In this era of distributed computing and access vs. ownership the end-user's role in choosing the cost and content of information purchased has increased dramatically. When collections were in buildings and selection was done by teams of subject librarians and faculty experts, users made choices from this pre-selected and arranged set of information. Faculty/librarian teams still have a role in selection, but the end-users sitting in dorm rooms at fully networked workstations have an enormous universe of information to choose from that is often not filtered for them at all. The institution still pays, more and more, for access to that information, but end-users are deciding what specific information they are getting for that money. This paper looks at ways we can insure that money is spent on quality information that helps patrons reach the institution's educational goals.
In this era of distributed computing and access vs. ownership in academic libraries, the end-user's role in determining the cost and content of information purchased has increased dramatically. This paper looks at how this situation is developing and at some ways we can work to insure that the highest percentage of the college or university's money is spent by those users on quality information that helps them reach the educational goals set by the institution.

When the collection that faculty, students and staff used for research and teaching was primarily a physical collection located in a building or buildings on campus, the funding for items in that collection usually came from a library materials budget. That materials budget was often divided among academic departments via complex allocation systems developed to insure that money was spent according to curricular and research needs. Decisions about the specific books and journals to spend this money on were made by faculty and librarians. They relied on their own subject expertise as well as collection development tools such as reviews and annotated bibliographies developed by other subject specialists to insure that the funds were spent on resources that would be most useful for the library's patrons.

Most academic libraries still have materials budgets, allocation formulas and faculty/librarian teams making selection decisions. However, this system no longer determines the universe of information available to an institution's faculty and students. The advances of information technology and distributed computing in particular have changed this picture. First of all, we can buy less with our materials budgets because these budgets and their buying power have been steadily shrinking for most academic libraries. Part of this is due to high inflation in the publishing industry, but another major factor has been the need to allocate money for hardware, software, networks and online information. These types of expenditures are often not funded within the structure of the materials budget and its allocations. Now, students and faculty often have greater, simpler, and remote access to a larger number of online indexes, catalogs and collections of data. Because of increases in document delivery options, they have the ability to obtain a greater number of the items they find through these sources. Finally, because of the immense amount of information that has been made freely available on the Internet by scholars all over the world, by chemical & biotech companies, by political and religious organizations, by creative 12 year olds, etc., they have access to information sources that their institution has had no role in selecting. The in-house book and journal collection developed so carefully and on which a significant amount of money is still spent, increasingly only represents a fraction of the information available to our patrons; furthermore, the controls used to insure the quality of that collection do not automatically extend to these other sources of information.

While a number of recent articles have begun to address some of the issues related to the quality of the information our patrons are now retrieving, one aspect of the situation that I don't think has been stressed enough is how this new situation means that it is the end-users who are making the majority of the decisions about how our budgets are spent. They are choosing what specific information is actually purchased with the money spent on hardware, software, database access, document delivery, networks, and Internet line maintenance fees. I think it is important to draw attention to this, because it may be one way we can get the attention and cooperation of our administrators and other departments on campus in working to restructure library budgets and services so that this new environment works best for our institutions.

End-users determine the specific information that is purchased by the library's budget in several ways. First, the end-user chooses which database or collection of information to search.
Usually the library will have directly purchased the access to some of the options that are available to the end-user, and access to the other options has been indirectly paid for in the form of hardware, software, and network costs. The English literature student writing a paper on Ernest Hemingway's *The Sun Also Rises* decides if that money will have been spent to find an article using the MLA Bibliography, to find a book in the stacks, or to download a paper on the topic written by an undergraduate at another university.

Second, the end-user's search skills determine what they will find and how long that will take. So, their skill level determines directly or indirectly the cost of what they find. In databases that charge a per-usage fee like many provided through OCLC's FirstSearch service, the impact is direct. If it takes them 10 searches to find the information they want, it costs 10 times as much. Their search skills also determine whether or not they will find the most useful information. This was of course true with print resources as well, but I think that search skills have become a larger factor with the advent of online resources and distributed computing.

Third, when the end-users discover books or journal articles listed in a database, they decide which items to actually get - usually regardless of which ones the library owns. With the increase in the use of interlibrary loan and document delivery, the library provides the funds and the student chooses which books or articles are purchased with that money.

