The Time Management Study as a Tool for New Technical Services Managers

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Introduction

Technical services librarians new to management face several challenges. They must meet the expectations of administrators, other library departments, employees, and patrons while simultaneously understanding departmental assets and needs and building relationships with and trust of staff. Compounding these challenges is a lack of preparation. Middle managers in academic libraries are generally trained as librarians, not as managers. Masters programs in library science (MLS) often provide inadequate training for managerial success; as noted by Rooney, "36% of current department heads had either no formal management training at all or no formal management training beyond classes in library school before their first department head job".[1] Workshops and leadership institutes provide an excellent source of training but often are not geared specifically to library environments, leaving middle managers to learn on the job. There is a need for better training and sharing of tools for new technical services managers.

While only one aspect of management, good time management is crucial for success. Time management studies are one of the tools available for managers to use. A time study is a direct and continuous observation of a task, using a timekeeping device to record the time taken to accomplish a task. [2] A time *management* study views time study data in the context of total labor hours and department priorities and goals. New managers can use the principles of the time management study to more fully understand department operations and to guide allocation of staff resources. This article shares how two managers, one at the University of Nevada, Reno (UNR), and the other at the University of Montana (ML), used time management studies as effective tools to glean information about their departments and to make more effective use of personnel.

Literature Review

The majority of available professional literature on library technical services does not discuss management or management tools. In her content analysis of over 250 technical services research studies published between 2007 and 2011, Gelber reports that less than ten percent of research focused on technical services personnel, the closest topic to management.[3] Our review of library literature also revealed very little about the use of time management studies in libraries. In an early article from 1970, Gilchrist discusses the usefulness of what he calls a "work study," noting that "most people associate Work Study with the stopwatch" and a technique to "streamline production methods and cut down on staff" but that "it can be extremely illuminating if conducted constructively."[4] Almost presciently he states that "mounting pressures are going to force librarians to question the validity of certain practices and to adopt new techniques that will radically change the shape of the information system of tomorrow."[5] He also notes the rich information that can be gleaned from having staff complete a time log or diary.   The "work study" as imagined by Gilchrist is equivalent to the modern time study, and his

concept of disassociating it from the stopwatch is precisely the purpose of a time management study as we have applied it.

Our literature review also revealed very few uses of the time study as a research device in itself. One notable exception is a 1986 CLIR grant report by Gothberg and Riggs regarding a time study which surveyed academic library directors on how they spent their work time, their management styles, and their opinions on the biggest time wasters.[6] The literature also demonstrates that in general time studies are not used as an end in their own, but are paired with other data to create time-and-cost studies or time-and-path studies, or as fodder for setting technical services benchmarks.[7]

Our studies had the most in common with Spencer and Dorsey's 1995-1996 assessment of time spent answering reference questions at Arizona State University West, which is fairly different from conventional time-and-cost studies conducted in technical services departments.[8] Recording the number of patron questions against day, time, and academic calendar, they were able to confirm that while reference librarians spent more time overall with affiliated users, during certain times they answered more questions for non-affiliated users. This helped managers determine where to direct the most effort and staff time.

A more typical example of available literature is Dragon's time-and-path study monitoring how much time it took to process certain monographic resources and the path they took.[9] Also common in the literature is the time-and-cost study, though normally its relation to management strategies is merely implied. For example, Siguenza-Guzman et al. reported on the use of Time-Driven Activity-Based Costing (TDABC) at an academic library in Belgium in an effort to use non-traditional cost analysis to improve cost efficiency, quality, and innovation in its lending and returning activities.[10] In one of six steps the authors calculate the practical time capacity of each resource group, comparing staff against machines that perform similar work. Another step results in a chart showing cost per minute for machines, library management systems, staff labor, and student library employees. The average time, cost per minute, overall cost, a few variables, and resources used can be tracked, but the process is a deeply complicated mathematical exercise that only tells about the cost of an individual activity, not how well the department is working together in context to serve its user base. Furthermore, for small departments that have already been stripped down to the smallest possible number of staff, the time investment in such a study may not be worth the knowledge gained, and for work such as original cataloging that cannot yet be performed by a machine, there is little to compare to.

In another look at new cost-accounting models, Kont et al state that "Efficiency equals results divided by costs, in other words, the efficiency of employees means how much good quality work is being done in as short time as possible."[11] However there is a difference between measuring how much time it takes a worker to execute an isolated task versus measuring the percentage of time overall that the worker spends performing one category of tasks in the context of an entire department's labor. Regarding the importance of taking into account the variety of work performed in a cataloging department Charbonneau notes, "Catalogers do not just sit all day cataloging new materials. We participate in meetings, work on special projects, supervise students, consult with colleagues, answer questions from other library units, handle rush requests, re-catalog items, reclass items, catalog added volumes, perform authority work, and more."[12] These many activities are excellent reasons to perform a time management study.

The time management study measures what is going on in a department through percent time analysis and can be a kinder, gentler way to gather information without associating a human activity with a cost figure. In fact Laitinen and Saatri argue for keeping diverse, granular data and statistics in order to answer a variety of questions-- not the least of which is the value or usefulness of the library in an academic organization.[13] They do not discuss time management studies directly but advise gathering a variety of data for more useful outcomes, benchmarks, and refining processes. Managers can use the raw data for answering different questions and inspiring new ones.

Benchmarks, also known as performance standards, have become a trendy discussion point in recent years but as Charbonneau notes, they can be met with resistance: "some catalogers misinterpret a library's desire to establish individual production benchmarks as meaning that quantity is more highly prized than quality."[14] He goes on to note that benchmarks are perceived by catalogers as overwhelmingly negative to the point of betraying distrust and disrespect of management for cataloging staff, as well as being impractical or unrealistic because of differences in materials, languages and levels of cataloging. It may be more desirable to use a simple time management study to assess the state of a department rather than, or at least prior to, imposing benchmarks that may not be necessary nor well-received from the staff who have to meet them.

While time-and-path, time-and-cost, and time data turned into benchmarks may seem like logical pairings, it is a shame that the simple time management study is not more often used to illustrate current work trends inside departments and to help managers guide work behavior and/or enact necessary change. Library literature suggests that the roles of middle managers are changing, further evidence that managers could make positive use of simple tools such as a time management study. In her look at the new roles of middle managers in academic libraries Chang lists the responsibility to distribute and deliver information very quickly in the communication channel, as well as to support administrative decisions for change and to make this change happen. Data documenting percentage of staff time spent can help with both efforts. Chang's keys to effective middle management also include the manager's role in coaching staff to accept and embrace change, and to "assure staff that their ideas and their ability to get work done are valued and trusted." [15] Thoughtful examination of the department as a whole can be a step in the right direction.

