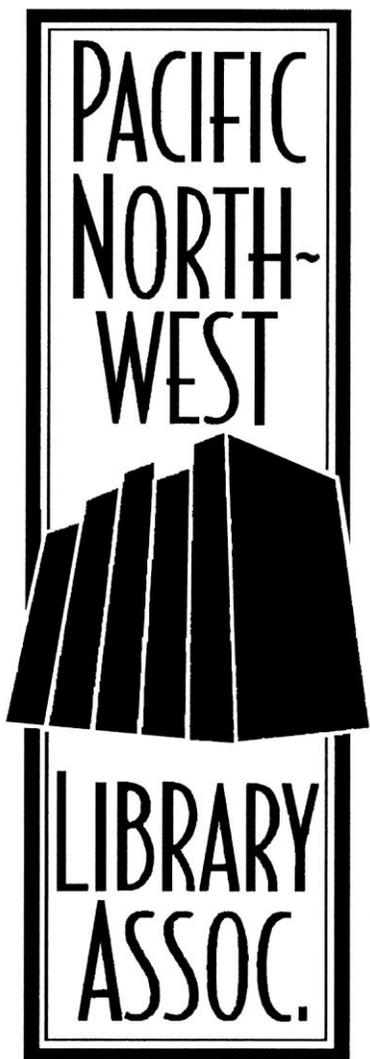


PNLA QUARTERLY

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Association



Volume 78, number 1 (Fall 2013)

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The *PNLA Quarterly* publishes both peer-reviewed and high-quality non-peer reviewed articles. Please indicate whether you would like your article to go through blind peer review when you submit it.

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Volume 78, number 1 (Fall 2013)

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Reading the Region 2012-2013: Award Books, Award Programs, and the Latest Winning Titles From Around the PNLA Region

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REGIONAL AWARDS

Pacific Northwest Library Association (PNLA) Young Readers Choice Awards 2013
(www.pnla.org/yrca/) – Jocie Wilson

- Junior Division (4th-6th Grades): **Lost Hero** by Rick Riordan
- Intermediate Division (7th-9th Grades): **Smiley** by Raina Telgemeier
- Senior Division (10th – 12th grades): **Crazy** by Han Nolan

Pacific Northwest Booksellers Awards 2013 (www.pnba.org/2013bookawards.html) – Jan Zauha & Sara Saxton

- **Blasphemy** by Sherman Alexie

- *The Revised Fundamentals of Caregiving* by Jonathan Evison
- ***The Snow Child*** by Eowyn Ivy
- *On the Spectrum of Possible Deaths* by Lucia Perillo
- ***Wild*** by Cheryl Strayed
- *Alf the Unseen* by G. Willow Wilson



ALASKA—Sara Saxton

Alaskana Award – Adult Fiction or Non-Fiction (akla.org/newspoke/)

- 2013 Winner: ***Haa Leelik'w Has Aani Saaxu: Our Grandparents' Names on the Land*** by Thomas Thornton



ALBERTA—Christine Sheppard

Alberta Readers' Choice Award (www.albertareaderschoice.ca/portal.cfm)

- 2013 Winner: ***The Shore Girl*** by Fran Kimmel

Book Publishers' Association of Alberta Awards 2013 (www.bookpublishers.ab.ca)

- **Children's & Young Adult Book Award:** *From Blue to Red* by The Students at Lord Beaverbrook High School
- **Scholarly & Academic Book Award:** *The Reindeer Botanist: Alf Erling Porsild, 1901–1977* by Wendy Dathan
- **Trade Fiction Book Award:** *The Crimes of Hector Tomás* by Ian Colford
- **Trade Non-Fiction Award:** *Those Who Know: Profiles of Alberta's Aboriginal Elders* by Dianne Meili
- **Lois Hole Award for Editorial Excellence:** *Every Wolf's Howl: A Memoir* by Barry Grills, edited by Robyn Read
- **Robert Kroetsch Poetry Book Award:** *Restless White Fields* by Barbara Langhorst
- **Education Book Award:** *Ten Steps to Help You Write Better Essays and Term Papers* by Neil Sawers
- **Alberta Book Design Awards:**
 - o **Book Cover:** *Personals* by Ian Williams, cover design by Natalie Olsen
 - o **Book Design:** *Seen Reading* by Julie Wilson, book design by Natalie Olsen

Rocky Mountain Book Award (grades 4-7) (rmba.lethsd.ab.ca)

- 2013 Winner: ***The Case of the Missing Dead*** by Ellen Schwartz

Writer's Guild of Alberta: Alberta Literary Awards 2013 (www.writersguild.ab.ca)

- **Georges Bugnet Award for Novel:** *Godless But Loyal to Heaven* by Richard Van Camp
- **Stephan G. Stephansson Award for Poetry:** *I See My Love More Clearly from a Distance* by Nora Gould
- **Wilfrid Eggleston Award for Non-Fiction:** *Walls: Travels Along the Barricades* by Marcello Di Cintio
- **R. Ross Annett Award for Children's Literature:** *The Discovery of Longitude* by Joan Marie Galat



BRITISH COLUMBIA – Michael Burris

Red Cedar Book Award 2012/2013 (grades 4-7) (www.redcedaraward.ca)

· Information Book Award: *Last Airlift: A Vietnamese Orphan's Rescue From War* by Marsha Forchuk Skrypuch

· Fiction: *Count Me In* by Sara Leach

Stellar Awards 2012/2013 (ages 13-19) (www.stellaraward.ca)

· Winner: *Blood Red Road* by Moira Young

BC Book Prizes 2013 (www.bcbookprizes.ca)

· **Ethel Wilson Fiction Prize:** *The World* by Bill Gaston

· **Roderick Haig-Brown Regional Prize:** *British Columbia: A New Historical Atlas* by Derek Hayes

· **Hubert Evans Non-Fiction Prize:** *The Art of the Impossible: Dave Barrett and the NDP in Power, 1972-1975* by Geoff Meggs, Rod Mickleburgh

· **Bill Duthie Booksellers' Choice Award:** *Making Headlines: 100 Years of The Vancouver Sun* by Shelley Fralic, with research by Kate Bird

· **Dorothy Livesay Poetry Prize:** *Geographies of a Lover* by Sarah de Leeuw

· **Christie Harris Illustrated Children's Literature Prize:** *Maggie's Chopsticks* by Alan Woo, illustrated by Isabelle Malenfant

· **Sheila Egoff Children's Prize:** *Middle of Nowhere* by Caroline Adderson

Chocolate Lily Awards 2013 (www.chocolatelilyawards.com)

· **Best Picture Book:** *I Want to Go to the Moon* by Tom Saunders, illustrated by Cynthia Nugent

· **Best Novel:** *Ghosts of the Titanic* by Julie Lawson



IDAHO—Heather Stout

Idaho Library Association Book Award (www.idaholibraries.org/awards/idahobookaward)

· **2010 Winner** (most recent): *The Lonely Polygamist* by Brady Udall (W.W. Norton)



MONTANA – Jan Zauha & Della Dubbe

Montana Book Award 2012 (www.montanabookaward.org) Jan Zauha

Winner: *The Miseducation of Cameron Post* by Emily M. Danforth

High Plains Book Award (ci.billings.mt.us/index.aspx?nid=1180) Della Dubbe

· **2012 Best Nonfiction Book Award Winner:** *Hand Raised: The Barns of Montana* by Chere Justo & Christine W. Brown

· **2012 Best Fiction Book Award Winner:** *The Ringer* by Jenny Shank

· **2012 Best First Book Award Winner:** *American Masculine* by Shann Ray

· **2012 Zonta Award for Best Woman Writer:** *Married Into It* by Patricia Frolander

· **2012 Best Poetry Book:** *Songs of Unreason* by Jim Harrison

· **2012 Art & Photography:** *Arapaho Journeys: Photographs and Stories from the Wind River Reservation* by Sara Wiles

· **2012 Short Stories:** *American Masculine* by Shann Ray

Treasure State Award (K-12 picture book award) (libguides.msun.edu/treasureaward) Della Dubbe

- **2013: *King Hugo's Huge Egob*** by Chris Van Dusen



WASHINGTON – Tim Mallory

Children's Choice Picture Book Award (childrenschoiceaward.wikispaces.com)

- 2013 Winner: *Pete the Cat: I Love My White Shoes* by James Dean and Eric Litwin

Evergreen Young Adult Award (www.kcls.org/evergreen/)

- 2013 Winner: *The Lost Hero* by Rick Riordan

Sasquatch Reading Award (www.wlma.org/sasquatch)

- 2013 Winner: *Out of My Mind* by Sharon M. Draper

Washington State Book Awards 2012 (www.spl.org/audiences/adults/washington-state-book-awards/washington-state-book-award-winners)

- Fiction: *A Young Man's Guide to Late Capitalism* by Peter Mountford
- Poetry: *Woodnote* by Christine Deavel
- History/General Nonfiction: *In the Garden of Beasts: Love, Terror, and an American Family in Hitler's Berlin* by Erik Larson
- Biography/Memoir: *In Earshot of Water: Notes from the Columbia Plateau* by Paul Lindholdt

Scandiuzzi Children's Book Award 2012 (from the Washington State Book Awards):

- ***To Market, To Market*** by Nikki McClure
- *Something to Hold* by Katherine Schlick Noe



Cross-Cultural Competence for Librarians

Elizabeth Ramsey

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Introduction

I've been interested in issues of diversity for a long time, and was first exposed to theories of cross cultural competence during graduate studies in linguistics. Later in research for my MLS, I explored aspects of cultural competence in relation to library services and the ongoing challenges of diversifying the library workforce. I'd like to talk with you today about why meeting that challenge is important and the alternatives available to improve our services to our diverse communities.

First of all I'd like to talk a little bit about public perception of libraries and their fallibilities when it comes to inclusiveness. I'd like to use as an example a scene from Star Wars, Episode II: Attack of the Clones in which Jedi Master Obi Wan Kenobi visits the Jedi Temple Archives seeking the location of the planet Kamino. Kamino doesn't appear on the archives' star charts; Obi Wan insists it should be there but the archivist responds, "The Archives are comprehensive and totally secure, my young Jedi. One thing you may be absolutely sure of: if an item does not appear in our records, it does not exist." Of course later it's determined that the existence of the planet had been erased in an act of archival sabotage.

I think perhaps this movie snippet speaks to the general public's views of libraries and the power we hold in what we collect and how we make it available to the public. In many ways we are holders of the communal memory, In addition, libraries play a crucial role in empowering diverse populations for full participation in our society. We strive to be inclusive in collecting, organizing and sharing information, but library policies and practices are often driven by the dominant cultural values and beliefs. I believe we need to examine: How are those values and beliefs formed? Are they shared by our entire community?

Numerous potential pitfalls open up through our subconscious prejudices in all aspects of libraries and librarianship. For example, let's consider the Dewey Decimal cataloging system in which numbers 200-290 are assigned to the Christian religion with the remaining 200's for the entirety of the rest of mankind's religions. Not very inclusive, is it? Think, too, of our outreach/marketing/programming, personnel. Do all of our community members see themselves? Are they favorable images?

Now that I've identified yet another potential challenge for libraries, I'd like to discuss one alternative to what we're currently doing in the library field to meet that challenge. I hope that this presentation provokes questions of ourselves, our profession and our institutions. Through this self-examination perhaps we can become more aware of the prejudice that seems to be inherent in being human, prejudice that we would probably like to deny exists, prejudice that affects our abilities to serve our increasingly diverse communities. By becoming aware of this prejudice in ourselves perhaps we can better recognize it in our policies and practices and work toward eliminating it throughout our institutions.

Let's take a look at some efforts at diversity in the library field. Of course, diversity is a fundamental value of the American Library Association and its members. It has a large number of scholarships, sections, and roundtables devoted to diversifying the library workforce. Efforts such as ALA's Spectrum Scholarships or the Association of Research Libraries' Initiative To Create a Diverse Workforce do help, without a doubt. Equally doubtles is that the results fall short, year after year. If we take a moment to look around the room, we can see that fact played out. So, the big idea I'm presenting today is that if efforts to diversify the workforce are falling short, perhaps our individual development of cross cultural competence may be another way of addressing this shortcoming.

In any improvement effort it's good to start with a measure of where a person or institution stands in order to evaluate progress. The first cross cultural competence measurement tool I was exposed to was the Developmental Model of Intercultural Sensitivity or Bennett Scale, developed by Dr. Milton J. Bennett.

The Bennett Scale provides a structure for understanding how people experience cultural differences. Six stages of perspectives describe how a person sees, thinks about, and interprets events happening around them from an intercultural difference perspective. The six stages of the scale represent a set of perspectives with successively greater ability to understand and have a more positive experience of cultural difference.

The first three stages are considered "ethnocentric" in that one's own culture is seen as the only culture or to varying extents the "better" culture.

- Denial. Being comfortable with the familiar. Not anxious to complicate life with "cultural differences". Not noticing much cultural difference around you. Maintaining separation from others who are different.
- Defense. A strong commitment to one's own thoughts and feelings about culture and cultural difference. Some distrust of cultural behavior or ideas that differ from one's own.
- Minimization. Awareness that other cultures exist all around you, with some knowledge about differences in customs and celebrations. Not putting down other cultures. Treating other people as you would like to be treated.

The last three stages are considered "ethnorelative" in that one's own culture is seen as equal among many other cultures.

- Acceptance. Understanding that people from other cultures are as complex as yourself. Their ideas, feelings, and behavior may seem unusual, but you realize that their experience is just as rich as your own. Being curious about other cultures. Seeking opportunities to learn more about them.
- Adaptation. Able to "take the perspective" of another culture to understand or evaluate situations. Able to intentionally change behavior to act in culturally appropriate ways outside your own culture.
- Integration. Able to move easily among cultures.

Where do you think libraries in general fall on this scale? How about yourself? What steps might we take to move along the scale?

We can make guesses about where we are on the scale, and, of course, there is a test to take to see where you are in this particular model. But the Bennett Scale test and many other instruments are only available for a fee and what library in this day and age has any money for anything no matter how important it may be in serving our communities? Following are a variety of sites which have tools available for free that may prove useful in developing our cross cultural competence.

These sites may help in evaluating individual or institutional competence

- National Center for Cultural Competence
<http://nccc.georgetown.edu/resources/assessments.html>
- Harvard University's Project Implicit
<http://www.projectimplicit.net/index.html>
- SDSU's Cultural Awareness Self-Assessment http://go.sdsu.edu/student_affairs/culturalassessment.aspx
- DOD's Defense Language Institute Cultural Awareness Assessment [http://famdliflc.lingnet.org/caa/\(S\(igqedv55cowakj55cgvz2fzm\)\)/index.aspx](http://famdliflc.lingnet.org/caa/(S(igqedv55cowakj55cgvz2fzm))/index.aspx)

And these sites offer some exercises and other training tools to perhaps improve our cross cultural competence:

- ALA Office of Diversity <http://www.ala.org/offices/diversity>

- Training for Change <http://www.trainingforchange.org/>
- Diversity Central, Resources for Cultural Diversity at Work
http://www.diversitycentral.com/tools_and_resources/managerstoolbox.php
- Culture Advantage
<http://www.culture-advantage.com/awarenesspage1.html>

The road to cross cultural consciousness would seem to start with asking ourselves questions. On a personal level we might all start by doing a bit of self-evaluation about our subconscious biases. On an institutional level we might look at how the dominant culture is articulated within our institutions and our daily library practices. I know that in some way most of us have already given some thought to these ideas, and often put those thoughts into action. Perhaps by implementing programs for the development of cross cultural competence libraries can even better meet the needs of our diverse communities.

