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# Developing a Weighted Library Allocation Formula

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## Abstract:

In this preconference workshop the presenters taught attendees how to create a spreadsheet-based library collection development allocation formula to help each better manage their respective library's limited collection development resources. The presenters demonstrated and led participants through the process of creating individualized Excel-based formulas that can be scaled to utilize the criteria relevant to their specific library and institution. Key to the success of this formula is the use of weights applied to each factor used in the formula. Potential factors include the number of students majoring in a degree program, graduate program enrollment, departmental credit hour production, and the average costs of books and journals in a discipline. By carefully assigning weights to each factor, the output of the formula results in a more equitable allocation of funds to each subject area.

## Introduction

Bailey and Creibaum briefly discussed the history, development, and use of such an allocation formula at the main campus of Arkansas State University. This was followed by a brief discussion of how the basic formula may be individualized for use in a variety of library settings and types.

Attendees were introduced to the skills and resources required to enable each to build a spreadsheet-based formula to help optimize the allocation of their library's financial resources. Discussion included the methods by which the formula can be modified as conditions warrant and campus circumstances change. Attendees were each given a jump drive that contained copies of the session's PowerPoint presentation and a basic working copy of the formula that was identical to the one used for demonstration purposes during the session.

## Developing a Library Allocation Formula

### Background

In 1997 Arkansas State University's Dean B. Ellis Library had no equitable means of providing allocations to the various departments for selection of library materials. Departmental allocations had grown unbalanced to the point that one department accounted for almost 20% of all collection development expenditures. Funds had not been reallocated or redistributed in many years, and as a result the library had no means to purchase materials in support of new programs.

Librarians searched professional literature to discover methods of making allocations, including the use of a formula, and ultimately decided to develop a formula for Arkansas State that was based on one used by Colorado State University and described in SPEC Kit #36.

### Gathering Data

Before selecting formula factors, it is necessary to gather the relevant data needed to make informed decisions. The presenters led a brainstorming session in which workshop participants suggested possible factors for inclusion in an allocation formula. Suggestions included:

- cost of materials
- circulation of materials by subject area
- number of students in each major
- number of majors
- number of faculty
- Interlibrary Loan requests by subject area
- credit hours per discipline
- prices of books and journals
- accreditations
- degree levels
- consortial plans
- graduation numbers
- faculty publications

Bailey and Creibaum next led an exercise in evaluating and refining the list of suggestions from the brainstorming session. Duplicates, such as cost of materials and prices of books and journals, were consolidated and non-viable suggestions, such as identifying the users of online resources by major,

were eliminated. It was noted that some factors might be viable at one institution but not at another, and that some brainstorming suggestions might not be appropriate to the formula at all. Furthermore, when determining what data is available, participants were reminded that some data may be obtainable at some institutions but not at others. When building a formula, gather samples of available data and eliminate from consideration all factors for which you cannot obtain complete data.

### **Factor Selection**

Selection of formula factors should be completed only after each possibility is examined for completeness of data and relevance to the institution's collection development goals. Documentation should be retained for all factors considered for inclusion in the formula, whether they were selected or not, including the specific reason(s) for those not included in the allocation formula. There is a strong possibility that at least some of this information will be needed when rerunning and/or making changes to the formula in the future.

### **Weights**

Weighting is the assigning of values to indicate the importance or impact of each factor in the formula relative to the other formula factors. In making an allocation formula there are various considerations in determining what weight to give to each formula factor. These considerations are particular to each individual institution, and may include input from a Library Committee, Faculty Senate, or other constituencies. Factors may be subdivided before assigning weights. An example of this would be subdividing undergraduate and graduate semester credit hour production and assigning a different weighting factor to each. Do test runs, as minor changes in weights or factors can sometimes yield unexpected (and unbalanced) results! Be prepared to make changes.

### **Options**

Formulas may be run to allocate funds for books, journals, print materials, online resources, or any other budgets your library may have, either separately or in combination. Libraries may choose to allocate all available funding or keep some back for in-house use in accordance with local campus culture and practices. There may be reasons for libraries to choose to make adjustments to individual

allocation amounts after running the formula, including not wanting to reduce any department's existing allocation, choosing to reduce/not increase an allocation amount because a department had a history of not spending a satisfactory portion of previous allocations, or adding an amount to help cover start-up of a new program. Additionally there might be special entities or sacred cows to consider.

### **Running the Formula**

Attendees were then led through a live demonstration of a scaled-down version of the allocation formula. During this demonstration, Bailey and Creibaum explained various aspects of the formula and discussed the relationship of the weighting of each factor to the final output. Attendees were given the opportunity to suggest live modifications to the demonstration formula so that everyone could see and discuss what occurred each time changes were made.

### **Comments**

If a decision is made to develop and use an allocation formula, it is vitally important to thoroughly document the factors you used and how the formula data was gathered. That information will be needed in future runs of the formula, whether a library is rerunning an unchanged formula with updated information or has decided to modify it. Formulas will almost certainly need to be modified at some point in the future because of changes in the library or in the institution's makeup or needs.

### **References**

Association of Research Libraries. (1977). *The Allocation of Materials Funds in Academic Libraries*, SPEC Kit 36. Washington, D. C.