Rooney argues that new managers and middle managers are especially in need of more tools and data because, "a lack of management preparation is likely to be the most acute at the middle level of management, among those librarians who are newer to management and are mediating between upper administrators and front line professionals and paraprofessionals." [16] Discussion of strategic management tools is surprisingly sparse in library literature. In Singh and Chander's bibliometric analysis of the journal Library Management from 2006-2012, strategic management as a topic placed near the bottom at just shy of 3% of all the literature.[17] Yet anecdotal evidence tells us that technical services managers are more engaged in thoughtful, strategic management than the literature would suggest.

Case Study 1: University of Nevada, Reno
Background

UNR is a land grant research university founded in 1874 with a total student body of over 19,000. The library was established in 1887, and went through several iterations before assuming its current home in 2008 in a new building: the Mathewson-IGT Knowledge Center (KC). The KC serves as the main library on campus and includes an automated retrieval system

which houses the majority of over 1.7 million titles in order to offer more study space to students. The KC and three smaller subject libraries on campus share a catalog and technical services department.

The UNR Metadata and Cataloging Department (MCD) performs cataloging and database maintenance for all UNR campus libraries (to a lesser extent the Medical School) and three local community colleges. In December 2012 I joined the UNR Libraries faculty as the Head of MCD. At the time the department consisted of seven staff, four of whom had been with the libraries for fifteen years or more. The department had been without a formal head for almost two years, had weathered instability of leadership prior to that, and had seen significant staffing cuts and unfilled retirements since 2009, reducing the number of staff by a third. Prior to my hire two ranking MCD staff members with drastically different approaches and substantial communication challenges temporarily co-managed the department. Staff lacked direction, felt neglected and undervalued as a group, and operated in an environment of uncertainty and concern for job security.

Because my previous decade of professional experience had been in special collections metadata management rather than in a traditional cataloging environment, I needed to learn and understand the nature and scope of tasks performed by MCD. Additionally, staff were concerned about discussing legacy procedures and priorities. As Heinich and LaFollete note, "libraries, and specifically (technical services), are known for the longevity and low turnover of their personnel." They found that "even with developing technology… staff still followed the policies, processes, and procedures conceived a long time ago." The experience described by their cataloging coordinator was very similar to my own: "learning the new job turned into a process of excavating traditions" as they attempted to assess whether all tasks were optimal, performed efficiently and genuinely benefited the library's mission.[18] Communication improved significantly over the first six month as progress was made towards building trust, but the entire information gap had not been bridged. Juggling faculty, committee, and management responsibilities took a great deal of time, making it more difficult to form an accurate picture of the department's labor divisions and workflows.

In addition to my need to know the scope and nature of tasks and workflows, data were needed to prove the reality of the multitude of duties MCD performed beyond copy cataloging. A great deal of time in contemporary academic library cataloging departments is actually spent on database management, amalgamating large packages of vendor records into the catalog, authority processing, and consulting. A time management study was determined to be a good tool to use to ascertain the effectiveness of workflows and staff allocation in MCD.

Methodology

Seeing no available models in the literature that met my assessment needs, a daily time log was improvised for the data collection instrument. Consultation with staff resulted in the following categories: cataloging, monograph/serials item work, database maintenance, automated storage retrieval system (mars) work, special collections metadata work, authorities and headings processing, physical processing (binding and repair), staff or student supervision, resource contact activities (reference; consulting for others in department or library), meetings, communication (email), other. Note that production statistics, such as items-per-hour, were not part of this study, as the data collection was focused on how employees were distributing their time.

The daily time log was casually referred to as a "tick sheet" and held a week's worth of time data. (Appendix A) The tick sheet was created as an electronic document, but staff indicated they strongly preferred a simple paper document. Paper worksheets were distributed and staff and management recorded what they did each day down to fifteen minute increments. A field was added for staff to record total work hours for a particular day which enabled comparison of their data against a total for each category.

Because the self-reported data represented an approximation, it was important to collect enough information to allow calculation of an average; four weeks of data seemed a reasonable minimum. Considering that some staff's priority tasks and workloads vary week by week at UNR it was also vital to record during each week to give an accurate picture of a typical month. To make the time study less disruptive, staff were given four months to complete the exercise, allowing them to choose one week per month for recording so long as by the end of the period a total of four weeks were represented for each worker.

After data collection the next step was to transfer data from the paper tick sheets into Excel. A master spreadsheet was created for each participant, grouping data by week and then month (Figure 1). Each spreadsheet fed into a cumulative department-wide spreadsheet. There were inconsistencies, and interpretation of the data was required; each individual's spreadsheet also had to be tailored to include unique tasks that only they perform. This step was by far the most labor and time-intensive, requiring over twenty hours to interpret, categorize, and transfer the data. However labor intensive, this was an important step because it offered expert knowledge of both the data trends and staff recording habits.

Week of Month	Mon	Tues	Wed	Thurs	Fri	Week 1 Totals	Mon	Tues	Wed	Thurs	Fri	Week 2 Totals
dates recorded	30-Sep	1-Oct	2-Oct	3-Oct	4-Oct	9/30-10/04	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	Sept 9-13
Total hours worked that week	furlough	8	8	8	8	32	8	8	8	8	8	40
Cataloging work		4.5	5.75	3.25	5.5	19	6	6.5	5	6.5	4	28
Monograph/ Serials Maintenance						0						0
Item record work						0						0
Holdings for colleges						0						0
Transfers						0						0
Assigning SUDOC/SWANK #s						0						0
						0						0
Database Maintenance- Sierra						0						0
Loading records (non-holdings)			0.25	0.25	0.25	0.75	0.25				0.25	0.5
URL maintenance						0						0
Editing records				0.5		0.5			0.25			0.25
Reporting problems						0						0
						0						0
						0						0
MARS Work						0						0
Loading records					0.25	0.25						0
Loading/retrieving physical items						0						0
Corrections & database maintenance						0						0
Projects						0						0

Figure 1. (UNR) This snapshot shows a portion of one staff member's spreadsheet tracking daily, weekly, and monthly time spent for several categories of work (the bottom of the sheet is not shown). Each of these then fed into a cumulative spreadsheet that recorded the entire department's activities.

Lastly, the data were displayed graphically. Each worker's time was represented by five charts, one each for week plus one for the cumulative month; the manager's and the department's labor as a whole were also represented by weekly and monthly pie charts. Powerpoint slides were also made for each work category to show which staff members were primarily responsible for it and what percentage they contributed to total department hours spent on that category. The charts offered a very clear visual demonstration of the trends in the data.