From Information to Knowledge: From Positive Chatter to Negative Semantics

Markos Dendrinou

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Introduction

According to Ackoff, as presented by Rockwood [1], there are five types of content in the human mind: data, information, knowledge, understanding, and wisdom, in a hierarchical form. Wisdom (as predictability), Understanding (why something happened, putting happening in the frame of a system and finding the acting interconnections), Knowledge (how something happened), Information (what happened) and data (factors involved as well as spatiotemporal conditions of a fact) . This is an extension of the DIKW hierarchy (data, information, knowledge, wisdom).

Next, Rockwood [2] mentions Peter Drucker's opinion about the difference between doing things right and doing the right thing, with regard to which Dr. Ackoff [3] supports that doing the right thing is wisdom, effectiveness, whereas doing things right is efficiency. He relates the former to effectiveness and wisdom and the latter to efficiency. With which of the five nodes of extended DIKW hierarchy could efficiency be related; probably, with information and surface knowledge, since it lacks the key characteristics of deep knowledge, understanding and wisdom. Next he makes a distinction between doing the right thing wrong and doing the wrong thing right, preferring the former (since it can lead to deeper understanding) to the latter (which perpetuates the false situation). His opinion is revolutionary as he considers that mistakes (either errors of commission or errors of omission) are the key factor of conscience. Ackoff's sayings reveal a higher level human ability, the ability of judging the right against the wrong. This results from a wide experience and the capacity of projection of the past to the future. Doing the right thing is direct consequence of a fine tuning predictability.

Ackoff also gives an interesting difference between analytical thought (how something works) and synthetic thought (why something works the way it does). In analytical thought something is examined by analysis to its parts, while in synthetic thought it is examined as a part of a whole including it. We might relate these two ways of thinking to surface information working on parts (data items) and deep knowledge seeking wider frameworks in order to locate hidden in the lower levels interconnections.

If we try to bring back the initial Platonic meaning of the term knowledge (episteme) as opposed to the term information/ opinion (doxa), we could retain only 3 terms of the Ackoff hierarchy (data, information, knowledge), where data are isolated factors, information is a personal opinion about a fact (well formed and meaningful data) and knowledge is an opinion that is also true (well formed, meaningful and truthful data). In this context, knowledge is not restricted to how something works or occurs, but it also includes why it works or occurs the way it does (taking the additional role of understanding in the extended DIKW hierarchy) as well as the ability of predicting future events and consequences (taking the additional role of wisdom in the extended DIKW hierarchy). Knowledge is a deep understanding (revealing the hidden interconnections), as well as a criterion for doing the right thing as opposed to doing things right (based on personal but not necessarily true opinions/ information).

Under this perspective, the externally recorded 'knowledge' is not in fact knowledge but mere information; it comprises recorded opinions and descriptions of facts, where there is no any trans-subjective guarantee that they are also true. In this sense, histories, scientific studies, research theses, philosophical and scientific theories, reports, papers, announcements, encyclopedias kept and stored through various catalogue and indexing schemes in libraries, repositories, information centers and banks

are useful tools for digging up the structure of the world and the mechanical causes of the phenomena but all of them lack the element of truth, which is the key constituent of deep knowledge. No one can certify that evidences are valid, while scientific suppositions are in the best case refutable results of human research.

2. The definition of knowledge

The key issue for the differentiation between information and knowledge is the truth element. Something is considered as knowledge if it is not only meaningful, but it is also truthful. The questions to be arisen here have been mentioned, centuries ago, by Gorgias the Sophist [4]: is there anything? (existence issue), if there is something, can it be an object of knowledge? (truth issue), if someone knows something (a part of the truth) is there any way to impart his/her knowledge to another person? (knowledge sharing issue). We might also add the following critical question: which is the criterion to be met to be sure that something meant is also true.

Plato in the *Symposium* presents the way for *participation* to the idea of beautiful, passing gradually from the beautiful bodies to the idea of beautiful itself. Thus the solution suggested by Plato is the reduction from the various material objects sharing a certain characteristic to the inner perception of the characteristic itself. The truth, for Plato, are the eternal ideas and partaking to them is the main goal of the life of human being. A question arisen here is whether partaking to ideas constitutes knowledge. Platonic Socrates considers that participation to the ideas of justice, wisdom, prudence, courage and piety leads to participation to the idea of good, which is the divine itself. However, he dares to doubt the logical consistency of the existence of imperishable ideas in *Parmenides* dialogue, where he presents contradictions emerged under the assumption that the real objects participate to the immaterial ideas. In any case, he does not consider participation to ideas as a process of knowledge. On the contrary, in *Theaetetus*, Platonic Socrates attempts to define knowledge after a number of interesting trials, but he fails completely. Knowledge is so primitive constituent of human structure and behavior that it takes place in the definition of anything. Thus in the final trial he cannot avoid to put knowledge in the definition of knowledge, making the definition cyclic. If the father of rationalism admits that he cannot define logically what constitutes the key factor of his philosophical system, then the fact that the nature of knowledge was proved to be quite intangible in the subsequent periods seems quite reasonable.

During last centuries a great effort has been spent in order to produce a consistent and complete system of logical principles, so that mathematics could be ultimately reduced to logic. Mathematics are considered as the main tool for describing the physical phenomena. If mathematics could be set upon a solid ground, all the physical reality, presented through mathematical formulae, could be described in consistent way. That would be a strong evidence that the scientific description is endowed by the element of truth and consequently that man could finally achieve to get knowledge of the reality. However, all the initiatives of recent logicians and philosophers for the production of a consistent and complete system of logical principles failed.

Logician Gotlob Frege produced, in the end of 19th century, a very inventive system for the definition of numbers based on the extensions of notions, that is the mathematical sets including all the objects belonging to the relative notions. In general the number fitting to notion F is defined as the extension of the notion 'equi-numbered with F'. Specifically, zero (0) is defined as the number fitting to the notion 'is not the same with itself'. One (1) is defined as the number fitting to the notion 'is the same with zero'. Number $n=m+1$ is defined through number m as follows: let n be the number fitting to a notion F and let an object x belong to F, whereas m is the number fitting to the notion 'belongs to F and is not the same with x'. The revolutionary idea of Frege was to define numbers as properties of notions and not as properties of the objects belonging to a notion. The whole operation of Frege, which appeared as a reasonable grounding of mathematics, collapsed a little ago the publication of his work due to a paradox presented by Russell [5]. This paradox proved that the notion of mathematical set is inconsistent in itself and consequently all the definitions of Frege based on notion extensions, that is mathematical sets, was not valid any more.

Later, in 1933, mathematician Kurt Godel proved a theorem, called the theorem of non completeness, saying that there is no arithmetic system certifying that under a finite series of axioms any proposition can be testified as true or false. This means that we cannot pose a finite number of certain truths as a basis for the proof of any other true proposition. In this way, Godel put a limit to the optimistic view that mathematics are capable for the emergence of truth. Consequently, knowledge, whose main constituent is truthfulness, was proved to be beyond the access of human reason.

3. Negative semantics and practical knowledge

Since knowledge cannot be defined sufficiently, some philosophers tried another way to access it: the apophatic or negative way. If we cannot say what something *is*, we might at least say what something *is not*. As mentioned before, knowledge concerns a meaningful and truthful perception; thus, if *being* or *reality* cannot be positively defined, then we concede that we cannot have a positive knowledge of the reality, but we might at least exclude all these features that do not fit to its nature. This type of knowledge activates the emergence of a novel semantics framework, *negative semantics*, including only negatively expressed propositions.

The following extract from *Mystic Theology* of Christian apologist Dionysius Areopagit [6] constitutes eloquently an example of negative semantics concerning the knowledge of *being*:

"It is neither soul, nor mind, nor has imagination, or opinion, or reason, or conception; neither is expressed, nor conceived; neither is number, nor order, nor greatness, nor littleness; nor equality, nor inequality; nor similarity, nor dissimilarity; neither is standing, nor moving; nor at rest; neither has power, nor is power, nor light; neither lives, nor is life; neither is essence nor eternity, nor time; neither is Its touch intelligible, neither is It science, nor truth; nor kingdom, nor wisdom; neither one, nor oneness; neither Deity, nor Goodness; nor is It Spirit according to our understanding; nor Sonship, nor Paternity; nor any other thing of those known to us, or to any other existing being; neither is It any of non-existing nor of existing things, nor do things existing know It, as It is; nor does It know existing things, qua existing; neither is there expression of It, nor name, nor knowledge; neither is It darkness, nor light; nor error, nor truth; neither is there any definition at all of It, nor any abstraction"

Let next examine the semantics of groups of propositions describing an entity or reality, in case they do not succeed to ensure internal consistency. A characteristic text related to this situation is the description of the entity of *one* by Parmenides in the relative Platonic dialogue. The apparent contradictions in the description of the nature of *one* could not necessarily be considered as an indication of semantics failure. They surely proclaim the limits of typical semantics in case of the description of basic terms of low depth and high width (as the term *one*); though, they could also enable the introduction and admittance of another type of semantics, where the basic principle of non contradiction does not hold any more. We relate this kind of semantics (*inconsistent semantics*) to the above mentioned *negative semantics*, based on the fact that both of them abandon the typical affirmative systematic logic of definitions, axioms and proofs, where any entity is positively defined and all the propositions concerning entities are mutually consistent.

Two extracts from Platonic *Parmenides*, concerning the nature of *one*, expressed through apparent inconsistencies, are given below:

"Apparently one neither is nor is one. But can that which does not exist have anything pertaining or belonging to it? Of course not. Then the one has no name, nor is there any description or knowledge or perception or opinion of it. And it is neither named nor described nor thought of nor known, nor does any existing thing perceive it" [7]

"Then the one was and is and will be and was becoming and is becoming and will become. And there would be and was and is and will be something which is in relation to it and belongs to it. And there would be knowledge and opinion and perception of it; there must be, if we are now carrying on all this discussion about it. And it has a name and definition, is named and defined, and all the similar attributes which pertain to other things pertain also to the one." [8]

One reasonable question is naturally arisen, concerning the utility and applicability of *negative semantics*. The inability of positive definition and the admittance of inconsistencies met in the attempt of acquiring the absolute knowledge have as field of operation the basic philosophical terms (one, being, existence etc). On the contrary, when we try to understand the phenomena of our environment, we need a positive strategy, where, through induction, we achieve to postulate some universal propositions in the form of physical (scientific) laws. Can we assert that they constitute *knowledge* of the things surrounding us? Are we sure that they do satisfy the element of truth? Absolutely not. Science is a magical strategy, where a series of theories refuted and replaced by better theories, to be later refuted and replaced in the same manner, leads to a more and more accurate understanding of our environment. The power of scientific theories is their refutability. Thus, it is the constituent instrument of science itself that excludes it from the domain of knowledge.

Then how we could characterize science in respect of semantics? Scientific propositions are not *knowledge* in the strict sense, but they are the most reasonable opinions of mankind based on the most recent evidences and the most successful available theories in view of predictability. Considering evidenced information and currently valid scientific 'knowledge' as the most reasonable among the available opinions, we can trace back to the final more successful but ultimately failed definition of *knowledge* in Platonic Theaetetus: "Knowledge is true opinion accompanied by reason"[9].

References

1. Ben Rockwood, 'Systems thinking and the wisdom of Ackoff', <http://cuddletech.com/blog/?p=534> [viewed on 7th of Sept, 2013]
2. Sextus Empiricus, Against mathematicians (Book VII)
3. Plato, Parmenides
4. Plato, Theaetetus
5. Dionysius Areopagite, Mystic Theology

Footnotes

[1] 'Systems thinking and the wisdom of Ackoff', by Ben Rockwood, <http://cuddletech.com/blog/?p=534>

[2] Ibid

[3] "See, doing the right thing is wisdom, effectiveness. Doing things right is efficiency. The curious thing is that the righter you do the wrong thing, the wronger you become. If you're doing the wrong thing and you make a mistake and correct it you become wronger. So it's better to do the right thing wrong, than the wrong thing right... every major social problem today is trying to do the wrong thing righter... You never learn by doing something right, because you are already doing it right. You only learn by mistakes... There are two kinds of mistakes, the kind you shouldn't have done (error of commission) and the type of error 'you didn't do something that you should have done' (error of omission)... It's our treatment of error that leads to a stability which prevents significant change."

[4] Sextus Empiricus, Against mathematicians, VII, [65]

[5] The Russell paradox: Let the set Ω which includes all the sets that cannot include itself as an element. Then Ω belongs to Ω if and only if Ω does not belong to Ω . [6] Dionysius Areopagite, Mystic Theology, Caput V [7] Plato, Parmenides, 141e, 142a, Tufts University, Perseus collection [8] Plato, Parmenides, 155d, 155e, Tufts University, Perseus collection [9] Plato, Theaetetus, 201c, University of Tufts, Perseus collection

The Ashanti Regional Library, Kumasi, Ghana: An Appraisal by Users

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Introduction

Libraries whether academic, special or public exist for their use. This is because these libraries provide users with the relevant sources of information that meet their needs. Adequate and relevant sources of information in all spheres of life are needed for the development of every nation as its availability or non-availability can dictate the wealth or poverty of the nation in question. The provision of quality information resources available at any material moment will invariably have positive impact on the patronage of the library. Any good library well-equipped with books and periodicals in all subjects is essential for the advancement of information for users to carry out relevant research and study that will propel the nation for better economic growth. The up-to-dateness of documents available in a particular library, the quantities available and their quality could influence their use. On the contrary, if the quality of information resources provided by the library leaves much to be desired, the patronage would be affected. Libraries especially public libraries assist in the provision of relevant information to the different strata of the society and thus help in achieving their developmental goals.

In order to satisfy the diverse information needs and interest of the users in the communities in which the library is located, the public library's collection must be adequate in terms of quantity, quality and currency. Public library materials are considered as relevant if it meets the needs of its users or increases the likelihood of accomplishing the goal for which it was set up to do. This is because customer service has always been a leading mission of any public library and if the management of these libraries expect better patronage from their patrons, then they are duty bound to provide materials that suit the needs of these users both qualitatively and quantitatively. Undoubtedly, if any public library wants to provide good service for its users, a rich collection is clearly the most important attraction, though not the only one.

