllabi, and in some cases, we contacted individual faculty for copies. Rambler acknowledged that an argument could be made that the syllabus study and scale arbitrarily assigned library use. We were also concerned with objectivity. For that reason we relied on faculty expertise to help us rate the courses. Rather than collecting the syllabi and having the librarians rate them, library liaisons met with faculty from each department to rate the courses together. The Coordinator of Reference Services attended each meeting in order to ensure as much consistency as possible.

Quantifying the data

After each course was rated the numbers were added together to give a department/school its total score. Our goal for evaluating syllabi was to give credit for actual library use taking place in the classroom. We did not want the largest departments to get the most points simply because they had the most courses. For this reason, a ratio of the total points and the total number of courses was calculated. The Library Allocations Ad Hoc Committee enlisted the help of a math faculty to help develop the following math model (see fig. 6).

Department	A	B	C	D	E	F
	Total courses	Total courses X 3	Numerical weight points	Relative ratio	% of wt. pts. to multiply into \$ amount of Lib. Resource Needs Component (\$21,000)	Final \$ Amts. for Library Resource Needs Component
Psych	22	66	39	59.10	38.87%	\$8,162.70
Media Studies	51	153	29	19.00	12.50%	\$2,625
Nursing	25	75	34	45.33	29.81%	\$6,260.10
Music	163	489	140	28.63	18.83%	\$3,954.30
Totals	261	783	242	152.06	100.01%	\$21,002.10

Figure 6. Math model applied to a sample of the syllabus study. \$21,000 was selected as an arbitrary “total budget amount” for sample purposes only.

The math model is applied to the data collected during the syllabus study as follows:

- 1) Count the # of courses for each department – Column A.
- 2) Multiply the number of courses for each dept. by 3 (the maximum # of possible research weight points for a course) – Column B.

- 3) Add the possible wt. points for all departments to get a sum total of all possible wt. points for all departments – Column B.
- 4) Count the numerical # of wt. points for each dept. – Column C.
- 5) Add the numerical wt. points for all depts. to get a sum total of all numerical wt. points – Column C.
- 6) Divide the # of numerical wt. points – Column C – by the # of possible wt. points – Column B – to get a relative ratio for each department's wt. points of the whole – Column D.
- 7) Add the relative ratios – Column D – to get a total relative ratio of the whole – Column D.
- 8) Divide each department's relative ratio - Column D – by the total of all departments' relative ratios – Column D to get percentages for Column E.
- 9) Add the final percentages – Column E – to demonstrate that the total comes to 100 % - Column E.
- 10) Multiply amount of available funds for the Resource Needs Component by each department's % of wt. pts. – Column E – to arrive at \$ amounts for each department – Column F.

The math model will be applied to only the resource needs component of the library allocations formula. The remaining components of the formula, including enrollment data, usage statistics and the average cost of continuing and integrating resources, will be calculated as they have been in previous years. Incorporating the resource needs component into the allocations formula will require an adjustment to the percentages applied to each component.

The syllabus study will be completed by the end of the 2009 fall semester. The first departments' numbers are now being calculated using the math model, and we are getting the results we expected. In Figure 6, psychology and nursing benefit the most from the new measure of usage. They have both been historically underfunded departments that are research intensive, and at least anecdotally, have always made great use of the library. Now we have evidence to back up our assumptions.

The syllabus study has also strengthened our information literacy program. We have increased communication and collaboration between librarians and teaching faculty. Belmont librarians have only begun serving as department liaisons in the past two years, and in some cases this was the first significant contact between liaisons and teaching faculty. We hope that relationships will continue to strengthen, but we have already seen positive results such as increased faculty awareness of information literacy and library resources. For example, some faculty directed students to use websites of resources, which would provide only limited access or ask students to login, when the library could provide complete online access through a database. Other faculty, assuming students would turn to the library, had never been intentional about requiring library use for assignments. Many faculty members are revising syllabi to include information about the library, whether by mentioning a specific resource or encouraging students to ask for help, we consider this a step in the right direction.

The syllabus study has also helped library liaisons to be more involved in collection development. After reviewing assignments we have been able to suggest course-related materials for purchase. We have reviewed suggested readings lists, and in

some cases, found that the library did not own most of the titles. Those materials are being purchased as well. Increased librarian awareness of the needs of the departments will help us become a more curriculum-integrated library.

Overall, the syllabus study and implementation of the Course-Related Library Resource Needs Scale has been a positive experience, but it has not been without its drawbacks. Collecting syllabi and especially meeting with faculty from each department has been a very time-consuming endeavor. We only plan to repeat the study every three years, and we hope to improve the process each time. Of course, some faculty were more willing to work with us than others, and some thought the study would be much more time-consuming and intensive than it actually was. The process was quite simple with faculty from departments with which we already had established relationships, and those departments benefited the most from the study in other ways. For example, social work was eager to work with us on this project because they wanted our professional input on the design of their syllabi and assignments. The result was an information literacy plan for social work majors, which included library instruction sessions in two core courses.

Our original goal was to develop information literacy plans for each department, and although we have done so for a handful of programs, we are still a long way from meeting this goal. One limitation is the number of library faculty. Some liaisons work with five or six departments making it difficult to spend much time with any of them. And again, some departments are more receptive to working with librarians than others, and this will probably always be the case. The syllabus study has given us a starting place though to launch other initiatives, and overall we are encouraged by the response so far.

The following formula, which has been approved by the University Provost and Library Committee, will be implemented for fiscal year 2010/2011:

- Pre-determined amount for General fund
- Pre-determined amounts for new and cross-disciplinary programs
- Eliminate the Basic Amount component
- 25% based on credit hours produced
- 25% based on majors
- 25% based on average cost of continuing and integrating resources
- 12.5% based on usage (6.25% Library of Congress classified print materials, 6.25% electronic resources usage)
- 12.5% based on course-related library resource needs scale

Findings and Conclusions

By introducing several new elements gradually over the course of a few years we hope that the new formula will satisfy the needs of our changing and growing programs. Paris' findings align with what we also identified as long standing problems that still remain. "The improved situation of one department is always at the expense of another" (Paris 2007). Some departments will continue to overspend, such as health and applied

sciences, while others will continue to under spend, such as Entertainment & Music Business. Belmont does address these problems. The library budget is one line item at the university level. In March of every fiscal year, the library reviews requests that were not filled earlier in the year due to depleted funds. Any remaining money for the year is used to fulfill these orders, even if the funds are coming from other departments. This has been a long-standing practice that the Library Committee and Library Order Coordinators support. There are other needs that we still need to address such as faculty research needs and the needs of our general education program, which are not covered by the current formula. The First Year Seminar course, required of all freshmen, is especially research-intensive, but it currently receives no special library allocation. We will continue to work to review and improve the process with the help of the Library Committee. It is always difficult to change when money and so many stakeholders are involved. We believe the incremental changes we made, which included faculty at each step, have led us to become a more curriculum-integrated library.

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