Results

The entire department participated fully in the study, including seven full-time and one half-time staff members and the manager. Besides lessons learned about tool design and giving directions, some useful discoveries were made and confirmed several anecdotal observations.
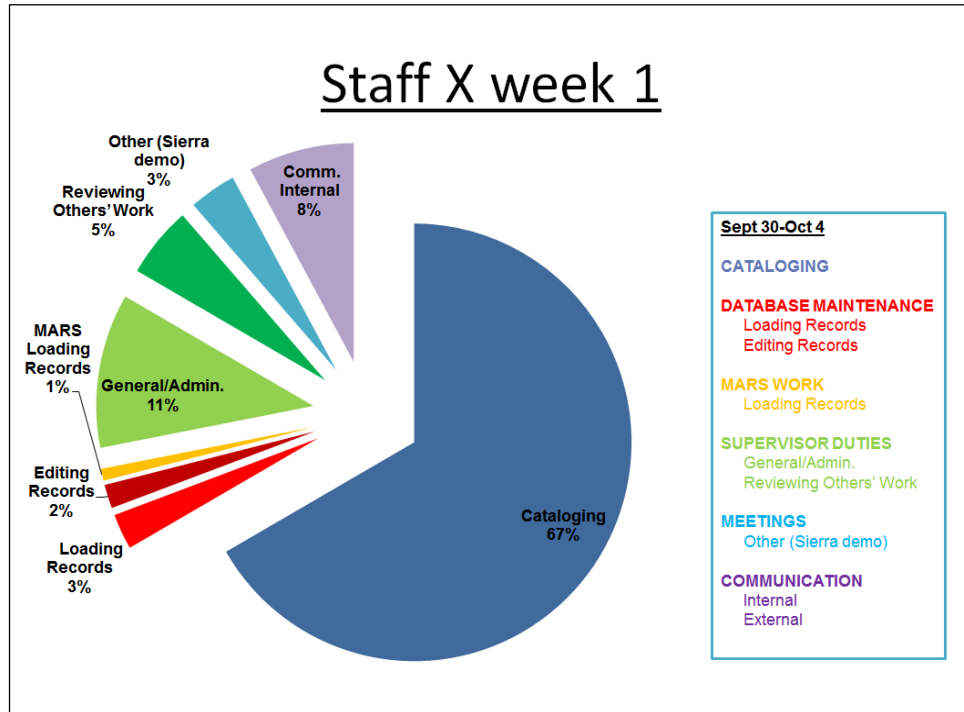

Figure 2. (UNR) example of a pie chart showing the percentage of time spent on various task categories by one staff member for the first week of the month. The exploded portion of the chart shows non-cataloging work.
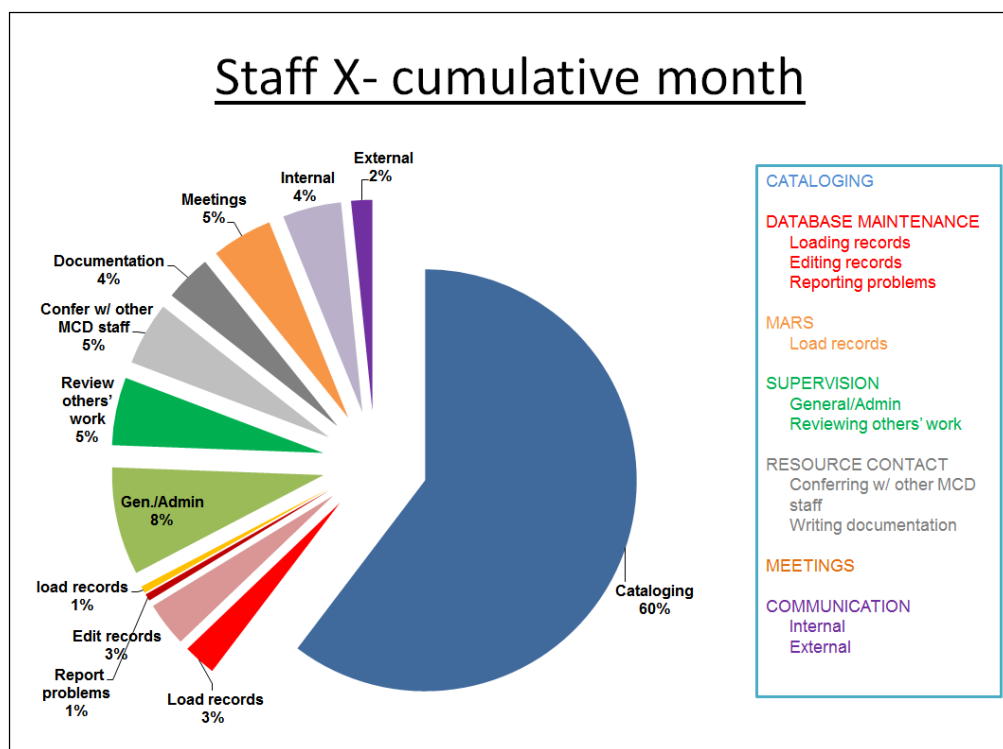
Figure 3. (UNR) Shows percentages of time spent on various task categories by one staff member on average over the whole month. The exploded portion of the chart shows non-cataloging work.

Appropriate to their job descriptions and responsibilities, some staff in the department spent as much or more time performing work in other categories as they did cataloging. For example, the staff person responsible for large vendor loads spent an average of 33% of their time over the month cataloging and 31% on three types of database maintenance, while another staff person spent an average of 25% of their time on authorities processing, slightly less than 10% cataloging, and 28% on non-headings-related database maintenance. One member of the copy cataloging team averaged only 30% of their time cataloging, which was about half the time their peers spent, and underlined a work prioritization issue that had to be considered.