Public libraries play a vital role in the socio-economic development of any country. They contribute to better education, healthy politics and growth in agriculture, business and industrial sectors. Public libraries promote literacy and numeracy by making reading materials available to all, thereby optimizing human development through education. They allow users to take books and other materials off the premises temporarily and also have non-circulating [reference](#) collections and provide computer and Internet access to patrons. Public libraries give children access to a wider range of books more than could be provided by a school library and plays a significant part in equalizing opportunities for learning resources to be available to all irrespective of the economic status of the parents or guardians. They give the young users access to information resources after school hours and arouse their interest to read outside of the school curriculum. Also, they provide free services such as preschool story times to encourage early literacy, quiet study and work areas for students and professionals.

Unfortunately, public libraries in Ghana have been neglected for far too long and have not been placed on the government priority list as an alternative lifelong educational resource. Although Ghana is not a

big country, bureaucracy and lack of understanding of the Public Library's role has pushed them to the periphery. Not only do they lack spacious library buildings but in some cases have to share their premises with other institutions. Other challenges facing public libraries in Ghana include: insufficient funding, shortage of professional staff, low reading habits among the citizenry and inadequate computers and poor internet connectivity. Also, the stocks of reading materials in these libraries are not only small, but are outdated and irrelevant to the needs of their users and thus require weeding. The ultimate consequence is wide-spread illiteracy which is the greatest handicap for development. In the view of Ghosh (2004), "public libraries in developing countries suffer from a variety of infrastructure, manpower and monetary constraints that could lure in illiterate and semi-illiterate folk, as well as being low in the priorities of policy makers and implementing bodies".

By a public library, we mean an organisation established, supported and funded by the community, either through local, regional or national government or through some other forms of community organisation. There are five fundamental characteristics shared by public libraries. They are generally supported by taxes (usually local, though any level of government can and may contribute); governed by a board to serve the public interest; opened to all and every community member, entirely voluntary in that no one is ever forced to use the services provided; and they provide basic services without charge (Wikipedia, 2013).

Ghana is an emerging economy with a total population of about 24 million. The population of Ghana is growing at a rate of about 3.4%. The growth in population is accompanied by its own challenges: literacy, education, economic empowerment and environmental degradation. All sectors of the Ghanaian economy including public libraries have indispensable role to play in addressing these challenges. According to Ghosh (2004) "there should be one public library for every 3,000 people". This means with the current population of 24 million people, Ghana needs about 8000 public libraries. Although it is the vision of the Ghana Library Authority to provide access to modern public libraries within easy reach of not more than eight kilometres, this is yet to materialise owing to financial constraints.

The public libraries in Ghana have served as centres for educational support through the provision of quality reading materials such as books, periodicals and other non-book materials and also supplemented school curriculum. They do so by collecting, organising and disseminating information to their users both young and adults. In spite of the success chalked by these libraries, they are finding it difficult to attract the target clientele (i.e. the youth) to patronize their facilities. The reason is that most of the facilities that the Authority should have at its disposal in these public libraries are lacking and since most youth are now into entertainment and wants to move with the times, they will always want to entertain themselves in every environment they find themselves through the use of the internet. The purpose of this paper is to provide an empirical description of the relevance and adequacy of resources at the Ashanti Regional Library in Kumasi and to discuss the effectiveness of the system by way of service provision to its users.

Public Library System in Ghana

The Public Library Service in Ghana has a chequered history. It began in January 1950 with the enactment of the Gold Coast Library Board Ordinance (Cap118) although it was passed by the Legislative Council in December in 1949. According to Bukenya (2009), it was one of the first Library Acts which served as a model to many African countries. The Gold Coast Library Board (GCLB) was later revised by a Ghana Library Board Act 1970, Act 327 as the only institution mandated by law to establish, equip, manage and maintain public libraries in the country. Currently, Public Library Management in Ghana comes under the auspices of the Ghana Library Authority (GLA), formerly Ghana Library Board (GLB) and the Ministry of Education. It is a unitary system financed in the main by the government through the Ghana Education Service and managed by the Ghana Library Authority. The former is responsible for the supervision and funding of these libraries on behalf of the government while the latter is responsible for capacity building and the setting up and management of public libraries, at regional, district and community levels. The GLA consists of the headquarters which combines central administration with bulk book purchase and processing of documents for all the member libraries.

The Authority has a reference and lending sections located in all the ten (10) regional capitals and some districts of Ghana. The lending section allows its patrons to borrow books and take them away to read at home, read newspapers, periodicals, as well as use internet services for a small fee. The reference

section on the other hand is designed mainly to serve the academia or people who are researching or looking for rare books on certain topical issues (Krampah, 2012).

The Ghana Library Board opened the Ashanti Regional Library in Kumasi in 1951 and its permanent Library building put up in 1954. It is one of the ten (10) regional libraries out of the total of sixty-one (61) public or community libraries currently in Ghana and the first regional library to be built in the country by the Ghana Library Board, (Evans, 1964: 66). The Ashanti Regional Library popularly referred to as the Ashanti Library is located within the premises of the Centre for National Culture (formerly the Ghana National Cultural Centre) in Kumasi a few metres away from the main lorry station "Kejetia" (Agyen-Gyasi and Atta-Obeng, 2010).

Objectives of the Study

The objective of the study is to ascertain user's reaction about the relevance and adequacy of the resources and facilities available at the Ashanti Regional Library in Kumasi, Ghana and how far it has impacted on the services rendered to these users.

The specific objectives of the study are:

- (i) To find out the type of people who use the library -i.e. whether students or workers as well as their age groups.
- (ii) To assess the status of users of the library and how often they use the facilities and resources in the library.
- (iii) To seek users' perception about the facilities and resources available in the library.
- (iv) To ascertain the attitude of staff towards users of the library.
- (v) To find out how far the users are making use of the ICT facilities at the library.
- (vi) To identify challenge(s) users face in using the library; and
- (vii) To offer solutions to the challenges identified in order to enable the library better serve its users.

Literature Review

The role and mandate of the public library in any nation is to provide people of all ages with equitable access to relevant and adequate information resources and services. They do so by making information accessible to all users regardless of their economic, social or racial status. Relevance of resources and facilities particularly in public library is therefore central in the design and evaluation of information retrieval (IR) systems and techniques. A lot of research has thus been done on the adequacy and relevance of public library resources in the world in general and Africa in particular.

Goffman (1964) defined the concept of relevance of information resources as a measure of information conveyed by a document relative to a query. According to the Merriam Webster dictionary (2005) the term relevance means the ability (as of an information retrieval system) to retrieve material that satisfies the needs of the user while adequacy is defined as having a significant and demonstrable bearing on the matter at hand.

According to Park (1993), the concept of relevance has played a major role in information retrieval (IR) research since the 1950s. This is because the objective of any IR system is to provide users with access to "relevant" documents irrespective of the number of users. Marcum and Stone (1991) stated that librarians in public libraries at the turn of the century helped the large influx of immigrants acclimatize to their new life in the United States by providing them with relevant information sources regarding the weather and the socio-cultural life of the people.

In the view of Weibel (1992), public libraries provide access to relevant information about culture, society, economy and history with the librarian serving as a "reader advisor" by suggesting and interpreting resources in the library. He further stated that public libraries should strive to offer adequate learning facilities and materials and also promote public discussion through the resources in their collections.

Schamber (1994) argued that much of the research on relevance in information retrieval focuses on what users need from information retrieval systems. According to him, users generally judged documents as relevant if they meet their information needs in some way whilst those documents that fail to meet their needs are judged as not relevant.

Khan (1990) highlighted the features of public libraries in developing countries which included among others: an urban concentration with less effort to penetrate into the rural areas; concentration on print media; push towards quantitative growth in the number of buildings or size of collections, little or no concern for the quality or relevance of the holdings; an orientation toward recreational reading rather than the practical research interest of client population; the focus on housekeeping operations rather than engaging in outreach programme to the communities and little contact with the social needs of the environment. This buttresses the fact that public libraries in developing countries including Ghana lack relevant materials that meet the needs of their users or cover all spheres of life.

Neuman (2000) asserts that public libraries are well-positioned to expose children to great quantities of print and meaningful language opportunities during the crucial pre-school and elementary school years. This is because research shows that children need exposure to a wide variety of high-quality books of various topics, genres, and perspective in order to acquire literacy skills. He argues further that children need adequate and relevant books that reflect the diverse and multicultural nature of their society (i.e. books in which they can see themselves and others like them).

Grosso (2008) opined that the public library's primary role is to select, maintain and provide access to relevant and balanced information resources. He further stated that owing to technological developments, libraries were moving away from holdings to access strategies which implied the libraries needed to disseminate widely information on their collection policies to reflect the changing dynamics.

Antwi (1989) reviewed the adequacy and relevance of Bauchi State Library and stated that for users to maximize the use of a library, it should have adequate resources which should include both print and electronic materials. Also, the collection should be relevant to the needs of the community. In his view, the nature and the extent of underdevelopment in the educational facilities in the Bauchi State had affected the development of all types of libraries. Antwi (1989) further stated that the Bauchi State was a "listening" and "seeing" society because most people could neither read nor write and as such more emphasis should be placed on the acquisition of relevant non-print materials such as films, photographs, posters and cassettes in the library to ensure patronage from users.

According to Banjo (1993), the provision of adequate public libraries services in Nigeria was hampered by the low level of public awareness of the value of libraries and the inability of librarians to promote the services provided. He therefore suggested a coalition between the government, the local community, the public sector, voluntary organisations, donor agencies and the Nigerian Library Association to work together to define strategies to develop public library services in the country to ensure the provision of adequate and relevant library resources and quality delivery of services to users.

Nwokocha (1993) evaluated the utilization pattern of adult public library users in Owerri and Umuahia Public Libraries in Nigeria and concluded that majority of the library users were school children preparing for their examinations and visited the library with their own materials. These challenges according to him had affected the habit of borrowing books from the library by the users and consequently deprived them from registering as users.

Olden, (1985) argued that public libraries in Nigeria were used by a very small percentage of the country's population because of the irrelevance of services offered to the illiterate population. He asserted that those who were literate restricted their library usage to educational purposes and thus stopped using the library's facilities as soon as they achieved their aims. He further outlined the lack of professional leadership and government support given to public libraries in Nigeria as well as the absence of the appropriate legislation and the difficulty of extending the services to outside urban centres.

Fourie and Kruger (1994) undertook a survey on public library usage of 500 pupils in Pretoria, South Africa and concluded that these users used the library with dual objectives: for curricular and extra-curricular activities. The survey further showed a significant relationship between the use of the library and age, gender, school standard and home language. They argued that the public library needs to take into account the socio-economic and cultural circumstance of the school pupils when planning for the collections and services for the youth population.

Mcharazo (2000) in his survey found out that many students do not use the collections in public libraries in Tanzania because these libraries lacked most of the essential readings materials and that those materials available were just not enough for all the students who visited these libraries. In his view, these students felt as if they were scrambling for just a few copies some of which were out-of-date. Mcharazo (2000) therefore concluded that the elementary level of the materials, irrelevance, and their outdatedness were the most important reasons for the failure of distance learners to use the public libraries in Tanzania.

Ugboma (1998) surveyed the Ozoro and Oleh Branch Libraries of the Delta State in Nigeria and found that the libraries' facilities, equipment, resources and personnel were grossly inadequate. He therefore suggested that public libraries should look for sources of additional funding to improve upon the situation especially in staff recruitment and training.

In the view of Clare (2008) for public libraries to be relevant in this age of technology they need a market oriented approach which calls for an adjustment of the reading materials and the environment so that they could be more inviting to the users. This in her view, required proactive public librarians who could convince the local government authorities that building the economy did not just involve earning money but also involved building the capacities of human beings, shaping communities, encouraging learning and skills development.

According to Alokun (2003), the core mission of public libraries is information, literacy and public education but they could also serve as a valued asset in meeting a community's strategic goals through the provision of a variety of information resources and services which aim at meeting the varied information needs of the communities they serve. These needs in his view cover such areas of life namely political, economic, social and cultural.

Opera (2008) identified inadequate collections and financial support from the authorities charged with the responsibility of setting up these libraries, accommodation, demoralized and inadequate workforce and poor perception of public library and librarians as the major challenges militating against the public libraries in Nigeria.

According to Udeze (2009), in Nigeria, people, mostly students, visit the public libraries to read for their examination and nothing more because these libraries apart from providing a noiseless atmosphere are not providing the kind of information that people need to solve their individual problems.

Atinmo (2000) opined that just as it is impossible for mortals to survive without good nutritious foods', it is equally tragic not to have adequate information in the knowledge economy. To him, there exists a close relationship between the underdevelopment and the high levels of illiteracy associated with most African countries and thus indicated that if Africa wants to solve its problem of underdevelopment, then they should begin to stock their public libraries with relevant and adequate information resources in all spheres of life.

John-Okeke and Owoeye (2011) argued that, public library services in the Lagos State are grossly inadequate and bedeviled with poor funding, inadequate staffing and non commitment on the part of the governments (state and local), librarians and the community at large. They further argued that for public libraries to be relevant in this age of technology they must be ready to scan their immediate environment in order to ascertain the kind of information needed by people they are serving.

Perspectives in Ghana have been given by Alemna (1996) who assessed the state of the public library services in Ghana and concluded that they were ineffective and recommended an improvement in services such as the cultural preservation and distance learning. Reviewing the developments of libraries in Ghana including public libraries, Alemna (1997), concluded that the growth of libraries in the country were fragmented and uncoordinated owing to the absence of a National Library in Ghana as a centre for library co-operation and coordination the country.

Boateng (1993) studied the use of children's section of the Ashanti Regional Library and found that most of the pupils were reluctant to patronise the public library because of inadequate resources such as books and audio-visual aids. This in his view had impacted negatively on proportion of the population of children of school going age in Kumasi who have registered as users of Ashanti Regional Library because of inadequate and poor quality reading books in the library.

Tackie (1995) examined the provision of adult education in Ghana especially with regard to the role of the public library and the cooperation that exists between the public library system and the major

agencies providing adult education in Ghana. He found that such form of cooperation was lacking owing to inadequate number of public libraries, lack of relevant books and in sufficient quantities as well as the outdateness of the few stock available.

Agyen-Gyasi (1996) studied the facilities at the Ejura Public Library and concluded that the Library lacked relevant and adequate resources (both material and human) necessary to provide the needed information to its users.

Krampah (2012) opined that in spite of the significant role that public libraries play in the educational system in Ghana, they are increasingly finding it difficult to attract users to patronize their facilities because most of the resources and facilities that the Ghana Library Authority should have at its disposal are lacking. She attributed this problem to "chronic under-funding that the GLA has faced over the years". In her view, "the allocation of funds to the GLA is so scanty that not much could be done by way of new infrastructure as well as maintenance and repairs of existing structures and equipment". Krampah (2012) further stated that the Authority also loses staff frequently because of poor remuneration and general poor conditions of services thereby affecting the quality of services that users are expecting to be delivered to them.

Based on the above literature, it can be concluded that public libraries provide resources for knowledge acquisition, recreation, personal development and inter-personal relationships for all categories of users. The relevance and adequacy of these resources determine the extent to which users would patronize such libraries. Unfortunately, public libraries in most African countries lack relevant materials mainly because they are poorly funded. Majority of their collections are inadequate and largely outdated, are manned by low staff quality and boast of few computers that have Internet connectivity which consequently affect their patronage by users.