Fourth, most academic libraries have begun to provide their patrons with access to databases that provide the full-text of articles. Again, the library is still paying for the articles, but the end-users is deciding exactly which articles are purchased with that money rather than librarians and faculty deciding which journals to purchase subscriptions to.

So, am I suggesting that we eliminate distributed computing, that we control the Internet, or that we not allow our patrons to make these decisions, no of course not. Neither am I suggesting that libraries have not already begun to think about these issues and develop solutions. What I am suggesting is that those of us who have not, begin and those of us who have, continue to look at how we are developing our collections, providing our services and budgeting our scarce funds. Then we can work to develop ways in which we can insure that our end-users can take advantage of the benefits of distributed computing and find the best information that will enable them to achieve the educational goals set by the institution.

We cannot force our patrons to use only certain information now any more than we could prevent them from going to other libraries or information sources off campus in the past. The point is that we need to find ways to make it easy for our patrons to find and identify quality information in this new “collection,” just as our selection of the in-house collection made that easy for them in the past. Then we need to insure that our budget structures, staffing plans, and selection policies support these strategies.

Now I'd like to discuss specific ideas about new ways to insure the quality of the information our users are getting. I'll divide the suggestions into three categories, what we can do in working with our users to increase the likely hood that they will spend our information dollars wisely, how improving cooperation between librarians and others in the institution can also help us achieve this goal, and how we need to restructure budgets and develop assessment programs so that these types of activities are best supported and their goals achieved.
In his article "The Academic Library Collection in an On-Line environment," Ross Atkinson points out that "academic libraries exist for only one purpose: to provide local users - scholars and students - with access to the information they need for their education and research. The library achieves that purpose by ensuring that needed sources of information remain accessible and reliable over time" (43). He concurs with Richard Lanham that "the scarcest resource in the information age will be the reader's attention" (44), and goes on to state "the purpose of the collection is precisely to permit the user to focus attention on what is relevant amidst the din of other sources. . . . The need for such economics of attention will increase as we move further into an on-line environment" (44-45). One of the first things we can do is to make sure that the in-house collection, the collections we are providing remote access to, and the services that we are providing are targeted to meet the specific needs of the specific "scholars and students" in our institutions. This is one way we can get their attention. If the connection between what we are offering and what our users are looking for is direct and obvious, they will be more likely to use these tools and guidance than to sit at home randomly surfing the net. I think this type of targeting is an essential component to any program that aims to increase our success in meeting users' needs for quality information.

Not only does it mean our services will be more likely to be used, it also means that our money can be spent more effectively and that we are more likely to get support for that spending. Samuel Demas points out in his article "Mainstreaming Electronic Formats" that more than ever we need to ask the questions "who is our audience, and what can we learn about their needs and skills?" He states that "we can gain maximum advantage from our investments in new formats by targeting them to specific audiences and by carefully studying their response to and success with these formats. . . . By successfully analyzing and meeting the information needs of specific constituencies, and by assisting them in raising their level of information literacy, we can gain valuable political and financial support" (229). Arleen Somerville also weighs in on this point when she identifies some of the keys to a "successful information services program" as "identifying specific information needs of each user group within the university community," "marketing services to each user group," and "raising users' consciousness about possible services" (34). And finally Eileen Hitchingham, in an article on collection management, writes "we will have to know our users better. Niche knowledge of users, with tailored services based on our knowledge, is increasingly important. . . . We have fewer resources -- not just dollars, but people. We have to understand how our collections are being used, who is using them, who needs them" (39). All of these writers have pointed out that in order to target our services in these ways we will need to gather the information necessary to identify the specific users in our institutions and what their needs are.