Looking at the results overall, the time management study showed that the department as a whole spent only 25% of its time cataloging, indicating that other tasks required a significant percent of staff time. Yet, including database maintenance of all categories, nearly half of all department labor including that of the manager went to core functions of maintaining the catalog. A significant element of workflows, primarily affecting higher-ranking staff and management, included the social and supportive aspects of the department. This was time spent consulting one another and individuals in other departments, helping with reference, supervising and coaching, or writing procedural documentation. Communication proved to take a good deal of time as well, although individual habits varied greatly. (Figure 4)
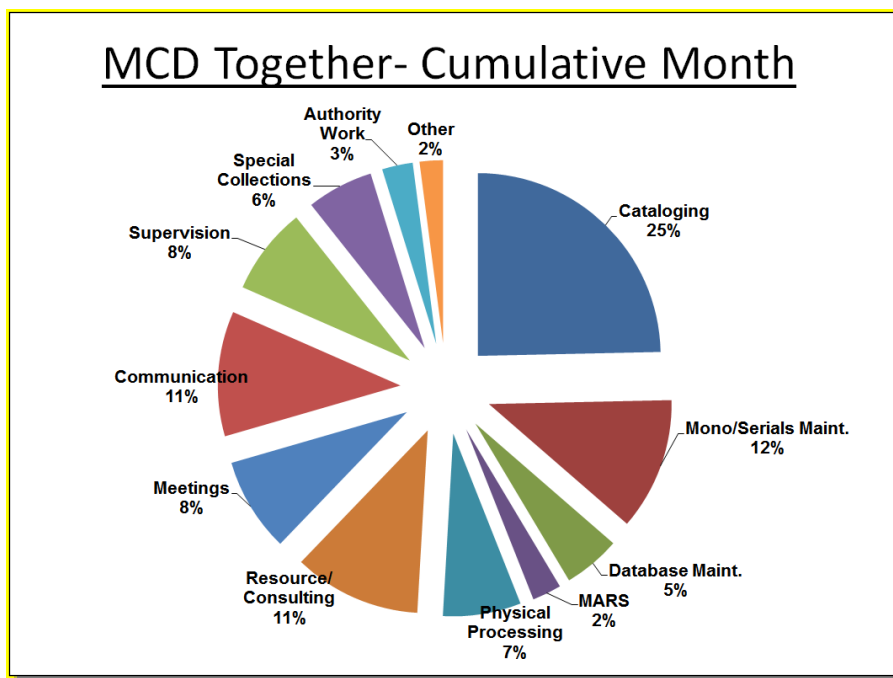
Figure 4. (UNR) A cumulative chart for the entire department covering all four weeks of data collection .

While the results offered few shocks or surprises, they were very informative for management and department direction, and a handful of careful changes to workflows and staff allocation were made in response. The time management study demonstrated that many staff members were positive contributors to the library overall through their consulting on cataloging questions and issues and supporting reference activities, a type of outreach actively celebrated and encouraged in the department. Communication via email was more time-consuming than anyone expected, even more so for the manager than for staff. Similarly, meetings were eating up more time per week than previously realized. A resolution was enacted to send fewer emails when feasible and initiate in-person conversations instead; this reduced the frequency and length of all-staff meetings and focused other meetings on essential persons using a task force or working group model. The time-consuming quality of large and small non-cataloging tasks performed by some staff to support database maintenance was highlighted as well, nonetheless underlining their value and offering understanding and insight as to why some of those tasks were necessary and valuable. The pie charts depicting work categories as a whole and labor distribution by staff name were also illuminating as to who performed what amount of cataloging, database maintenance, and staff and student supervision. (Figure 5)
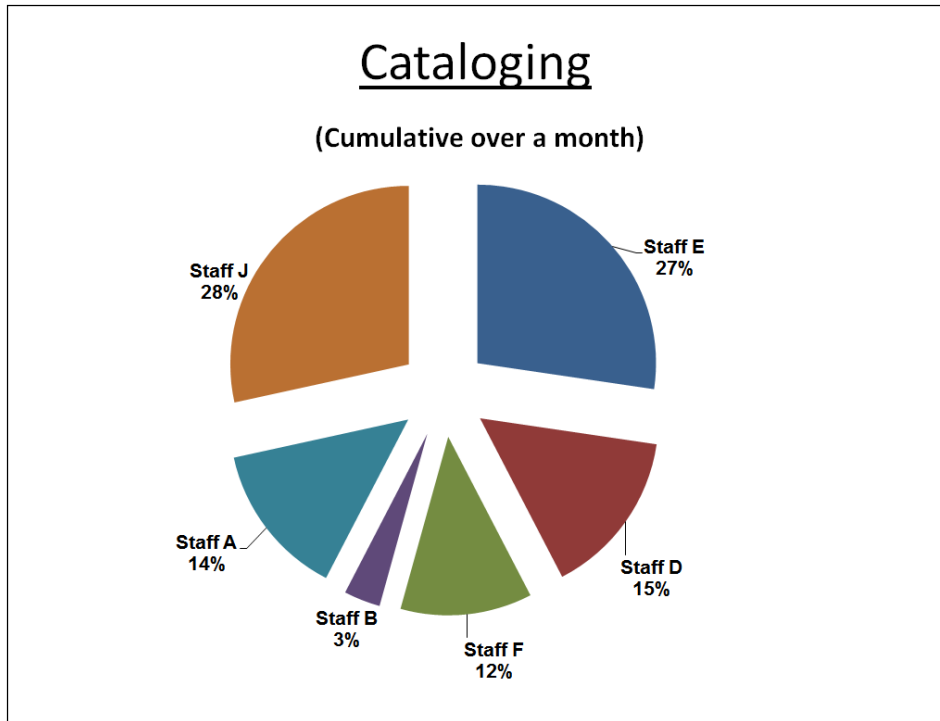
Figure 5. (UNR) Depicted is a pie chart for the work category Cataloging, calculated from the total number of hours spent on that work category over a month and showing in percentages which staff did that type of work the most versus the least often. (Note that not all staff perform work in every category so this chart only shows six staff where it could potentially show nine including the manager.)

Finally, the study provided invaluable information about discrepancies in task prioritization and attention to instructions by comparing staff workloads. For example, through a needed shift within the overall technical service unit, it was possible to reassign an employee into a reconfigured receiving position combined with cataloging-upon-receipt, requiring less time spent cataloging and less complicated work of the employee while still benefiting the metadata and cataloging department and our parent unit.

Case Study 2: University of Montana
Background

UM is a multi-campus university with four affiliated campuses located throughout western Montana. Classified as a research university, the Missoula campus is a medium-sized coeducational, doctoral institution. Established in 1895, the Maureen and Mike Mansfield Library (ML) serves a student population of more than 14,000, maintaining collections exceeding 1.6 million volumes, and is the regional Federal Government Depository for the state.[19]

ML is led by a Dean and structured into five divisions, one of which is Bibliographic Management Services (BMS). BMS provides acquisitions, cataloging/metadata, and processing support for both ML and the Mansfield Library at Missoula College (a full service branch library specifically targeted to two-year programs). BMS comprises 12 paraprofessional staff and two professional faculty organized in teams based on primary work focus. Four staff members concentrate on acquisitions and copy cataloging of monographs and media; three focus on

acquisitions, cataloging, and access of serials and e-resources; and five focus on cataloging, metadata, and authority maintenance. More than half the staff have worked in the division for five to ten years and three have been working in BMS for more than twenty years. The responsibilities of the head of BMS are split between administering the division and providing oversight of metadata and authority maintenance processes. The responsibilities of the other professional librarian, also a new hire to ML, include oversight of acquisitions and e-resources.

Between 2005 and 2013 BMS endured tremendous instability in leadership, and a reduction in staffing.   Due to retirements and failed recruitments, interim leadership ensued for eight years. One faculty position and 1.5 FTE staff were also lost because of unfilled vacancies.