Methodology

The survey method was used for the study. A structured questionnaire was used to collect quantitative data about the users and their use of the facilities. The questionnaire consisted of the following items: demographic characteristics of the library users such as gender, age, marital status, educational attainment and occupation; status of users; purpose and frequency of library visits; users' opinion on library collections, library services and facilities; purpose and use of information and communication technology (ICT) and constraints faced by users in using library services. As Kumasi is a popular educational, administrative and tourist destination, it was thought essential to examine the possible influence of visitors and of seasonal variation on the use of the resources. Therefore, the questionnaires were handed out to the users between the period of October and December of 2012.

The population surveyed were the users of the Ashanti Regional Library who used the library during the period of the survey. The size of the population was two hundred and fifty (250). Both random and stratified sampling methods were used to make sure that both the casual and regular users were covered. The random sampling was used for those who came to the library within the stated period while the stratified sampling focused on both the registered users and regular users but who are not registered. Such users were identified with the help of the members of staff of the library.

A high response rate of 74% (185) out of a total of 250 users was achieved, which may be attributed to the fact that most of the questionnaire were handed personally to users by the Research Assistants. The sample represents those using the library's resources during the survey period. The information obtained was supplemented by secondary sources such as books, journals articles and the Internet. Relevant data extracted from both the questionnaires and the interviews were illustrated in the form of tables and graphs.

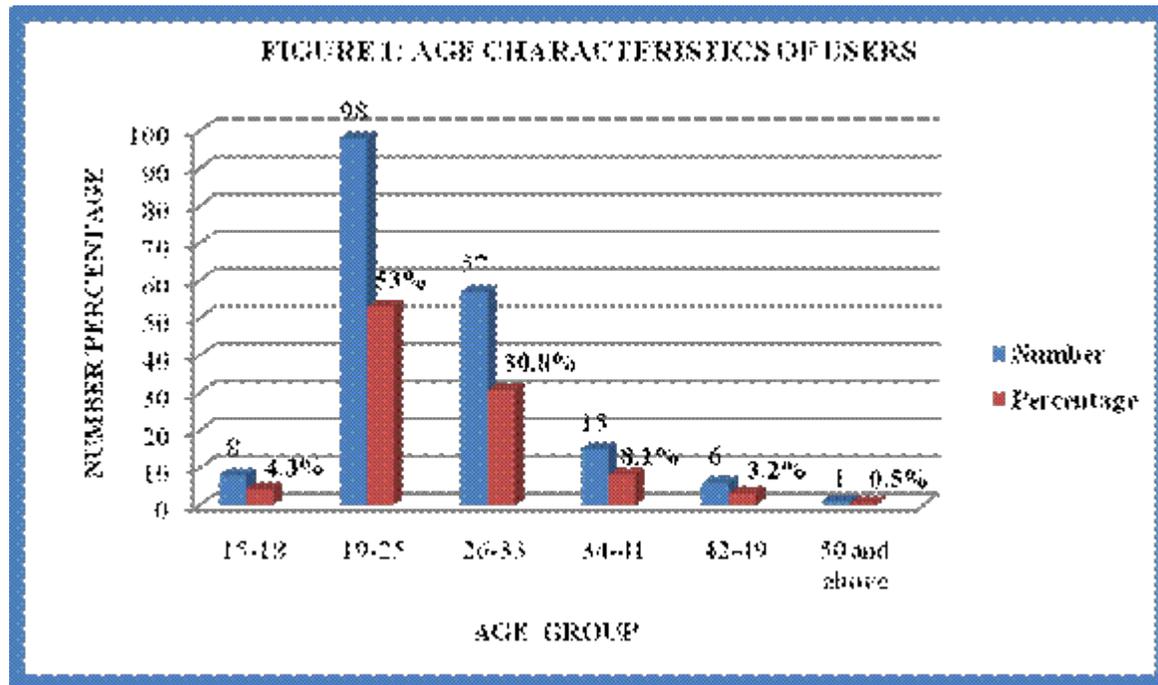
Analysis of Data

Gender

The gender characteristics of the users show that there was an imbalance in the gender profile of the users accessed by the survey. One hundred and twenty-one respondents' representing 65.4% were males whilst 34.6% (64) were females. The conclusion that could be drawn is that the users of the Ashanti Regional Library are predominantly males.

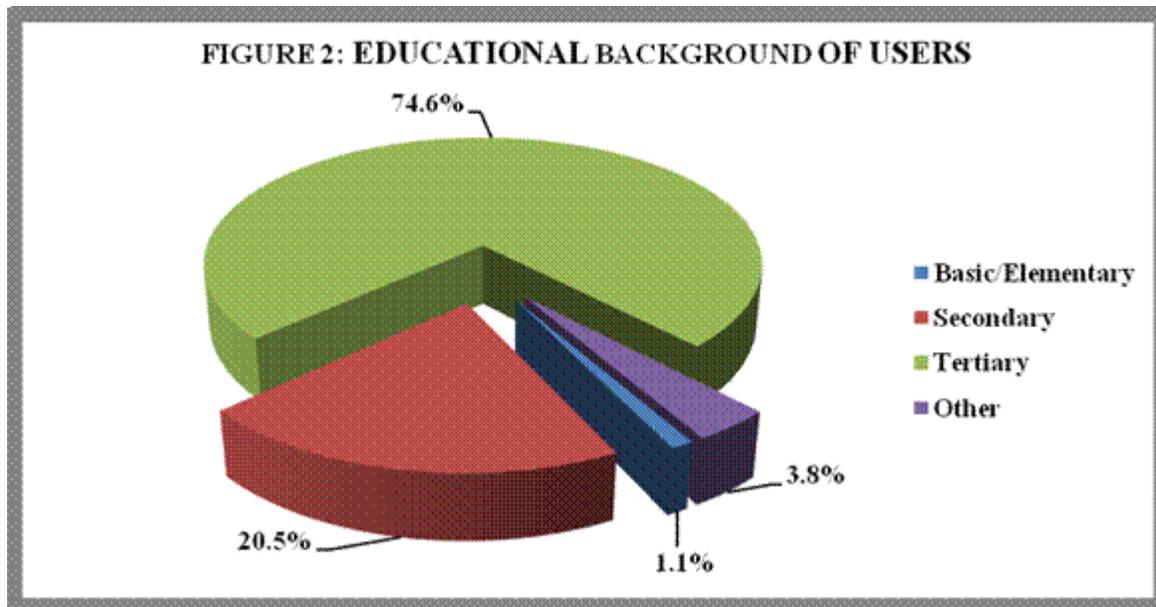
Age

Data on the age characteristics of users (Figure 1) shows a striking concentration within a few categories. The absolute majority of users, 98 out of the total of 185 (53%) were between the ages of 19 and 25 years. This is followed by the 26-33 year group (30.8%) while 42 years and above represented the least proportion of 3.7%. This means that 88.1% of the users of the Ashanti Regional Library in Kumasi are between 15 and 33 years. From the above analysis, it is concluded that a predominantly high proportion of young men and women use the resources of the Ashanti Regional Library.



Education

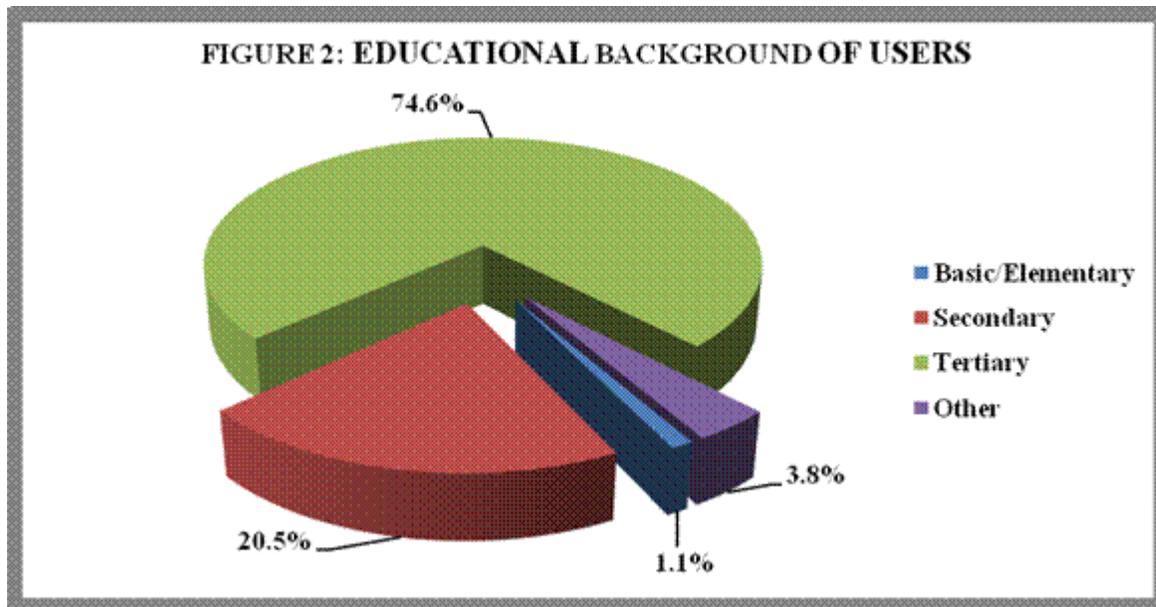
Figure 2 shows the educational profile of the respondents. It is observed that 74.6% of the users of the library are students of tertiary institutions, many of whom might have been continuing their studies having obtained the West African School Certificate of Education (WASCE), Senior Secondary School Certificate Examination (SSSCE) or diploma. There was a very low presence (1.1%) of persons below the Secondary school level.



It is concluded from Figure 2 that the high concentration of users of the Ashanti Regional Library is students in the tertiary institutions. This may be attributed to the non-residential status of students in tertiary institutions in Ghana in general and Kumasi in particular who use the library for their private studies during examination periods. Public Libraries thus provide essential places for students or users who utilise available textbooks and quiet place to study. According to Wanasundera (2008), "the provision of public libraries as places for reading and study rooms help users especially those whose housing conditions are substandard".

Occupation

The occupational distribution of respondents of the library again shows that students mostly use the resources of the Ashanti Library. From Figure 3, it is observed that slightly more than half (53%) of the respondents are students. However, there is a marginal difference between the public and civil servants who use the library. Whilst the public servants constitute 21.6%, civil servants formed 21.1%. A subsidiary question about the respondents' occupational background reveals that majority of the public servants are mostly teachers and nurses. On the other hand, a greater proportion of the civil servants are workers in the Ministry who are embarking on further studies on sandwich and distance learning basis.

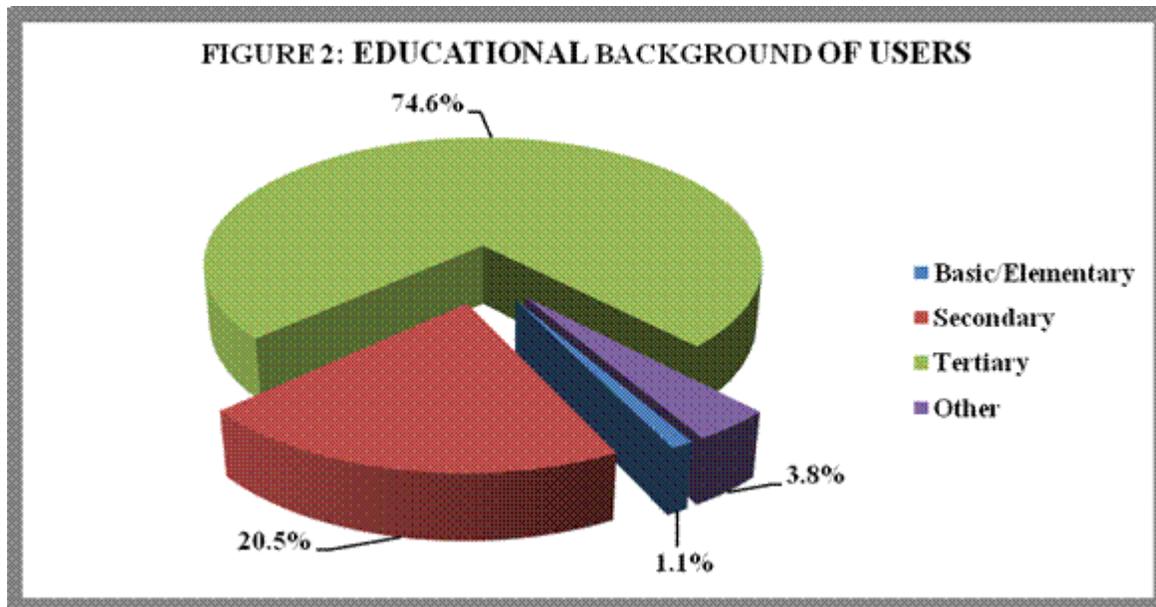


Status of Student and Type of Institution

When respondents were further asked to indicate whether they were full time or part time students and the type of institution they attend, 32 out of 98 representing 32.7% responded that they attend University; 24(24.5%) stated Polytechnic, and 17 (17.3%) indicated Senior High School respectively while the rest made up of 25.5% were from School of Journalism, Nursing and Teacher Training Colleges.

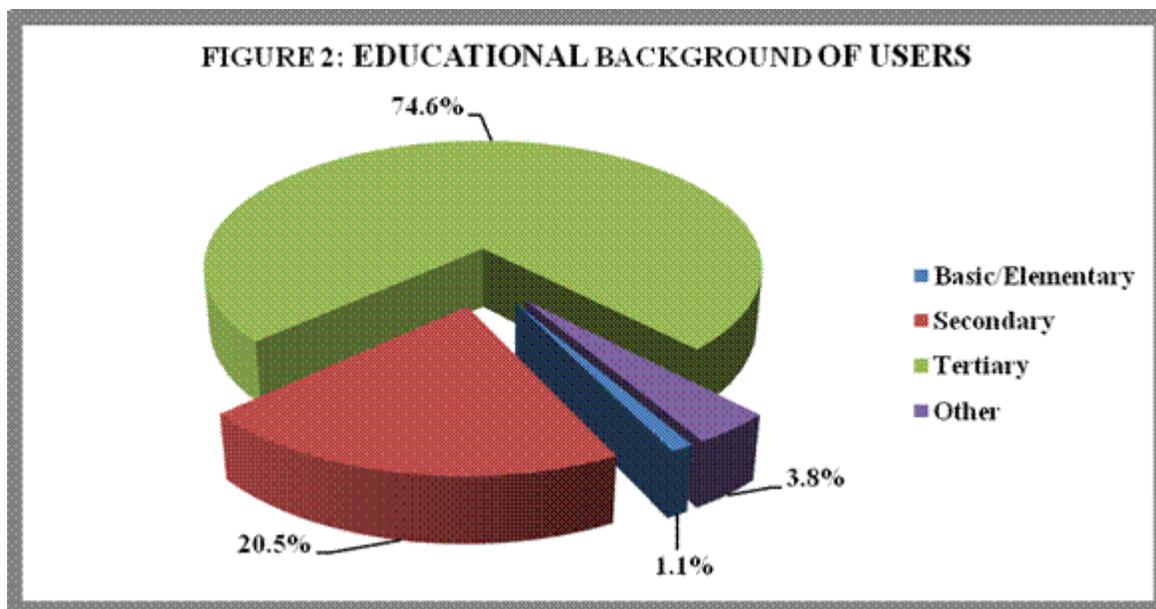
Frequency of the Use of the Library

How often people visit the library can signify how important they attach to the use of the public library. A remarkably large number of the respondents 30.8% claimed that they visit the library every day, 29.2% indicated that they visit the library once a week. On the other hand, 28.6% indicated that they use it at least once in three months and 4.9% claimed that they use the library occasionally (Figure 4). This indicates that visits are a regular part of library users' routines and therefore must be a significant part of their spare time. Thus from Figure 4, it could be concluded that a large number of regular patrons who see the library as an important feature in their lives, regularly uses it.