One of the next steps we can take after identifying user needs is to develop user training for those specific groups. Colleges and universities have had instruction programs for a long time -- this idea is nothing new. However, distributed computing makes this component of library services even more important. As I've pointed out, our patrons are now much less likely to stumble on the best information. The morass of information that they have to work through means that training becomes even more important if they are to achieve their research goals. A good training program also goes a long way towards more cost-effective spending which means that our scarce dollars can be targeted better towards achieving our goals. A training program can involve significant start up costs, but a good program will reduce costs in the long run. In a study done at the University of New Hampshire, Betty Le Compagnon and John F. Leydon found that an investment in training resulted in a big payoff for the university. Though they
were specifically looking at training in computer skills, I think their conclusions apply to information seeking skills as well. They concluded that "the most cost effective means of providing support to users is through effective user training" (165). Their study showed that start up costs were more than recouped by savings in staff time, equipment maintenance, and downtime. Two of the key elements they identify in an effective program are making training "as easily accessible as possible" and making sure that the training is "evaluated carefully and tailored to both institutional and individual needs" (171). Training our end-users will increase their ability to spend our information dollars effectively in a couple of ways. Through training we can teach them both search skills and evaluation skills. This will enable them to find the information that will be most useful, they will be able to find it more quickly and on their own (thus less expensively), and they will be able to make more informed choices among the results they obtain. Again, however, in order to attract the attention of the users in the environment of distributed computing we must make training services an obvious and attractive choice.

Documentation is another element that must be re-worked to fit the new distributed computing environment. I think we need more documentation in this environment and that it must take new forms. Libraries have, perhaps always, provided various degrees of written documentation in the form of point-of-use guides, handouts, or manuals; however, in the past we were able to rely on reaching a large percentage of users by being at the reference desk or wandering round the reference room while they were using indexes and reference tools. For most of us the percentage of users we can reach this way has decreased. Furthermore, because of the benefits of distributed computing and online resources, most libraries are now also providing a larger variety of indexes and research tools. These things result in the need for increased documentation. Secondly, that documentation needs to be in a different form. It needs to be accessible and again the key is that it be easily and obviously accessible to the user doing research. Most of us have been developing and providing Web based documentation for a couple of years now, and some have been moving towards expert and interactive interfaces that work to provide a filter between our users and that new universe of information. We need to continue to move in these directions, and to make these tools even more effective I think we need to do further research into what formats and structures work best for our users. By that I mean not only which ones achieve the best search results, but which ones fit best with the research behaviors of our users.

Not only can we provide these sorts of front-end interfaces, but we can go further to provide help within the catalogs, indexes and other research tools themselves. One of the benefits of the new client server and web based products is that most are considerably more customizable than in the past. We now have opportunities to tailor the help and documentation within these programs to better meet our users’ needs.

Most of us have found that the majority of our users have responded positively to distributed computing and the new universe of information that is available. They like working from their rooms and offices. However, I don’t think that this means that they don’t want guidance. Demas points out "whether they know it or not, what many Internet users are demanding is the kind of selection and organization that libraries have traditionally brought to the world of published information resources" (1995,276). What they will do is what comes easiest and first to hand. This is nothing new. A combination of focused user training and custom designed interfaces and documentation can allow us to provide a filtering service as we did in the past when we tailored the physical collection to our users needs. They are now making the choices, and we need to try to provide them with tools they need to make good choices.
In addition to making these sorts of changes in how we interact with and provide information to our users, we also need to integrate what we are doing to further the institution’s mission into what the faculty and other divisions of the institution are doing. Brendan Rapple states in a recent article in *Cause/Effect* that “in today's networked information environment, any library action must be part of a wider campus infrastructure committed to furthering new educational approaches”(46). We are just one of the resources that students and faculty use to achieve their educational goals. We will have a much greater chance of making a significant contribution -- of being a resource that is chosen -- if our users see our services as a integral part of the rest of their university experience.

When in this article Rapple stresses the need for cooperation between librarians and faculty and cooperation between librarians and computing staff, I think that he has hit on an element that is crucial to our success. In regard to librarian-faculty cooperation he writes, "it is becoming increasingly important that librarians and faculty become colleagues in the research process, " and then goes on to add that “librarians must not only collaborate with and assist faculty in their research, they also have a central role to play in the teaching process”(47). Of course good librarian faculty cooperation has probably always been a goal and when achieved I’m sure has always resulted in better outcomes for our students. Perhaps the reason it is even more important now is that in addition to the fact that it improves our students’ education, it now also allows us to make the most cost and time effective use of the institution’s resources. Furthermore, because we are now more accountable for the outcomes in our institutions, we are even more concerned to do those things which insure those outcomes. Librarians and faculty need to work together to make sure that assignments that involve searching for information are designed effectively. Training will be much more effective if it is integrated into courses and the link between it an the student’s studies is clear. These are things that will contribute to the goal of making our services obvious to the users and easy for them to take advantage of. It is also one way to insure that our services are closely tied to educational goals. And finally, if we are communicating with the faculty, listening to their needs, and effectively conveying to them how we can help them reach their goals, then they are going to be much more supportive of our programs and of decisions to fund them.