While I had many years of service at ML as a paraprofessional, I was new to middle management and felt that my overall understanding of departmental operations was piecemeal and incomplete. In addition to gaining a better understanding of day-to-day operations, I hoped to address general complaints about backlogs and a perception of unproductiveness, find ways to reallocate resources to provide support of new digital initiatives, identify potential changes to position descriptions, identify opportunities for collaboration, re-prioritization, and refinement of workflows, and to provide staff with an opportunity to review their work and make changes. I determined that a time management study would be the best way to collect the data necessary to reach these goals.

Methodology

Finding a lack of guidance from library literature, a number of business management resources and online productivity services were utilized to develop an understanding of time study methodology and tracking instruments.[20] Methodolologies and templates reviewed tended to be developed for a factory or production line environment and data were collected by an observer. Intentions and goals of the study were communicated to staff and feedback regarding design, implementation, and employee concerns was solicited. Because no existing templates were found fitting our environment we chose to design our own instrument using Microsoft Excel (Appendix A). Due to difficulties in creating agreed upon activity categories, staff used natural language to record their activities. Categories were created during the analysis phase of the study.

Activity data were recorded in fifteen minute increments for six days. Staff were given a month in which to complete the data collection. Numbers of catalog/metadata records completed were logged and staff were asked to answer four questions at the end of each day of data collection[21]:
what did you spend the most time on, and about how much time was spent; was this day typical; what do you believe could have made this day more productive/effective; and what do you wish you could have done/spent more time on. The final study plan and instructions for implementation were reviewed during a divisional meeting and daily time logs were submitted via email.

Thirteen staff and one faculty librarian participated in the time management study. Faculty activities directly related to the day-to-day operations of the division were considered in the final analysis; general service & research activities were not included. Breaks, lunch, annual and sick leave were also not included in the final analysis.

Individual data logs were reviewed and activity descriptions were sorted into categories. Categories included core functions such as cataloging, metadata and acquisitions and supportive activities such as supervision, consultation, and training. Once sorted, daily log data were compiled into a master spreadsheet for each employee (Figure 6) and master spreadsheets were then combined into a single division-wide log (Figure 7). Formula functionality of Excel was used to simplify computation of totals and percentages.

	A	B	C	D	E	F	G	H	I	J	K
1		day1	day2	day3	day4	day5	day6	totals		Activity	Time
2	cataloging	270	300	165	225	60	300	1320		Cataloging	55%
3	metadata	30	90	75	0	0	75	270		Metadata (non-MARC)	10%
4	holdings	15	15	30	30	45	45	180		Bib. Maintenance	0%
5	bib maintenance	0	0	0	0	0	0	0		Authorities Work	7%
6	authorities	60	0	0	90	30	0	180		Ordering	13%
7	orders	0	0	0	30	330	0	360		Resource Consulting	2%
8	consultation/reference/tro	0	30	15	0	0	0	45		Training/CE	2%
9	training	0	0	60	0	0	0	60		Communication	4%
10	communication	30	0	30	0	30	15	105		Housekeeping	7%
11	housekeeping	15	15	30	30	30	60	180		Physical Processing	1%
12	processing	0	0	0	0	15	0	15		Reporting/Stats	0%
13	reporting/stats	0	0	0	0	0	0	0		Supervision/Management	0%
14	supervision/management	0	0	0	0	0	0	0		Gifts Processing	0%
15	gifts processing	0	0	0	0	0	0	0		Meetings	0%
16	meetings	0	0	0	0	0	0	0		Errands/Mail	0%
17	claims	0	0	0	0	0	0	0		Fast Cat/Approval	0%
18	mail	0	0	0	0	0	0	0		Receiving/Serial Check-In	0%
19	fast cat	0	0	0	0	0	0	0		Binding	0%
20	receiving	0	0	0	0	0	0	0		Licensing/Renewals/Invoice	0%
21	binding	0	0	0	0	0	0	0		E-Resources Management	0%
22	licensing/invoicing/renewa	0	0	0	0	0	0	0		Bulk Loading Bib Records	1%
23	e-resources management	0	0	0	0	0	0	0		Research	0%
24	bulk loading bibliographic r	0	0	0	0	15	0	15		Committee/Service	0%
25	research	0	0	0	0	0	0	0			
26	committee/service	0	0	0	0	0	0	0			
27								2730			
28											

Figure 6: (UM) Example of an individual employee master time log

Activity	Employee 1	Employee 2	Employee 3	Employee 4	TOTALS
Cataloging	1500	1185	225	720	6750
Metadata (non-MARC)	270	990	465	300	4740
Bib. Maintenance	0	75	30	630	2095
Authorities Work	180	0	0	165	540
Ordering	360	0	1320	15	3315
Resource Consulting	45	105	15	120	1770
Training/CE	60	60	60	195	1215
Communication	105	285	105	390	2535
Housekeeping	180	195	60	240	1740
Physical Processing	15	75	135	0	1395
Reporting/Stats	0	15	0	0	1125
Supervision/Management	0	0	150	0	1240
Gifts Processing	0	0	60	0	60
Meetings	0	0	120	0	990
Errands/Mail	0	0	0	0	330
Fast Cat/Approval	0	0	0	0	675
Receiving/Serial Check-In	0	0	0	0	1470
Binding	0	0	0	0	1005
Licensing/Renewals/Invoice	0	0	60	0	840
E-Resources Management	0	0	0	0	360
Bulk Loading Bib Records	60	0	60	0	180
Research	0	0	0	0	600
Committee/Service	0	0	0	0	465
Totals	2775	2985	2865	2775	35435

Activity	Division Totals
Cataloging	19%
Metadata (non-MARC)	13%
Bib. Maint.	6%
Authority Work	2%
Ordering	9%
Resource/Consult	5%
Training/CE	3%
Communication	7%
Housekeeping	5%
Physical Processing	4%
Reporting/Stats	3%
Supervision	3%
Meetings	3%
Errands/Mail	1%
Fast Cat/Approval	2%
Receiving/Serial Check-In	4%
Binding	3%
Licensing/Renewals/Invoice	2%
E-Resources Management	1%
Bulk Loading Bib Records	1%
Research	2%
Committee/Service	1%
	100%

Figure 7: (UM) A portion of the combined data log showing four employees and totals.