Reasons for Using the Library

When asked about the reasons for using the library, users gave a variety of reasons. One hundred and nine (58.9%) of them indicated that they use the library to prepare for their examination, 21.1% for research purposes while 8.1% answered that they use the library for reference purposes. Four users made up of 2 (1.1%) users each responded that they use the library to borrow books and to read newspapers or magazines respectively (Figure 5).



Thus, it can be concluded from the above Figure 5 that majority of the users at the Ashanti Library use the library because it is the best place for working quietly, without any disturbance and also to prepare for their examination. This is because such type of environment is missing in their homes, offices, and elsewhere and again demands from spouses, children, friends, and colleagues that can severely interfere with their studies are absent. It is further observed that a small proportion of these users borrow books from the library apparently because of its poor stock. In addition, most of the books are old and irrelevant and require weeding.

Status of Users and Borrowing Habits

Every public library has defined group of users or patrons whom they serve and it is upon these users that decisions about the library are taken and implemented. This is because a well used public library will make a significant contribution to the vitality of the society as an important learning/social centre and meeting place. The responses received from the survey revealed that majority of the respondents (83.2%) are not registered users of the library while a disappointingly 6.8% out of the population are registered users.

When the respondents were further asked to indicate whether they borrow books from the library, 83.2% of them replied in the negative while 6.8% replied in the affirmative. It could be concluded that majority of the users at the Ashanti Library in Kumasi do not borrow books. The reason is not far fetched. Most of the books in the library are outdated, irrelevant and grossly inadequate to these users and thus not meeting their information needs. They therefore prefer to come to the library with their own books and reading materials.

Furthermore, the stock of books in the library is not keeping pace with the exponential growth in information materials that are published day-in and day-out because of inadequate budgetary support which could be a big disincentive to users who patronize the library. What has accounted for this poor state of the book stock is that the GLA purchases just a handful of books which are shared among the Regional and District Libraries. According to the IFLA/UNESCO Guidelines for Public Library Service (Gill et. al, 2001) "the public library must have adequate resources not just when it is established but also on a continuing basis to enable it to sustain and develop services that meet the needs of the local community". Regrettably, the GLA has failed to fulfil this responsibility that has been entrusted upon it.

Reasons for Not Borrowing

Users gave a variety of reasons as to why they do not borrow books from the library. Seventy-six respondents representing 40.9% stated that they use the library for private studies, 26% indicated that they cannot find quality books, 10.4% responded that the books are old, 9.7% responded that the books are inadequate while 5.8% indicated that they come to the library only to read newspapers but not to borrow books. It is observed from Figure 6 below that about 93% of the respondents do not borrow books from the Ashanti Library but rather use it for leisure reading and as a place for their private studies.

Other Libraries Used

When asked about the other libraries in Kumasi in which users' use apart from the Ashanti Regional Library, 25.4% of the respondents indicated that they use the Ashanti New Town Library, 20% indicated KNUST Library, 17.8% stated the Kumasi Polytechnic Library and 10.8% indicated that they use the Nursing Training College Library. Four respondents (2%) stated that they use other libraries namely the College of Management, Ghana Health Service, Teacher Training Colleges and the British Council Libraries respectively while 30 (16.2%) did not indicate their response (Figure 7).

It could be inferred from the above analysis, that majority of the users prefer to use the Ashanti New Town, KNUST, and the Kumasi Polytechnic Libraries in addition to the Ashanti Library.

Opening Hours

When respondents were asked to indicate whether or not the opening hours are suitable to users, 68.7% answered in the affirmative, 16.2% in the negative whilst 15.1% of the respondents were indifferent. It is thus concluded that users of the Ashanti Library are satisfied with the opening hours of the library.

Attitude of Staff and Service

On users' impression about the services rendered by the Ashanti Library, 66% made up of 33% each responded that it was good and satisfactory respectively. Twenty-two percent stated that it was very

good while 2.2% expressed that the services offered by the library to its users is poor. It could therefore be concluded that majority of the users in the library are satisfied with the services by the library.

On users' assessment on the attitude of staff towards them, 35.1% rated them as good, 28.6% satisfactory, 22.7% very good, 8.1% excellent while only 3.8% rated them as poor. Thus it can be said that the attitude of staff at the Ashanti Regional Library in Kumasi towards users is generally very good.

Lighting and Ventilation

Lighting and ventilation are two important variables that promote a congenial environment for reading in any library. Users were therefore asked to indicate whether the lighting and ventilation were conducive for reading. About 76.8% of the users answered in the affirmative while 13.5% answered in the negative. However, 8.1% stated somehow, while 1.6% did not indicate any response. It could be concluded from Figure 9 below that as many users of the Ashanti Library are satisfied with the lighting and ventilation situation in the library.

Shelving Arrangements

Users' impression about the shelving arrangements of books in the library is analyzed in Figure 10 below. From the Figure, it is observed that 73% of the users of Ashanti Library described the books in the library as well arranged, 8% described the arrangement as haphazard, 7% indicated that there is room for improvement while 5.4% stated that the books are not properly arranged. Therefore, from the above Figure, majority of the users are satisfied with the arrangement of books in the library.

Furniture

The Ashanti Library has a total seating capacity of 140. Of this number, 100 representing 71.4% are in the Reference Department while the remaining 40 or 28.6% are in the Children's Department. The Lending Department of the Library has some few seats at the end of the room for internet facility.

The questionnaire sought to find out the users' impression about the furniture situation of the library. Sixty-eight respondents representing 36.8% rated the furniture as inadequate, 12.4% stated that it is adequate, 21.6% indicated that the tables and chairs are not up to standard, while 6.5% answered that the library needs stuffed chairs (Table 1).

TABLE 1: USERS' ASSESSMENT OF FURNITURE SITUATION IN THE LIBRARY

Assessment	Number	Percentage
Adequate	23	12.4
Inadequate	68	36.8
Tables and Chairs are not up to Standard	40	21.6
Tables and Chairs needs repairs	35	18.9
Library needs stuffed Chairs	12	6.5
Non- Response	7	3.8
Total	185	100

Source: Extracted from Fieldwork, December, 2012

It is therefore observed from Table 1 that users of Ashanti Regional Library are dissatisfied with the furniture situation in the library because the furniture in the library is woefully inadequate to meet the needs of the users. Statistics obtained from the Metropolitan Directorate of Education indicate that there are 54 second cycle schools (made up of 33 private Senior Secondary/Commercial schools and 21 public Senior Secondary, Technical schools and Training Colleges), one full-fledged University, 5 University Colleges and one polytechnic in the Kumasi metropolis alone. The total enrolment in the basic and second cycle schools in the 2008/2009 academic year alone according to the said source is 246, 756 (made up of 84,260 pupils and students in public schools and institutions and 162,496 in private institutions respectively) let alone that of the tertiary institutions and if the library could accommodate only 140 at a time of which 40 are in the children's library, then this gives a cause of concern.

ICT Facilities

Public libraries like the Ashanti Library are the ideal place to offer public access to information and communications technology (ICT) resources because they are staffed by competent professionals whose job is to help people meet and manage their information needs. An ICT driven library acts as an intermediate centre for improving literacy, awareness, welfare and cultural awakening because it has the advantage of speed, accuracy and reliability in the process of information. It can provide online access for 24/7 of e-books and other e-resources (such as online reference and full-text magazines), digital collections, wikis etc.

The total number of computers found in the library is ten (10). All these computers are connected to the Internet. These computers are managed by one of the Library Assistants who though not a computer scientist has been given adequate training as a user and in assisting users as well as trouble-shooting of the computers. Although it may appear that given the fact that the total population in Kumasi alone in the year 2000 was 1,170,270, one wonders what 10 computers can do to serve these people. However, given the state of ICT and Internet facilities in Ghana, the Ashanti Library may be doing a good job, by introducing users to ICT and helping them to access information using the ICT resources. This is because the fact that the facilities exists in the library alone is enough since it will encourage users or researchers to use them whenever they need such a facility.

A question posed to users to find out their literacy levels regarding the use of computers revealed that 64.3% of them are computer literate, 11.4% have little knowledge in the use of computers while 24.3% indicated that they do not know how to use computers.

Computers in the Library

On users' impression about the adequacy of computers in the library, 69.2% responded that they are inadequate while 7% answered in the affirmative. Four users (1.6%) indicated that they were unaware of the existence of computers in the library while 6 respondents (2.2%) did not indicate their response (Figure 12).

Regarding users' patronage on the Internet facility at the library, 50.3% responded that they do not use the ICT facility in the library. However, 32.4% responded that they use the ICT facility in the library, while 6.5% did not give a response. Therefore from the above analyses, it could be concluded that majority of the users at Ashanti Library do not use the Internet facility whenever they visit the library.

Purpose for Using the ICT Facility

On the purpose of using the ICT facility, users gave varied reasons on why they use the library. From Figure 13, 34.6% responded that they use the internet to look for information for their course work, 27.6% use the Internet to update themselves with new and current events

while 18.9% use the net to read their mails. However, 7.0% did not indicate any response. Thus from the above Figure, it is concluded that majority of Ashanti Regional Library users use the Internet for other purposes other than academic such as reading mails and for current events.

Challenges

Public libraries in Ghana face a lot of constraints in their effort to carry out the information delivery function. The operations of the Ghana Library Authority do not cover the whole of Ghana. Currently, there are only 62 public libraries in the country. Most of the district capitals do not have public libraries although the District Assembly Act provides that each Assembly should have its own public or community library. The already existing libraries are

also starved of grants or money from Central government. Information materials such as reference books, textbooks and journals are inadequate and mostly out of date and sometimes irrelevant. Donations from philanthropic Ghanaians and institutions to public libraries including the Ashanti Regional Library are lacking. The high illiteracy rate and the low reading habits among the literate population in Ghana continue to be a major problem affecting the use of public libraries wherever they exist.

When asked about the users' impressions on the challenges facing the library, 32.3% expressed their displeasure about the inadequacy of books (such as fiction and core textbooks, books and pamphlets) for its users who are Senior High School students, 15% indicated that the books are too old and irrelevant, 13.9% stated that the tables and chairs are inadequate while 11.1% were unhappy about the problem of noise pollution especially motor vehicles (plying on the main road from 'Kajetia', from mobile phones from users inside the library and the noise from the Centre for National Culture such as drumming and singing. Other minority users commented on the untidy premises, absence of fire extinguisher, discussion area, air conditioners, unfriendly and unruly behaviour of some library staff.

Conclusion

The public library should provide material in the appropriate media to support formal and informal learning processes. It should also help the patrons to make use of available resources and facilities that would enable them effectively utilize the knowledge, ideas and opinions to study.

The study has so far shown that the Ashanti Regional Library in Kumasi lacks adequate and relevant information resources to meet the ever increasing needs of its users. Not only does it lack quality and sufficient books, ICT infrastructure, personnel, funding, furniture, etc. but also lacks adequate space to accommodate its users. The Ghana Library Authority, Ministry of Education and the Government of Ghana must be proactive in solving these challenges facing the Library to enable it perform its role as an effective avenue of generating and disseminating quality information to the citizenry in Kumasi in particular and Ghana in general.

Recommendations

The Ghana Library Authority should revitalize the public library service in Ghana through the upgrading of book stock, staff training and development; acquisition of ICT equipment and training in the use of these equipment and advocacy, public relations and marketing.

A public library and the services it provides is a long-term investment on behalf of the community. Adequate levels of funding are crucial to the success of a public library in fulfilling its roles. Without sufficient levels of funding over the long-term, it is impossible to develop policies for service provision and make the most effective use of available resources. Enough money is needed to maintain and put up a new library building, augment the collections in the library and increase the number of the computers. There is therefore the need for adequate funding for the library which should be released at periodic intervals to enable the library serve its users efficiently. Funding is required not only when a public library is established, but should also be sustained on an assured and regular basis and funding needs make known to community customers.

There is the need for increased training of the staff of the Ashanti Library in the use of ICT to enable them serve users in their search for information and maintain the equipment.

The number of computers in the library should be increased as a matter of urgency. Currently, the library boasts of only ten (10) computers which are far below expectation given the population of the users it is meant to serve. The rapid development of technology is gradually moving library materials from hard copies of documents to electronic formats such as electronic databases and formats. Public libraries therefore need to adopt their technology to attract more user patronage. The quality, user

friendliness, effectiveness, reliability and regularity of the library's services can be improved through the use of ICT.

The administration of the public libraries system in Ghana should be decentralised. Since the implementation of the decentralisation policy in Ghana in 1989, more authority and responsibility have been given to the District Assemblies to improve their communities (districts), including managing the public Libraries. Regrettably, the public library system has not fully benefitted from the decentralisation policy as major policy decisions regarding acquisition and processing of books are still taken at the national headquarters.

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Extended Library Hours in Nigerian University Libraries: a Framework

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Introduction

One of the basic facilities put in place when establishing academic institutions is the library. As learning facilities, Libraries serve as content and knowledge repositories by collecting and providing access to books, journals, and all other forms of recorded information in support of the teaching, learning, research and community development activities of the institution. In recognition of these responsibilities, the Nigerian Universities Commissions (NUC) had, in its 1992 agreement with Academic Staff Union of Universities (ASSU) signed and stated that ten percent of universities' Regular Recurrent Budget (RRB) should be set aside as Library Development Fund (LDF). This is to enable university libraries as dynamic institutions, re-position themselves by extending library services and access time to meet user's demands, employing state-of-the-art technology and cutting-edge strategies in their drive to render quality information services in support of the noble objectives of their parent institutions. Unfortunately today, rather than the appropriation of 10% of the Regular Recurrent Budget (RRB), most university libraries in Nigeria are handed a paltry 10% of overhead cost of universities' recurrent budget which is just a sub-head of the regular recurrent budget of the universities. In university of Ibadan for example, this amounted to paltry sum of N4 million (equivalent of 26, 667 USD) in 2009 (Ola, 2011).