Rapple also points that “above all there must be strong communication and an effective partnership between the institution’s library and its computing service”(46). In many institutions the library is being merged with academic computing services to create one large information technology division. Whether we all go this far or not, we cannot hope get our patrons to use technology effectively if we are not cooperating fairly closely with computing services. First of all, the online tools and resources that we are directing our users to are most likely to function best if they are designed with input from the people who are providing the infrastructure for them and who are experts in how the technology works. Secondly, this cooperation is another key element in making our resources and services an obvious an attractive choice to the user. Robert Huaptman and Carol L. Anderson, in a study on the impact of technology in libraries, note that users are demanding "a 'seamless' system [that] will integrate all types of information, whether accessible on site or deliverable from some distant location.... Users just want to retrieve the information”(255). If the library’s online guidance, expert interfaces, and carefully designed training aren’t integrated into campus wide information systems and training programs, then it will be too easy for users to ignore them. Finally, Rapple points out that not cooperating results in "a duplication of effort and a waste of resources.... Both services need the other in order to attain the same ends for their institution”(46).
Obviously, reducing waste is essential if we are to target our scarce resources effectively. I think that working hard towards achieving cooperation in these areas is one of the most effective things we can do to insure that our services will be used and that they will result in the outcomes our institutions are striving for.

The next thing that I think needs to undergo major change in order for libraries to achieve these goals is the structure of library budgets. I don’t think that the budget structures commonly in place now are effective at supporting the types of strategies and programs we’ve been discussing, and thus that they are not effectively facilitating the achievement of the institutions educational goals. John Oberlin wrote a serials of articles in _CAUSE/EFFECT_ last year in which he points out a number of changes that need to be made to budgets in higher education in general in order for institutions to effectively use new technologies in the distributed computing environment. I think it would be useful to draw attention to these points here because they are just as relevant for library budgets as they are for colleges and universities as a whole.

One of the first things Oberlin suggests we need to do is “plan on spending more” and to “articulate the business case” for doing so (15). He writes “The case for information technology [and budgeting money for it] is that it is a long-term investment in the competitive standing and productivity of the institution” (15). He emphasizes that we need to impress upon our senior administrators that education is a costly business and that if we are to achieve our goals and compete we need to spend the money that is necessary to do this. Budgets need to grow because the cost of education has grown. Murray Martin, in his book _Academic Library Budgets_ , also emphasizes this need to move towards basing budgets on cost not income. He writes that “existing budgetary strategies are unequal to the task of responding to the modern library’s needs. . . . Libraries must begin to relate budgets directly to costs . . . [and] to present financial plans which have a rational basis, and relate to institutional need” (21). We need to be up front with our administrators. Costs are not going to go down, and sacrifice is only going to result in a downward spiral. We can cut out waste, some ways have been mentioned already, but costs are still going to increase. If we don’t plan budgets that acknowledge these rising costs, we will not be able to compete, and then the institution will not be able to raise the funds it needs.

Another point Oberlin makes is that we need to move away from ”legacy-based fiscal thinking”(no.1, 21) and towards “Life-cycle budgeting”(no.2, 12). By acknowledging at the budget stage the short life cycles of the technology we are investing in, we can plan to make the best use of our funds. Oberlin writes “financial strategies will need to support technological evolution so that technologists can optimize campus investments over time. Business models that require long amortization periods, ad hoc purchasing decisions, or monolithic architectures, will almost certainly drive poor purchasing decisions” (no.2,12). It often seems easier to get money if we propose some big amazing dramatic program change and make claims about how long it will last. But this sort of thinking can only hurt us in the long run. It means we are spending more at this point than we need to, and that so much of that money will only go to waste. Instead we need to budget for constant expenditure and high change over for programs and products that have been carefully planned and designed with a realistic life-cycle in mind.