Results

Results of the time study provided insight to the day-to-day activities of the division as well as a glimpse of attitudes of staff towards their work. Individual's activities varied across the division yet most everyone dedicated a majority of their time to core activities. Data showed that eight staff spent 75% or more time on core activities while only two spent less than 50%. As seen in figure 8, 67% of division time was spent on core activities and 21% was spent on supportive activities. The remaining time was spent on various housekeeping tasks and supervision. A closer look at the staff who fell below the average revealed that their job duties required significant amounts of time for supervision and research. The employee whose percentages are depicted in figure 9 is the primary person responsible for troubleshooting access issues for e-resources, and for providing usage statistics. While these activities have not been traditionally seen as core activities in our division, they are essential to the successful operation of the library. This information proved useful for marketing the value of technical services to the administration.
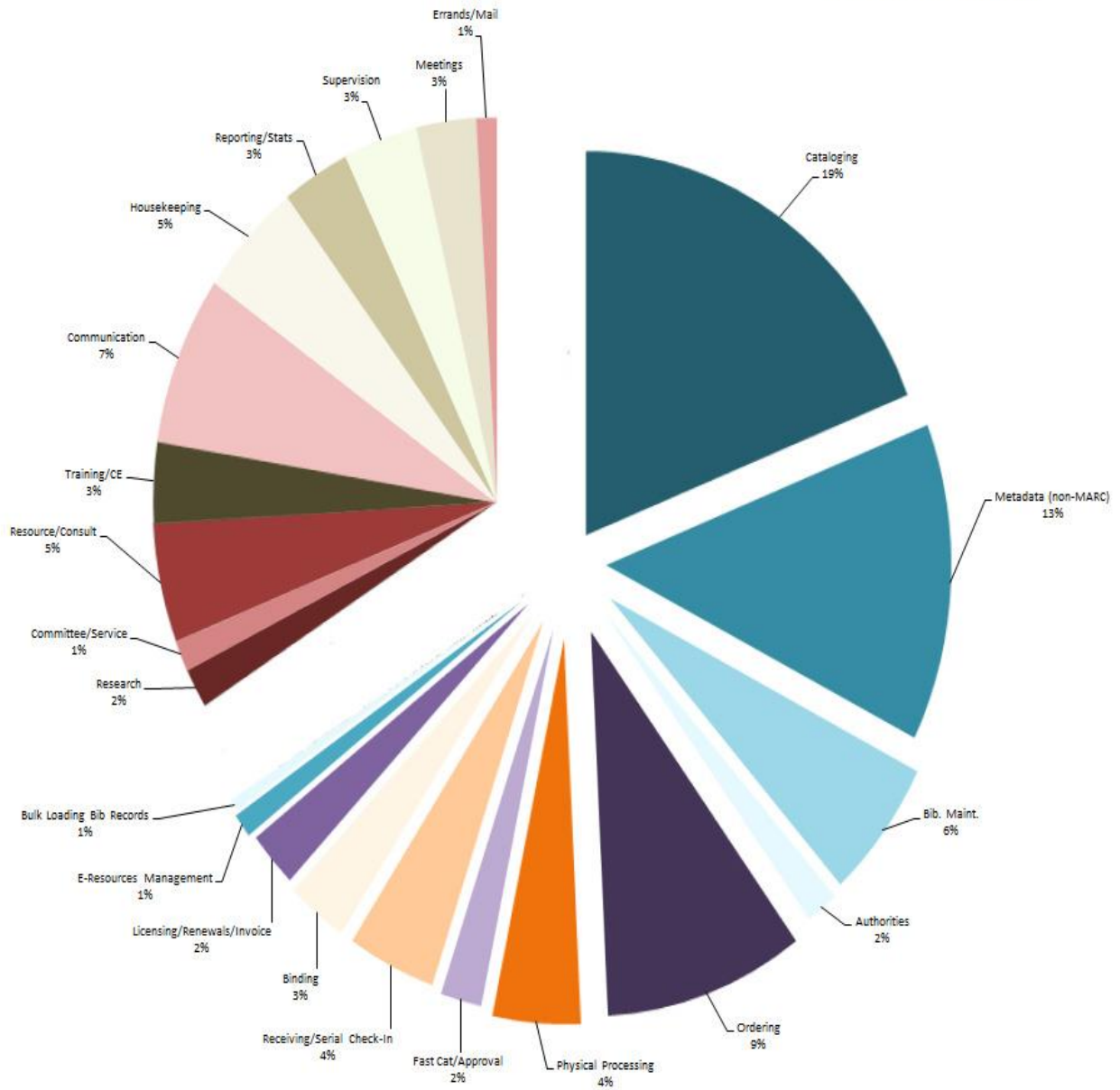
BMS Division Activities

Figure 8: (UM) Pie chart depicting breakdown of time spent on overall division activities. Exploded portion of chart represents core activities.
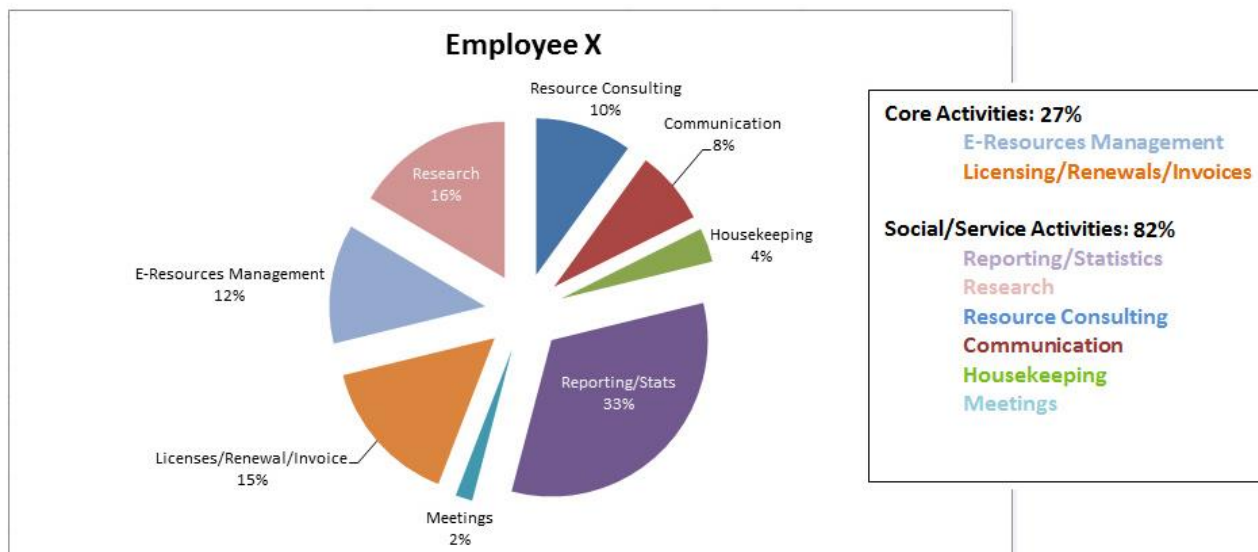
Figure 9: (UM) Pie chart showing comparative percentage of core and other activities of a single employee.