Part of the constraints associated with poor funding of academic libraries in Nigeria include: inadequate facilities, personnel and poor working condition. Inadequate funding of Nigerian university libraries has led to a poor user perception of their centrality to the teaching, research and community development mission of the universities. They doubt the ability of the libraries to meet their information needs. Most students see the libraries as mere reading-rooms, and meeting points, hence their influx to the libraries. This, notwithstanding, Nigerian academic libraries, trying to prove their relevance in the academic scheme of things, are still finding the right number of hours during which the library is accessible to users. Besides, library customers have different values to which librarians must respond: convenience, timeliness, cost effectiveness and speed are among them. For libraries, customer's values are expressed in demands for hours that meet individual needs for timely, and indeed, non-traditional access to information facilities and services (Steele and Walters, 2001). Use or utility is one popular way of defining value (Näslund, Olsson and Karlsson 2006, 302), especially from an efficiency-based perspective (Sánchez and Pérez Pérez 2001). Many library statistics, especially inputs and outputs, equate use with value, suggesting that the more books circulated or the more instruction sessions offered, the better the library. As a result, Nigerian academic libraries are studying library hours more regularly and closely than they have in the past to determine where changes need to be made to meet demands not minding their financial status and its implications on extended library hours. Like other notable university libraries around the World, some university libraries in Nigeria have indeed started responding to new demands and pressure to extend the library hours beyond traditional expectation this implies rendering library services throughout the night. In a study designed to provide a description of how libraries are responding to demands of greater hours of access and service, Steele and Walters (2001) survey responses indicate what hours of access and services libraries are providing. They also described how libraries are evaluating extended library hours and what libraries plan in the future. There was no model structure describing and identifying most of the essential facilities required for the implementation and sustainability of extended library services given the peculiarity of academic libraries.

In a recent study of extended library hours in Nigeria, Saka (2011) reveals that some European and American university libraries have effectively implemented extended library hours. According to the author, a number of US university libraries have also sustained extended library hours, including 24-hour library service without skirmishes. Whereas some Nigerian universities that attempted the exercise have either stop abruptly or have become skeletal in operation thereby disappointing their serious users. If extended library hours is desirable, why are Nigerian university libraries not able to effectively implement and sustain it?

Even though extended library hours is laudable as it provides greater opportunity for serious users exploit information materials, it appears rather too ambitious considering the present state of the university libraries implementing it in Nigeria. Sustainability of extended library hours in university libraries is highly contingent on the provision of adequate facilities, reliable sources of funding, staff welfare and security of life and properties. Sadly, library facilities over the years have revoltingly deteriorated due to poor funding. Human resources have diminished to the point that one man does the job of four persons in most Nigerian university libraries. These have in no small measure, affected the effective implementation and sustainability of extended library services including midnight library hours. Since there are good examples of libraries practicing twenty-four hours library services in other parts of the World as reported in library and information literature, this study is carried out to examine and identify the requirements for effective implementation and sustainability of 24/7 library services in Nigerian university libraries

Literature Review

The interpretation of extended library hours varies from library to library. Studies have shown that most libraries extend library access hours beyond traditional period to twenty-four hours per day, seven days per week, and most days of the year especially during examinations periods. However defined, it is clear that libraries began to respond to new demands/opportunities and established library hours beyond the traditional schedule in the last two decades (Steele and walter, 2001). There is a variety of research on hours of Library service. Curry (2002) focuses on user opinions as the most effective way of investigating the phenomenon. The Fillet report (Joint Funding Council's Library Review Group, 1993) recommends that university libraries consider longer hours make better use of limited space. This may seem surprising, considering Lancaster's (1982) prediction that information technology would reduce the need for the physical library. Technological advances have made library resources available remotely, but that increased access to the physical library is still in high demand. Delaney (2002) states that "with 24x7 access to electronic resources comes an expectation of similar access to print resources." The use of online databases with unlimited use does not have the same impact on library services (Aremu and Saka 2006). "Shift culture" is significant in the provision of Library services. Jamal (1989) asserts that "missed weekends, social gatherings, working evenings: it is all just another day in the life of a shift employee." Getting adequate sleep is essential for high performance and students with irregular sleep schedules had daytime sleepiness (Manber, et al., 1996).. Such sleep-wake patterns are usually accompanied by decreased motivation, performance, concentration, and attention, as well as increased fatigue and somnolence (DCSC, 1990). It is reasonable to suppose that university students who develop such sleep patterns may have poor academic performances. Studies on this topic include Carskadom and Davis (1989), Lack, 1986, Medeiros, et al. (2001), Hicks and Pellegrino (1991), Gomes (2002), and Gray and Watson (2002).

London (2010) explores extended hours for public libraries. Saka (2011) quoting a publication of California State University, Channel Islands, Wavelength (2005), stated that "the University library will be open continuously from 10 a.m. on Sunday December 12, until midnight on Thursday, December 16, for final exams. The library offered activities such as "slipper and bathrobe contest." Argosy University (2010) library adjusts its hours to accommodate students needs; if there are no classes on campus the hours are reduced. The Highland Council Comhairle an Gaidhealtachd (2008) describes a program of extended hours for Kyle library. McCarthy (2001) reveals that the library has developed a flexible learning environment serving both on-campus and external students. User surveys were used to gauge student satisfaction. In Africa, some universities have extended library hours. In Ghana, one institution has students who make monthly visits. During that time, the library has extended hours (Lawoe 2005). University of Cape Town has also extended its library hours. Extended hours of library services may be a noble idea in Nigeria but they are not new in many parts of the world, as illustrated by the University of

Western Cape in South Africa (Darch, 1995). Some libraries in Nigeria have started provided extended hours of library service in recent years. Olorunshola and Awolola (2001) revealed that shift work had made it impossible for staff on extended hours duty to attend social events, take care of family issues and had difficulties in getting home after work.

Justification for Extended Hours

Jackson (1997) reported on the findings from IMPEL, an eLib project carried out between 1996 and 1997 at the University of Northumbria. This project studied the impact of resource based learning on library staff and users, and concluded that, for 24 hours Library services -based learning to flourish the following developments are needed:

"1. Greater acceptance of the key role of library staff and more involvement of library staff in institutional structures

2. The development of the para-academic role of librarians in user education and training

3. An increase in staff training and development in technological skills and uses of IT based resources and those areas relating to people such as customer care, communications, team working and teaching and learning skills."

Alexander (2000) and MacColl (1999) of Edinburgh University's SELLIC (Science and Engineering Library, Learning, and Information Centre) Project, have both acknowledged the importance of the inclusion of 24 hours library services and resources in online learning, with Alexander (2000) noting SELLIC's role as encompassing:

"... the traditional principles of librarianship: that resources must be properly described and arranged within information retrieval systems, and it is working to assert the Library's role in managing the learning resources of the University." Kovel-Jarboe (2001) is among the authors who acknowledge the potential for the linkage of VLEs/MLEs and digital libraries to produce additional and innovative ways to enhance the teaching and learning experience within 24 hours Library services, while acknowledging an added likelihood for blurring of and uncertainty over professional roles within an institution.

Due to the fact that the integration of digital library services within the teaching environment is likely to draw heavily upon the 24 hours library services, authors such as Pinfield and Hampson (1999), Pinfield (2001), Davies (1997), MacDougall (1998), and Edwards (1997) have explored the changing of roles within the information sector. Increased responsibilities of library staff may mean they are required to change their tactics and skills, as well as provide content development and input in supervising students during the night duty. Edwards (1997) also uses evidence from IMPEL and suggests that uncertainty occurs when institutions had undergone or were undergoing organisational change. Davies (1997) has highlighted how library staff may either feel confused or threatened if users are not cooperating in the services rendered. Alternatively, staff in the Library with quality training and workshop on 24 hours Library services will perform better in discharging their duty. However, as Pinfield (2001) points out, particularly with regard to librarians, whom he sees as having a vital role to play in working with non academic in ensuring that the 24 hour service are achievable.

24-Hour Library Service at the University of Ibadan

Kenneth Dike Library (KDL) was established in 1948 along with the premier university, University of Ibadan, Nigeria. The library which took off then with 12000 volumes and 300 current journals on open access now contains over one million volumes and receives more than 6000 separate journal and other serials subscription. Besides, printed books and journals, it also subscribed to a rich collection of electronic materials and databases in medicine, technology, science, humanities, education and social Sciences many of which are University of Ibadan (U.I.) IP- regulated. The library comprises many libraries of which the Kenneth Dike Library is the centre in the library system. There are 27 other branch /faculty libraries and departmental reading rooms located in various faculties and departments for the use of students and faculty members. The essence of this plan is to take the library to the users in terms of specific subject disciplines. The largest of these branch libraries is E Olatunde Odeku Medical Library located at University college Hospital (UCH) for the use of medical staff and students.

Kenneth Dike Library (KDL) has had a good history of supporting the Premier University (University of Ibadan) to achieve long-standing reputations as the first university in the country. As a structure designed to give service, anticipate and respond to the information needs of its users, the library has created a friendly, convivial serene and welcoming environment that is attractive for use. Like other university libraries in Nigeria, KDL relies mainly on government subvention released to the universities by the NUC as Library Development Funds (LDF), then the universities' administrations, in turn disburse the funds to their libraries. University of Ibadan, library had enjoyed a fairly comfortable level of government funding up till about the early 1980s (Ola, 2011). But due to economic recession and the failure of the successive military governments to give the desired attention and priority to the education sector, university education suffered untold hardship because of inadequate funding which resulted in universities' inability to maintain library facilities. Nevertheless, as the university and its component units are strategizing on how to evolve cutting-edge strategies to make the most of the realities of a modern institution, the central and strategic role that a forward-looking academic library should play in the scheme of things must loom large. Hence the implementation of twenty-four hour library service by KDL management on July 6, 2011 albeit stringent financial situation and deteriorating library facilities. Apart from decaying facilities in the library, there is also the problem of inadequate staffing compare to the number of students served.

Apparently, extended library hours is highly beneficial to students as it provides round-the-clock opportunity for student to read in the library in preparing adequately for their examinations. Besides, statistics has shown that students' use of the Library in the evening service is far greater than their use of the library during the day. This finding supports Anderson, Petros, Beckwith, Mitchell, and Fritz (1991) who found that evening is a better time of the day for retaining information from reading or studying.

Traditionally, KDL opens at 8:00 am and closes at 10:00 pm. Monday to Friday. On Saturdays it opens from 8:00 am to 1:00 pm and Sundays from 5:00 pm to 10:00pm. With the implementation of 24/7 library services, the Readers' Services Sections of the Main Library (KDL) are opened for use at night. These include; Reference/ Research Library for graduate students, Serials Section, Undergraduate Reading Room which comprises all the floors of the four-Storey building. These portions of the library can accommodate more than one thousand five hundred readers' on-the-spot. Male professional librarians, mostly Librarian II and Library Officers supervise night library hours which run from 10:00 pm to 6:00 am, Monday through Saturday to Sunday during academic session. These include one professional or paraprofessional librarian as Supervisor, two porters and two security men sent in from University Security Unit. Their functions include checking of users' bags and verification of Identity Cards at the entrance to ensure security of lives and properties, closing and opening of the library gate at midnight and in the morning respectively, switching on and off of the power generator in the incidence of public power failure, maintenance of peace and order in the library etc. The library gate closes at 12.00am and opens at 6.00am to enable night readers go out and give room for the cleaning of the library at dawn.

Abuse of Extended Library Hours

As academic libraries are dedicated to the advancement of learning, and firmly committed to a philosophy of mutual tolerance and respect, it is not every transaction with readers that is perfectly pleasant. In KDL for example, unruly behaviour of some readers was reported during midnight library hours. These include thefts of mobile phones, Laptop, note books, jotters, and textbooks belonging to the library and users. Very worrisome and begging for attention is the proliferation of reading chairs and tables within the library. It was observed that some users carelessly take chairs and tables from their original positions, sometimes to sleep on them. Off campus/external students, who could not return home, slept in the library. Many library chairs and tables have been damaged due to improper use. Night duty staff also experienced difficulties in preventing users from bringing food and drinks into the library so as not to attract rodents and insects to the library. This attitude of some users in the library posed challenges to the cleaners and circulation staff during shelving.

Statement of the Problem

The library field, and its research, relies on a long tradition of user-orientation to justify and develop library operations. Recent studies of extended library hours in Nigerian university libraries suggest that high demand for library services which could not be met traditionally was the main reason for extension of library hours. But after the implementation of extended library hours in some Nigerian university libraries, the exercise ended in fiasco due to abuse, lack of funds, lack of facilities and inadequate staffing. Besides, facilities like the electricity power generators and restrooms which have been used during the day are overstretched during midnight library hours to the extent that breakdown becomes imminent and almost inevitable. Most Nigerian academic libraries stopped midnight library hour as there was the threat of the library inadvertently providing a breeding ground for antisocial activities and cultism. In fact, serious users who are accustomed to extended library hours get traumatized by the inconsistent and erratic opening hours of these libraries. Inconsistency in opening hours disregards the distinguishing principles and tradition of library and information service delivery for which libraries are known and respected. The researchers hold the position that sustaining extended library hour is demanding and as such, a framework of fundamental set of ideas, principles, agreements, or rules that provides the basis or outlines for extended library services and intended to be more fully developed at later stage be established for Nigerian academic libraries to implement, run and sustain extended library hours effectively. This study which is carried out to identify basic facilities, personnel, safety plans and staff welfare packages required for 24 hours library services, will also point out sources of funding in support of library extended hours in Nigerian University Libraries. This paper will help to develop a model framework required for consultation for the implementation and sustainability of 24 hours library services in Nigerian university libraries.

Research Methodology

The population of this study comprised of all the librarians, security, porter and other staff of Kenneth Dike Library, (KDL) university of Ibadan. Structured questionnaire was used as instrument for data collection. Out of one hundred and twelve (112) staff in the library, 84 representing 75% participated in the study. The questionnaire sought respondents' opinion on a list of basic facilities including safety devices, personnel requirement, Worker's welfare packages/ incentives and Sources of funding for the implementation and sustainability of night library services in Nigerian University libraries. The questionnaire also sought their opinions on the adequacy of the above facilities in Kenneth Dike Library in the wake of its implementation of 24/7 library services.

Interpretation of Results and Analysis Research findings are presented using frequency distribution and percentages. Inferences are drawn from addition of (disagree and strongly disagree and agree and strongly agree) responses percentages.

Basic Facilities Requirement for 24/7 Library Services

S/N	Facilities	Disagree	Strongly Disagree	Agree	Strongly Agree	Undecided
1.	Stable electricity power supply	-	-	18 21.4%	66 78.6%	-
2.	Air –condition/fans	1 1.2%	-	29 34.5%	52 61.9%	2 2.4%
3.	Telecommunication equipment	3 3.6%	4 4.7 %	31 36.9%	46 54.8%	-
4.	Restroom	4 4.7%	2 2.4%	34 40.5%	43 51.2%	1 1.2%
5.	Coffee room/bar	12 14.3%	2 2.4%	35 41.7%	29 34.5%	6 7.1%
6.	Radio/television room	15 17.8%	23 27.4%	13 15.5%	12 14.3%	21 25.0%

The table shows that stable electricity power supply is placed highest (100%) among the basic facilities selected as required for the implementation of 24/7 library services. This is followed by Air-condition/fans (96.4%), Telecommunication equipment (91.7%), Rest room (91.7%) and Coffee room/bar (76.2%). However, Radio/television room (45.2%) is not really very necessary for use during extended library hours.