Not only can we benefit from implementing these broader budget strategies, but we need to make changes in some of the structures of library budgets in particular. For most of us budgets are still divided up in old fashioned ways. There is a ”materials budget,” even though the definition of what can be spent with it has become all fuzzy. Then there is often an equipment budget and then various sorts of ways of dealing with ”services.” One of the first things that
libraries need to do is re-structure their budgets to better support what they are actually trying to do. We have changed what and how we do things, but our budget structures have remained the same. Several librarians have been making this point recently. Martin states "The line between materials and services is no longer clear" (20). Demas states "the trend is definitely towards a construct in which collections are inseparable from the array of information services of a library. Collections have traditionally been measured and compared in terms of the size of their physical holdings (volumes). Evaluation of services is gradually being combined with traditional collection evaluation methods to give the true measure of 'collections'" (1989, 230-231). When we set these budget lines up as if in competition with each other, we cannot spend funds in the best possible way. If we are forced to spend x amount on one thing and y amount on another, we are not in a position to make choices based on user needs and institutional goals. The budgets need to match the goals, not an outdated formula.

This same problem arises within the materials budget as what Atkinson calls "The format fallacy" (52). Many library budgets are still divided into allocations by format. I think that this sprung out of a division between books and serials, which was probably originally based more on differences in pricing structures and vendors than on the fact that they were different in physical format. However, when other formats arose this pattern was continued. The fact is we should not at this point be committed to policies that require us to spend so much on this format and so much on that. All budget lines instead need to be tied directly to our mission and goals. Rose Mary Magrill and John Corbin point out in Acquisitions Management and Collection Development in Libraries that "the budget process involves identifying specific program goals and objectives through the planning process, specifying the physical and human resources required to accomplish these, and communicating the financial requirements for supplying these resources" (51). It is this that needs to be driving our budget structures not commitments to materials vs. services or to particular formats.

The final area that we need to work on in order to reach this goal is assessment and tracking. I've mentioned some aspects of this earlier in regard to targeting user groups and restructuring budgets, but I'd like to stress how important this element is. W. David Penniman has pointed out that "we are entering an age of accountability in which institutions are being asked to measure their performance and to have their leaders accept responsibility for this performance" (85), and each part of the institution is being asked to play their part. It is essential for libraries to not only base their collections -- whether in house or remote -- and their services on the mission and goals of the institution, they also need to be able to document that these collections and services are in fact contributing directly to the outcomes defined in those goals. This is essential if we are to get funding for our collections and services. As I've said before, in order to make sure that funds are being used effectively we have to have them allocated in an effective way. If we cannot get those allocations, then we cannot provide the types of services and collection access that will lead our patrons to choose the best resources. Anthony Ferguson, in his essay "Collection Assessment and Acquisitions Budgets," points out that "in the past we readily professed that eighty percent of our collections were very long-term investments. That may be a margin of error that will no longer be tolerated. Unless we assess, buy to meet needs, and verify what we buy is needed, we will continue to see our resources dissipate. Our Universities are confronted with a multiplicity of fiscal challenges in which unprotected and unproven library acquisitions funds may be viewed with covetous interest" (59). We will certainly not be able to lobby for budgets based on cost rather than income or past budgets if we cannot convince the administration that these costs incurred by our end-users are in fact essential for achieving the outcomes desired by the institution.
It is also essential for us to do continuous assessment if we want to guarantee that the collections and services we are providing are effective. Without combining all the strategies mentioned so far with continuous assessment, we cannot know that we are in fact helping our patrons to use this new "buying power" that they have for the purposes of discovering the best resources. If we do not know what is working and what is not, we cannot adjust our programs and policies to increase effectiveness.

This type of assessment will require not only tracking end-user behavior and research results, but also better tracking of costs. This will be easiest if we have been able to re-structure our budgets to truly support the collections and services we are providing. A deliberate strategy must be developed to directly link costs to outcomes on a continuing basis if the assessment is going to be effective. In addition, this type of assessment of course also has its own costs and as with the other strategies mentioned these costs need to be anticipated and built into an effective budget.

Advances in technology and distributed computing in particular have had a significant impact on academic libraries. One of the changes has been that end-users have a much larger role in selecting the information that is paid for by the library’s budget. Targeting our collections and services, providing carefully designed training and documentation, improving both faculty/librarian and computing staff/librarian communication and partnerships, re-structuring budgets, and engaging in continuous assessment are just some ways that we can begin to work within this new environment to insure that our end-users’ selections are effective. Our goals have not really changed, but we need to continue to consider how we can adapt the methods by which we achieve them to the ever-changing world of information.
Works Cited