Reviewing the time log data and staff comments provided useful insights to the overall atmosphere in the division and identified several opportunities for improvement. Some individuals did not like metadata; this was made clear by the amount of time devoted to it and by the manner in which their activities were described in the time logs. One individual commented "metadata got in the way of doing my job". [22] Other's indicated that they found working with non-MARC formats distressing, indicating that previous efforts to incorporate metadata into the regular workflow[23] had fallen short and more work was needed to increase staff comfort. This led to shifting of responsibilities, additional training, and an increased effort by the manager to share end results and positive feedback from users.

The amount of time individuals spent on supportive activities varied greatly. Everyone logged time on communication with the highest percentage being completed by the manager. Clearly a number of staff make positive contributions to the library beyond their day-to-day tasks and are sought out for their expertise. Overall 7% of the division's time was spent on research and consulting. This included providing assistance within the division, within the library and with other libraries in Montana. Individual times ranged from 1% to 22%. While managers and higher ranking staff provided the majority of consultation services for the division, everyone was involved in this activity at some level. It was also noted that one individual spent a significant amount of time dedicated to service and consulting activities potentially impacting their primary job performance. This was resolved when the employee and supervisor agreed that no more than 5% of overall time would be spent on committees.

The impact of time spent on training varied greatly within the department. While some individuals never participated, others spent an excessive amount of time on training (Figure 10).
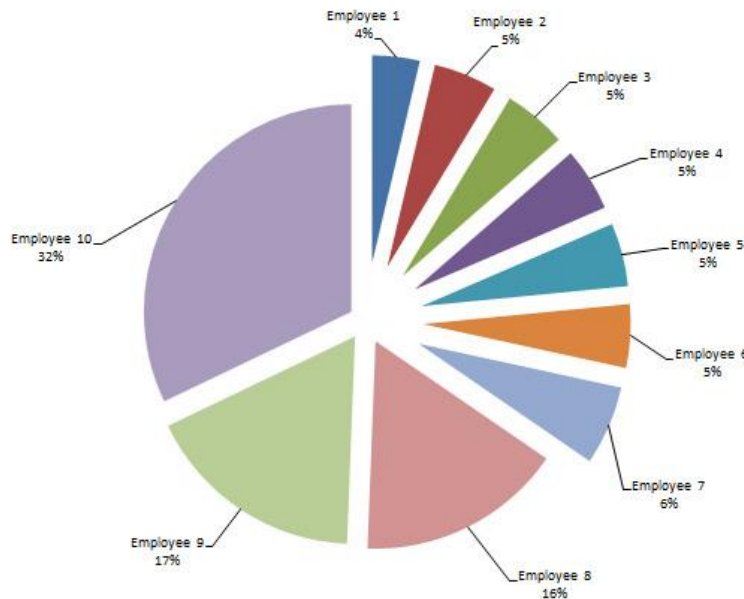
.

Professional Development & Training

Figure 10: (UM) Pie chart showing the breakdown of divisional time spent on professional development & training. Each pie slice corresponds to an individual. Of note 65% of the time spent on training was by 3 people and 4 people are not represented at all.

As a result of this analysis, new policies were initiated requiring staff to indicate how participation related to their job. The four staff who had not participated were specifically invited to attend select training. Additionally supervisors were encouraged to improve communications related to continuing education opportunities.

A surprising amount of time (9%) was spent on general housekeeping activities. This included things like powering up computers, prioritizing tasks, fetching materials and troubleshooting technology. Staff times ranged from 1% to 10%. One individual logged more computer meltdowns than anyone else and documentation from the time study was used to justify purchasing a new computer.

The time study revealed that one individual was spending a significant amount of time (53%) on activities such as delivering mail, physical processing (targeting, labeling, etc.) and receiving materials. We experimented with not checking in daily newspapers and shifted more of the repetitive tasks to student employees. These changes appear to have been successful. Daily newspapers are available to the public within hours of receipt; no complaints have been received about missing issues; and this staff member now spends more time on data maintenance.

Discussion

The two case studies described here demonstrate the usefulness of time management studies for gaining an understanding of processes and people, and for initiating positive changes.   While each study was unique, a number of similarities were observed.

- *Use a simple, straightforward data collection instrument.* Staff time is a valuable resource; using a tool that staff are comfortable with and that is easy to use is vital. UNR's time logs were distributed on paper in response to staff request, requiring the additional step of transcribing data into electronic spreadsheets for analysis. UM's choice to have participants use Excel required additional training as some individuals had difficulties using the software. Both managers recommend regular and timely collection and compilation of data to reduce backlogs. As with any raw data collected in a research project, staff time logs should be saved until the end of the time management study.

- *Clear instructions are necessary.* Categorizing the variety of tasks completed was more difficult than expected. Individual perceptions about work performed and its importance led to inconsistencies in how individuals recorded data at both sites. Whether categories are embedded into the time log instrument or determined during data analysis, both managers agree that providing examples and a task list prior to data collection is beneficial. UNR found that their category and tasks lists were functional but needed improvement; UM's use of natural language resulted in less time and effort spent by staff on developing terms and more effort by the manager to understand and process log entries at a later time. This provided an opportunity for further conversations with staff., which aided in improving relationships and trust. Regardless of how activities are recorded it is important to provide explicit instructions on what data to record.

- *Communication and transparency are essential.* It is vital that staff understand both the motivation behind conducting the study and how management intends to use the data. This proved to be a greater challenge than expected. In spite of employee participation in the study design and repeated explanations both verbally and in writing that the study was being used to generate a snapshot of normal activity, a non-BMS employee at UM was overheard saying: "I know you are doing a time study and can't talk this week but can you answer a question and help me with this?"[24] This conversation highlighted the importance of perceptions and the need to communicate details of the study to the whole library, not just the department. Managers need to emphasize that self-reporting and accuracy of data collection are the goal, not individual performance, and certainly consulting and helping others is legitimate work. It may be helpful to share preliminary results with participating staff as the study progresses. Seeing examples of how the data is being presented may be of interest to individuals and may help to alleviate concerns about how their activities are being represented.

- *Include everyone in the department.* Neither UNR nor UM included student employees in the data collection process. Because of this a significant amount of work performed within the department, particularly in processing, labeling, sorting mail, and serials check-in, was not included in the final assessment. Including student employees in the study will provide a more complete picture of the department's activities.

- *Time management studies have a variety of potential uses.* While the two case studies presented here represent the efforts of new managers to more fully understand their department's tasks and allocation of staff resources, existing managers may also find time management studies useful. For example, vacancy replacements could be shaped based on the current needs of a department as identified through the use of a time management study.