Basic Safety Devices Requirement

S/N	Item Statement	Disagree	Strongly Disagree	Agree	Strongly Agree	Undecided
1	Proper lighting	-	3 3.6%	21 25.0 %	60 71.4%	-
2	Fire extinguishers	-	-	21 25.0%	63 75.0%	-
3	Emergency exit doors and	-	4 4.8%	24 28.5%	53 63.1%	3 3.6%
4	Ambulance	9 10.7%	4 4.8%	27 32.1%	30 35.7%	14 16.7%
5	First aid	6 7.1%	7 8.3%	31 36.9%	40 47.6%	-
6	Suggestion box	5 6.0%	3 3.6%	37 44.0%	33 39.3%	6 7.1%
7	Metal scanner for security	1 1.1%	3 3.6%	36 42.9%	44 52.4%	-

The responses from the respondents about safety requirement shows Fire Extinguisher placed highest (100%) among the safety devices required for 24/7 extended night library services. This is followed by proper lightning (96.4%), Metal Scanner for library security (95.3%), emergency exit doors (91.6%), first aid (84.5%) and suggestion box (79.3%) and Ambulance for emergency (67.8%)

Basic Personnel Requirement

S/N	Staff Required	Disagree	Strongly Disagree	Agree	Strongly Agree	Undecided
1.	Male and female librarians	-	1 1.2%	31 36.9%	52 61.9%	-
2.	Male library staff only	28 33.3%	7 8.3%	24 28.6%	12 14.3%	13 15.5%
3.	Female library staff only	23 27.4%	37 44.1%	11 13.1%	7 8.3%	6 7.1%
4.	Qualified medical personnel	13 15.5%	6 7.1%	28 33.3%	33 39.3%	4 4.8%
5.	Cleaners and technicians	9 10.7%	21 25.0%	25 29.8%	27 32.1%	2 2.4%
6.	Nigerian police Men	21 25.0%	2 2.4%	31 36.9%	24 28.6%	6 7.1%
7.	Adequate Internal Security Personnel	6 7.1%	8 9.5%	26 31.0%	42 50.0%	2 2.4%
8.	Mandatory Participation	26 30.9%	31 36.9%	19 22.6%	3 3.6%	5 6.0%
9.	Incentive Driven Participation	-	-	37 44.0%	43 51.2%	4 4.8%

The table indicates that Male and Female Librarians (98.8%) is placed highest in personnel requirement, followed by Incentive Driven Participation (95.2%), Adequate Internal Security Personnel (81%), Qualified Medical Personnel (69.3%), While Men of the Nigerian police (65.5%), Cleaners and technicians (61.9%). However the respondents disagreed and strongly disagreed that only female library staff are required for extended library service which ranked 71.5%, while 67.8% of the respondents also disagree that the participation in 24/7 library services should not be mandatory.

Basic Worker's Welfare Packages

S/N	Item Statement	Disagree	Strongly Disagree	Agree	Strongly Agree	Undecided
1	Leaves entitlement	11 13.1%	4 4.8%	28 33.3%	33 39.3%	8 9.5%
2	Increases in salary	11 13.1%	5 6.0%	30 35.7%	35 39.5%	3 3.6%
3	Night allowance package	-	1 1.2%	37 44.0%	45 53.6%	1 1.2%
4	No off-duty after night duty	25 29.7%	28 33.3%	13 15.5%	13 15.5%	5 6.0%
5	Increased off-duty entitlement	5 6.0%	10 11.9%	30 35.7%	29 34.5%	10 11.9%

Night Allowance Package (97.6%) ranked highest in welfare Packages. This is followed by Increased Salary (75.2%), leave entitlement (72.6%), and increased off-duty (70.2%). However, 63% of the respondents disagree with the two days off-duty after working for seven days as night duty.

Sources of Funding for Night Library Services

S/N	Item Statement	Disagree	Strongly Disagree	Agree	Strongly Agree	Undecided
1	10% universities regular recurrent budget as recommended by NUC	1 1.2%	4 4.8%	27 32.1%	51 60.7%	1 1.2%
2	External sources of fund	4 4.8%	1 1.2%	35 41.6%	42 50.0%	2 2.4%
3	Library Internal Generated Revenue (IGR)	2 2.4%	-	34 40.5%	41 48.8%	7 8.3%
4	10% of overhead cost of universities' recurrent budget	8 9.5%	-	37 44.1%	35 41.6%	4 4.8%

The responses on the sources of funding for extended library hours shows that 10% universities' Regular Recurrent Budget (RRB) as recommended by NUC (92.8%) is placed highest among the sources of funding required for extended library services. This is followed by external sources of funding (91.6%), Internal Generated Revenue (IGR) (89.3%) and 10% of overhead cost of universities' recurrent budget (85.7%) was ranked the lowest.

Discussion

The study reveals that stable electricity power supply, air conditioner/fans, telecommunication equipment and restroom are basic facilities required for the implementation and sustainability of twenty four hours library services and should be given adequate attention in Nigerian university libraries. The study shows that proper lighting of the library premises, fire extinguishers; first aid boxes, emergency safety exit doors and ambulances are some of the basic safety devices required for the implementation and sustainability of extended library hours in Nigerian academic libraries. Suggestion boxes and metal scanner should also be part of safety devices required.

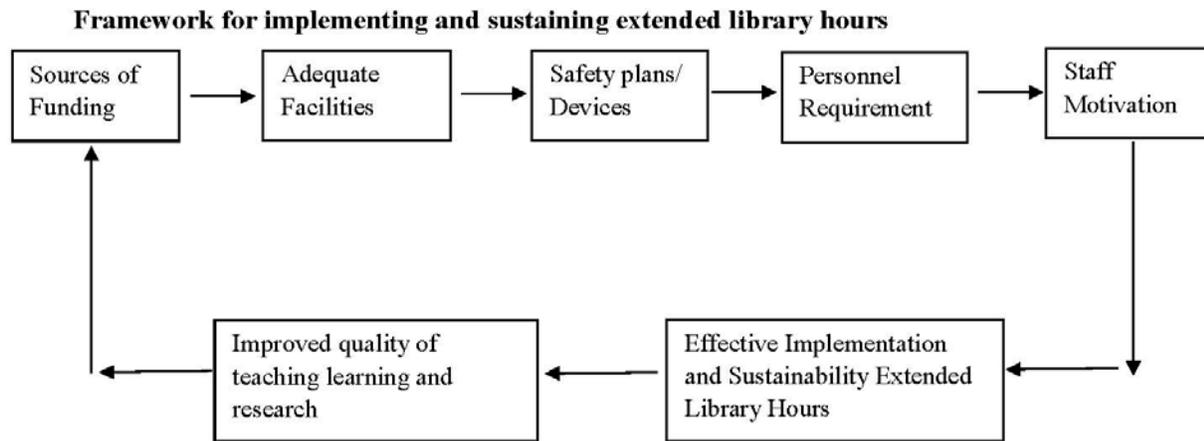
While Kenneth Dike Library (KDL) university of Ibadan exempts female library staff from midnight library services, the study revealed that both male and female librarians are required to participate in extended library hours in as much as librarianship is a profession embraced by all. The study shows that participation in extended library hours should not be mandatory but incentive driven. The study indicates that qualified medical personnel, cleaners and technicians are required for the implementation of 24/7 library services. Medical personnel would help in given first-aid attention to a library client in poor health condition. Moreover, night log book at KDL University of Ibadan shows several cases of student in critical health condition who were rushed to the University Health Service (UHS) centre for medical treatments. Few cases of fainting students due to illness, exhaustion, or weakness have also been reported. It has also been reported that some library users vomit and spit on the floor in the reading rooms or on their way to the restroom which is why the attention of cleaners is indispensable during midnight library hours.

The study supports the use of adequate number of internal security personnel to cater for the safety of life and property during extended library hours in Nigerian university libraries. This will help prevent pandemonium associated with cultism and dreadful sectarian activities which constitute the bane of insecurity in Nigeria. The study reveals that incentives such as night allowance, increased salary packages; off-duty and leave entitlements are required to motivate participants in extended library hours. Sources of funding for extended library hours should include 10% universities' Regular Recurrent Budget (RRB) as recommended by Nigeria Universities Commission (NUC), external and Internal Generated Revenue (IGR).

University libraries in Nigeria rely mainly on government subvention to which parent institutions are the superintendents of the funds. The subventions are released to the universities' administrations by the NUC as Library Development Funds (LDF), who in turn disburse the funds to their libraries. Instead of disbursing the recommended 10% universities' Regular Recurrent Budget (RRB) to library, what libraries get is 10% of overhead cost of universities' recurrent budget. In university of Ibadan for example, this amounted to paltry sum of N4 million (equivalent of 26, 667 USD) in 2009 (Ola, 2011). However, prior to this period, university libraries in Nigeria had enjoyed a fairly comfortable level of government funding up till about the early 1980s (Ola, 2011). Book acquisition were made to cater for all disciplines and courses offered in the university; journal subscriptions were paid for as at when due; academic libraries could engage in exchange programmes with other libraries locally or internationally and a lot of grey literature were acquired through this means. Besides, library staff enjoyed local and foreign in-service trainings; various library collections grew steadily; the shelves were kept neat and well maintained; and above all, there were sufficient staff to discharge library services and well motivated to respond to users' needs and request. The funding situation at this time was premised on the availability of funds in the university. However, the global economic glut in the petroleum crude oil market in the early eighties heralded stiff national economic measures that almost strangulated the universities. The universities not only experienced huge cuts in their budgetary allocations, funding also became irregular. Given the fact that libraries are "usually the last to be favored when budgets increase and the first to lose it during depression" (Nwagha, 1990), the impact of dwindling funding of universities on libraries can only be imagined. Literature is replete with the devastating effects of poor government funding on Nigerian university libraries (Banjo, 1980; Dipeolu, 1992; Edoka, 1991; Edoka, 1992; Ekoja, 1992; Ekpenyong, 1993; Ogunidipe, 1985; Ogunidipe, 1989; Ogunseinde, 1989; Nwafor, 1990; Ola, 1995, Ola and Adeyemi, 2000; Ola and Adeyemi, 2001; Oyelude and Ola, 2008).

Consequently, libraries had no alternatives than to look inward for other sources of funding including Internally Generated Revenue (IGR) from reprography, bidding, personalized information services like literature search and printing, Internet use and CDROM search; overdue charges and library registration.

IGR amounts to an infinitesimal proportion of library funds required for extensive maintenance. Libraries also get funding support from donations and special interventions from individuals, corporate and multinational organizations, and foundations like MacArthur, Camegie, Ford, Rockefeller, among others. These come occasionally. The Education Trust Fund (ETF), which was originally initiated by the Academic Staff Union of Universities (ASUU) also



makes provision for funds to implement special projects in the library. This has been of tremendous assistance to university libraries and has been a supplement to the meager amount made available through budgetary allocations but not sufficient to fund extended library hours including midnight library services sustainably. Therefore, implementing and sustaining extended library hours requires adequate facilities, highly motivated library personnel and security of life and properties the provision of which is contingent on the amount of funding the library consistently enjoys.

Framework for Extended Library Hours

In planning extended library services, library management should ensure that sources of funding are established for adequate provision and maintenance of facilities such as backup electricity generators for stable electricity supply, air conditioner/ fans, telecommunication equipments and restrooms maintenance. Sources of funding for extended library services should include 10% universities' Regular Recurrent Budget (RRB) recommended by Nigerian Universities' Commission (NUC) as Library Development Fund (LDF) followed by external and internal sources of funding. Moreover, adequate safety plans for library staff, users and resources must be put in place. Library should provide fire extinguishers, metal scanners, and emergency exit doors, suggestion boxes and vehicle for emergencies and staff transportation. Adequate number of professional as well as supporting staff is required for extended library hours especially midnight library services.

Library users generally behaved well under supervision. Agboola (2001) has discussed the problems of cult activities on Nigerian university campuses. Night library hour if not properly manned and put under control, could be used as a meeting place for cult and other antisocial activities. Adequate security personnel are required for midnight library service to curtail users' unruly behaviours and sectarian threat.

Participation in extended library hours should not be mandatory and intended to penalize perceived opposing colleagues. It should be incentive driven and opened to all so as to stimulating staff interest and commitment to the programme. The establishment of sources of funding, provision of adequate facilities, safety plan and adequate number of well-motivated staff will enhance effective implementation and sustainability of extended library hours. Sustainability of extended library hours will in turn foster reading habit and improve the quality of education. Extended library use will only be meaningful if it can be connected to institutional outcomes (e.g., student learning and faculty productivity) (Oakleaf, 2010,182). In the new paradigm, Librarians should be able to articulate institutional goals and

demonstrate proof that they are using extended library hour to promote institutional objectives so as to attract fund from the overarching institutions.

Conclusion

University libraries as dependent institutions are established principally to support the teaching, learning, research and community development efforts of its university. They are academic as they derive operational mandate from their principals – their parent institutions. University libraries are therefore responsible to the institutions that fund and host them. Federal and state universities are public funded institutions in Nigeria. By extension, the libraries that support their academic programmes and research activities are funded by means of public fund. An academic library is the pivot around which all academic, research activities of the parent institutions rotates. To starve university libraries of funds is to stifle or paralyse research exploits and academic engagements. According to Ola (2011), "the quality of academic and research output is largely the function and quality of library services available in the institution". Thus inadequate funding of the library has adverse repercussion on extension of library services, including midnight library hours, information materials possession, and the general outlook of the library. This in turns affect not only the university it serves but the society at large. If libraries are properly funded, the quality of teaching learning and research will improve. The centrality and importance of the library can be measured from the rating given during programme accreditation exercise by the Nigerian Universities Commission (NUC) and the professional councils of various disciplines. The state of academic is largely determined by the state of its library. It is a case of show me your library and I will know your academic worth.

Recommendations

Extension of library hours from the review of literature implies that more hours of access to library service have been added to the traditional library hours. Studies have shown that libraries extend library hours beyond traditional period to twenty-four hours, all time or round the clock and continuing especially during examinations. By implications these libraries are opened through the nights, and as such existing facilities and personnel face the likelihood of being over stretched if adequate plans are not made to cushion the effects of overuse or misuse. Inability of Nigerian university libraries to provide adequate facilities, personnel and security is why initial attempts made at implementing and sustaining extending library access hours failed to yield desired results (Saka, 2011). Given the peculiarity of Nigeria's social and economic factors, extension of library hours beyond traditional in Nigerian University Libraries require that:

- There must be regular power supply and a conducive learning atmosphere equipped with air-conditioner/ fan, telecommunication, and functional restrooms
- There should be proper illumination of the library premises and other safety devices including fire extinguishers, first aid boxes and alternative exit doors in case of emergency. Others are suggestion boxes and security telephone numbers should be provided for library users.
- There should be adequate number of staff which must include male and female librarians, qualified medical personnel, cleaners and technicians
- Security of life and properties should be adequately guaranteed. Men of the university internal security should be adequately equipped and motivated to stand the challenges of both internal and external security threats
- The Nigerian Universities Commission (NUC) should ensure that the 10% Regular Recurrent Budget (RRB) of universities is made available to university libraries as Library Development Funds (LDF). Besides, libraries should explore other sources of funding including Internal Generated Funds (IGF) and external sources of funding to enable them implement and sustain extended library hours including 24/7
- Academic libraries in Nigeria should adopt Community-Based Social Marketing (CBSM) tools and techniques in order to regain their visibility, relevance and confidence in their various communities.