- *Time your data collection carefully.* Time management studies provide a snapshot of a particular point in time. Workloads naturally vary week to week and priorities differ depending on the time of year and the needs of the library and the university community it supports. For example, data collected near fiscal year end or just prior to the start of the semester may show a larger percentage of time spent on acquisitions than at other times of the year. Conducting multiple time management studies throughout the year will provide a more holistic view of the department's operations. Repeating time management studies on a regular basis every three to five years may be useful in showing trends of departmental changes.

- *Consider the limitations.* While time management studies can be a very useful tool, it is important to be aware of limitations of the method and the conclusions that can be drawn. Creation of benchmarks, for example, should not be an expected outcome because time management studies do not typically include production numbers. If relying on self-reported data, the success of the study is dependent upon the accuracy and honesty of the individuals logging their time.

- *Consider combining with other data*. Information from time management studies can be combined with time-and-path studies to illuminate flow and uncover inefficiencies. Adding time-stamped flags to the study would help calculate the time it takes objects to move through processing from receipt to shelf. Cataloging statistics can be included to enhance and/or support the story told by time data. Regardless of outside combinations, a time management study is a simple, effective and non-provocative tool for the new technical services manager seeking better understanding of staff work habits and time use.

Conclusion

Library professionals new to management positions are often required to master the art of management on the job. Library school graduate programs and workshops can help prepare them for this challenge, but library literature suggests there is a gap between needs and available resources. There is a demand for library specific training and sharing of tools for new technical services managers. Time management studies provide an easily adaptable tool which supports new managers' efforts towards increasing knowledge and improving department operations. There is a need for additional case studies of the application of management tools to the library environment. Until then we hope that the examples shared in this article provide some guidance and inspiration for new technical services managers.

Appendix A Examples of time log instruments used in this study.

University of Nevada, Reno- "tick sheet" for staff to record daily activities

Name: _____ Dates Covered_____ Tick-Sheet for Non-Holdings Represented Work

	Monday	Tuesday	Wednesday	Thursday	Friday
Total hours worked per day					
WORK ITEM					
Cataloging work (counted in holdings stats)					
Monograph / Serials Maintenance *(circle one)*					
- Item record work					
- Holdings for colleges					
- Transfers					
- Assigning SUDOC/SWANKS #s					
-					
-					
-					
Database Maintenance- Sierra					
- Loading records (non-holdings)					
- URL maintenance					
- Editing records					
- Reporting problems					
-					
-					
MARS Work					
- Loading records					
- Loading/retrieving physical					
- Corrections & database maintenance					
- Projects					
-					
Special Collections Work					
- Loading MARC records into or out of AT					
- Reviewing/editing/exporting finding aids					
-					
Authorities Processing & Headings Work					
-					
Physical Processing					
- Binding					
- Repair					
- Labeling, sorting, etc.					
-					
-					
Staff or Student Supervision *(circle one)*					
- General /administrative					
- Reviewing others' work					
-					
Resource Contact &/or Helping Others Troubleshoot or Problem-solve					
- Reference desk/ Ref email					
-					
Group Meetings					
- MCD					
- KAMS					
- Other					
Communication & Keeping Up					
- Internal: within UNR Libraries					
- External: professional literature/listservs					
Other (Specify)					

University of Montana Excel Spreadsheet

	Time Study-Blank and Examples.xlsx - Microsoft Excel
File	Home	Insert	Page Layout	Formulas	Data	Review	View	Developer	Acrobat

	A	B	C	D
1	BMS Time study: DAY 1			
2	Name, position title, FTE: George Smith, Music Librarian, 1 FTE.			
3	Date: Tues January 19, 2010			
4				
5	*Time studies are not linked to individual/performance evalutions/review*			
6	Please return completed study at the end of each day.			
7				
8	**Time start**	**Tasks/activities/meetings or note break/out for sick/pers time during day.**	**No. of items completed**	
9	8:30 AM			
10	8:45 AM	email-read assorted emails from library, listservs, vendors		
11	9:00 AM	answered ref. question		
12	9:15 AM	WebCom -consult with committee member re. web pages and forms		
13	9:30 AM	WebCom-reformat/edit docs, edit pages		
14	9:45 AM	Contact Joshua/Systems re webpage bug (noticed editing pages for Web Committee); cat 1 rush DVD	1	
15	10:00 AM	Cat-Rush CDs, consult with processing	5	
16	10:15 AM	Cat-Rush books with CDs, get meeting agenda, prepare notes for meeting	3	
17	10:30 AM	Catalogers meeting		
18	10:45 AM	Catalogers meeting		
19	11:00 AM	Catalogers meeting		
20	11:15 AM	Catalogers meeting		
21	11:30 AM	scores clean up project		
22	11:45 AM	scores clean up project		
23	12:00 PM	lunch		
24	12:15 PM	lunch		
25	12:30 PM	lunch		
26	12:45 PM	lunch/go through am emails, draft application letter for MLA committee		
27	1:00 PM	Correspondence with colleague at BYU re vendor record set for audio database		
28	1:15 PM	Cat-Update auth records and headings		
29	1:30 PM	Cat-Update auth records and headings		
30	1:45 PM	WebCom-Check back in with committee member re webpages and doc edits		
31	2:00 PM	Cat-Scores	5	
32	2:15 PM	Cat-Scores	5	
33	2:30 PM	Score cat-problem pile	3	
34	2:45 PM	Score cat-problem pile and related NACO records	2	
35	3:00 PM	NACO records	2	
36	3:15 PM	email, committees and collegues		
37	3:30 PM	Met with Supervisor-regularly scheduled meeting		
38	3:45 PM	break		
39	4:00 PM	correspondence with committee about and revised webpages		
40	4:15 PM	Department manual updates		
41	4:30 PM	Department manual updates-revise video documentation		
42	4:45 PM	Followup webpage bug on WebCom pages and Dept manual pages.		
43	5:00 PM	Coll development duties		
44	5:15 PM	Coll development duties		
45	5:30 PM	chat with grad student; impromptu ref ques		
46	5:45 PM	WebCommittee -fix pages, communicate issues and update to members		
47	6:00 PM	listserv/blog reading-cataloging/library land/music cats		
48				
49				
50				
51	Daily summary: what did you spend the most time on, and about how much?			
52	WebCommittee (apx 1.25 hrs), cataloging (apx 1.5 hours), Catalogers Meeting (1 hr)			
53				
54	Was this day typical?			
55	yes			
56				
57	What could have made this day more productive or effective?			
58	Technical problems with server required working on same thing in small chunks of time throughout the day. Locked out of Grove, had to set some scores for cat and NACO records aside until back on.			
59				
60	What do you wish you could have done or spent more time on?			
61	Cat CDs from big gift; upload sheet music items to dig coll;			
62				
63				

Blank Time Study | example-Faculty Cataloger

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