A good workman takes care of his tools. The library is an academic's main resource and tools. It is expected that academics would minimally cherish libraries and crave for their development. Unfortunately, the reverse is the case in Nigeria. One wonders why some academics are even so eager to oppose library matters, especially moves at allocating funds to the library. When library issues are raised at university senate meetings, academic boards and other fora, tempers rise – egged by careerist academics. Then, complaints would trail-in on the sloppiness of librarians and the services they render. Aspersions are cast on the library and librarians. Libraries are alleged as not responding to academic demands thus raising the issues of their relevance. In contrast, references are made to university libraries in advanced countries without recourse to the amount of funds made available to such libraries. If we consider the budgets made available to the libraries in Nigeria, we will certainly see that there is no basis for comparison.

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Idaho's First Libraries and Librarians

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Introduction

The first libraries are thought to have originated around 1200 BC (History Magazine, 2001). Just as the libraries of the ancient past, Idaho's libraries and librarians have a beginning point in history. Idaho's libraries and librarians have much in common with those of ancient times, whether passive archives, collections of literary forms, or scholarly knowledge. However, there is also much that is unique to Idaho and the Northwest. Specific geography, politics, transportation, industry and production, rapid growth, as well as culture and education all played a large role in the development of the Idaho Territory and State, including her first libraries and librarians. This article is an exploration of Idaho's first libraries and librarians along with a perspective of the period of time that they were established and served the profession.

The Period

Gold Rush

The gold rush began in the mid 1800's and that brought a wave of people out west. Cities like Portland, San Francisco, and Seattle grew fast. Most of Idaho's gold miners came from other places that had already had gold strikes. Gold was first discovered in the fall of 1860 around Pierce, the Boise River Basin in 1861, and then the Coeur d'Alene River in 1880. The first two Idaho gold discoveries generated enough money and brought many people and businesses to support the mining industry. This growth caught the attention of the United States government and in 1863 President Abraham Lincoln signed the law that made Idaho a territory. After the gold rush, many of the miners stayed to farm and open businesses. Out of the gold rush of 1880 also came silver, lead, and zinc mining. Idaho's third gold rush occurred after the railroads had been built. This fast mode of transportation made it easier and faster for people to come to Idaho and she grew even more. In 1890, President Benjamin Harrison signed Idaho into statehood (Mining in Idaho, n.d.; Newkirk, 2005).

Optimism and Expansion

The period between 1880 and 1910 was considered a time of exuberant optimism because of the vast amount of railroad expansion that connected the Pacific Northwest to the East (Robbins & Barber, 2011). This was also a time when connections were made for Washington to Northern Idaho and to Montana. From 1880 to 1892, Spokane (only 90 miles from Moscow, Idaho) grew from 350 to 30,000 people (p. 21). Spokane was the hub, connecting north to British Columbia, east into the Coeur d'Alene mining district and Montana, and south to the rolling hills of the Palouse. The entire Northwest was growing at a very rapid pace. Seattle grew from over 80,000 residents in 1900 to 237,000 by 1910. During this same period, Portland grew from over 90,000 people to 207,000 (pp. 23-24).

Farming

Farming evolved in economic importance as they supplied the booming mining towns. Southern Idaho farming was dependent on irrigation while the north was able to utilize dry land farming. Wheat production grew as fertile land was accessible to the railroads and Idaho's farmers were able to sell their crops not just locally but regionally and nationally. The 1894 Carey Act and the Newlands Reclamation Act of 1902 attracted more farmers to the Northwest. The Palouse became the center of wheat production in the Northwest as most of the suitable land was being utilized for the crop by 1910 (Robbins & Barber, 2011; Idaho State Historical Society, 1982).

Unrest

This was also a time of unrest. The early 1890's saw an industrial depression. The productive classes, being miners, agrarians, and the like, felt that railroads were driving up shipping costs through inequitable rates, that banking institutions were charging too high of rates, that abuses were rampant in corporations, and that farmers were being taxed unfairly. These led to many protests including violence that occurred several times at the Coeur d'Alene mining district because of labor-management disputes. In 1899, Idaho governor, Frank Steunenberg asked for the assistance of federal troops. In December of 1905, then the ex-governor, Steunenberg was killed when a bomb detonated as he arrived at his home. Federal indictments were given to three leaders of the Western Federation of Miners, though they were eventually acquitted (Robbins & Barber, 2011).

Cultural and Educational Organizations

With the unrest, the late 19th and early 20th centuries brought about an interest in cultural and educational organizations as a way to combat the effects of industrialization. This led to the creation of many libraries, museums, free schools, and land-grant colleges and universities. Gunselman (2004) noted that these organizations were "agencies of opportunities, providing individuals with tools for economic and social upward mobility and shaping a nation of good citizens" (p. 886). Taking up the cause to provide society with cultural and educational opportunities led to programs that professionalized staff to run and lead these organizations. Libraries during this time were populist; places where people could find a common ground and where they and society could benefit because libraries offered or supported education and provided clean entertainment (Ditzion, 1947). Most often, Congress would include funds for territorial libraries when they granted territorial status. However, that was not the case for Idaho (Robbins & Barber, 2011). In the fall of 1860 gold was discovered east of Moscow and the spring of 1863 Idaho officially became a territory. That December, during the first legislative session of the territory, William B. Daniels, Acting Territorial Governor, declared in a speech: "It cannot be necessary to argue the necessity of education to the preservation of our free institutions. 'We must educate,' said a great American orator, 'or we must perish by our own prosperity;'....Prosperity, wealth, luxury, vice and ruin, are the successive steps in the career of every nation that does not rely upon the virtue and intelligence of the people. All the gold in these mountains will not save us from the fate of free nations that have gone before us if we do not educate our children, but rather make our decline more swift and sure" (Gibbs, 1962, pp. 9-10).

Idaho's First Libraries and Librarians

Territorial Library and Law Library

The first territorial session laws for Idaho included law that set the foundation for the territory. One such law was the Creation of Offices, Etc. Act that was approved January 29, 1864. Among other things, it set forth that the territorial auditor serves as the ex-officio librarian, be elected, and serve a two year term (Creation of Offices, Etc. Act, 1864). Nine territorial auditors served as the ex-officio librarian in the seven years preceding Idaho's statehood in 1890 (Secretary of State, 2009). However, in 1869, the fifth legislative assembly approved An Act In Relation to a Territorial Law Library which transferred funds

from a previous Act to be set aside for a Territorial Law Library Fund. This Act also designated the clerk of the Supreme Court as the territorial law librarian (An Act In Relation to a Territorial Law Library, 1869).

Historical Society of Idaho Pioneers

The Historical Society of Idaho Pioneers was established in 1881 in order to preserve information and artifacts associated with the Idaho Territory. Later (1907), the legislature created the Idaho State Historical Society. John Hailey served as the first librarian of the Society. One of the founders of the town of Hailey, he was involved in mining ventures, had owned stage lines, been a sheep and horse rancher as well as owning a meat packing company, was twice a Congressional delegate for the Idaho Territory, and appointed by the governor to serve as warden of the Idaho State Penitentiary. In 1910, the legislature asked Hailey to write the history of Idaho. He served as the librarian of the Society until his death in 1921 (Idaho State Historical Society, 1971; 1970; n.d.).

Columbian Club of Boise and the State Library

Of the cultural and educational organizations that developed in the late 19th and early 20th centuries, many were women's clubs. One such club that formed in Idaho was the Columbian Club of Boise. First organized in 1892, the club raised money to fund a woman's room in the Idaho building at the World's Fair. In 1894 the club reorganized with a new purpose; "To establish and maintain a circulating library and free reading room and to take up any other line of work designed to promote the highest interests of the city" (Athey, 1896, p. 76). They held "entertainments" two times a year as a way to raise funds for books, cases, and furniture. Athey, in 1896, listed Ella Cartee Reed as the club Librarian. Ella Cartee Reed later served as Secretary and assistant to John Hailey from the beginnings of the Idaho State Historical Society and then as librarian after Hailey's death (Idaho Historical Society, 2008). In 1901, the Columbian Club of Boise was persuasive in getting the Idaho legislature to authorize cities to tax in order to fund public libraries. That same year, the legislature passed Senate Bill 7 which created the State Library Extension and Traveling Library Commission and charged the state library to "give advice and counsel to all free libraries and to all public school libraries in the State, and to all communities which may propose to establish them, as to the best means of establishing and administering such libraries" (Senate Bill 7, 1901, p. 6). The first state librarian was Eva Hunt Dockery. Dockery was a member of the Columbian Club of Boise. She served from 1901-1903 (Armstrong, 2012). She is one of the few librarians ever honored with a lifetime membership to the Idaho Library Association (Kent, Lacour, & Daily, 1974).

Idaho State Library Association

Margaret Stevenson started working at the state library in 1903 and served as the third state librarian 1905-1907 and three more times; 1911-17, 1919-1933, and 1947-1952. It was during her second tenure as state librarian that Stevenson timed a meeting of librarians while the teachers were in Boise for the State Teachers Association meeting. It was at this meeting that the Idaho State Library Association (now the Idaho Library Association) was organized, December 29, 1915, and the first president of the association was elected, Gretchen L. Smith. Smith was the librarian at Idaho Technical Institute in Pocatello and served as president of the association 1915-1918 (University of Idaho, 1997).

University of Idaho Library

The University of Idaho pre-dates Idaho statehood as it was established by the Territorial legislature through the passage of Bill No. 20 on January 29, 1889. However, it was not until October 3, 1892 that the University opened. The University's first librarian was John E. Bonebright. Hired in 1893, his duties were to teach math, physics, and to be the university librarian. When Bonebright decided to teach full-time, Stella Maud Allen took over the library duties. Allen was an 1896 graduate of the university and was the first to systematically begin to classify the library resources, though rudimentary. Another University of Idaho graduate (1898), Margaret B. McCallie, became the third librarian in 1899 upon

Allen's resignation. McCallie was able to add a reading room and periodical rack to the library. She also added value to the library resources by creating subject headings and cross references. With McCallie's departure, the university hired Mary Belle Sweet in November of 1905. Sweet holds the distinction as the University of Idaho's first "professional" librarian, having graduated from the University of Illinois Library School. She held the post of university librarian for 43 years until her retirement in 1948. Almost right out of the gate, she was challenged by the 1906 Administration Building fire that destroyed the library. Left with only 738 books (which happened to be checked out at the time of the fire), Sweet rebuilt the library collection and housed it in the school gym until 1907 when it moved into Morrill Hall with over 3,200 volumes, 2,000 documents, and 7,000 U.S. Government Documents. She endured the library moving three more times as the Administration Building was rebuilt and later expanded twice for more space, many years of lean budgets, and the unrealized dream of a library housed in its own building. However, she accomplished so much through it all as well; not only building the collection and expanding services, but also achieving the full cataloging of all library resources. Sweet also served as the second president of the Idaho State Library Association was M. Belle Sweet 1918-1919 (Buxton, 1988; Gibbs, 1962).

Conclusion

The late 19th and early 20th centuries were a time of growth and unrest in the Northwest and Idaho. It was a time that saw an interest in culture and education. Through that interest, emerged a time for libraries and the librarians that shaped librarianship in Idaho. These librarians were pioneers, nothing was easy. Some were elected officials or appointed, like the territorial librarian and the state law librarian. While others emerged through the formation of organizations like the Historical Society of Idaho Pioneers and the Columbian Club of Boise which led to the Idaho legislature creating the Idaho State Historical Society and the Idaho State Library. They broke the trail to public funding for libraries in Idaho. Their insight into the future of libraries and librarians in Idaho is exemplified by the work of Margaret Stevenson who had the foresight to organize what is today the Idaho Library Association. They provided the foundation and legacies for the organizations we have and serve to remind us of where Idaho's libraries originated and how far we have come.

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Use of Resources by Students of the Kwara State University Library

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Introduction

Libraries are seen as repositories of human experiences and knowledge. Although libraries have changed significantly over time, their cultural roles have remained essentially the same. Libraries are still responsible for acquiring and providing access to books, periodicals, and other media that meet the educational, recreational and informational needs of their users. In order to effectively sustain their cultural roles, libraries have been categorized into different types to render their services better and to satisfy more patrons (Obinyan, et al., 2011). The purpose of the libraries in general is to provide education, information, research, inspiration, and recreation to users. In the 21st century, libraries inevitably become learning centers and knowledge-centers. The academic library's mission is to contribute to the university's academic excellence by identifying sources of information and knowledge recording them and developing organized collections relevant to the university's mission and creating intellectual tools to use these collections easily regardless of medium (Nwezeh and Shabi, 2011).

Academic library use studies have evolved over the years. The problem of under use of library resources is a global one. Various user researches have probed user attitudes as well as the characteristics of users, reasons for library visits, and factors related to the use of the different types of library materials in different academic environments, but this study aim at looking into the use of library resources available at the University library, Kwara State University, Malete.

Literature Review

Information use refers to the practice and adequate use of information resources identified and acquired by the user for the purpose of solving problems. use of information varies amongst individuals, Social groups, institutions, government agencies, organizations and establishment.

In other words this is dependent on the varied information needs of users. Whitmore (2001) found a surprising relationship between students level of study and library use as it increased during each successive years of study. Using computers in the library and reading in the reserve and reference rooms also increased.

The purpose of use, the user's characteristics, the environment in which the information is being used, medium of communication, quality of information, infrastructural facilities and equipment, cost of acquisition and time determines the use of information. It is pertinent to note that these factors form some of the major barriers that constantly militate against the attempt of distance learning students to

successfully use library information sources. The implication of this review is that once the objective of seeking information is met, library resources would be always consulted and used. It is believed that the accessibility and availability of information would encourage use irrespective of the medium in which it is presented. In addition once library resource is rich and the materials therein satisfies the complex individual needs, such library resources will be used. He upheld that a user understanding is the main principle of information use.

The recognition of how users view themselves in terms of the kinds of jobs, duties and responsibilities carried out, their age, gender, educational level, background and other personal characteristics are important factors in defining what materials of information to be acquired for use. This is because once materials are considered to be of little essence, use cannot be satisfactory and beneficial. He therefore, suggested that information users should first and foremost view whatever information material provided within their functional environment before acquiring.

This will definitely maximize the use of available information resources. It has been stated that use of information is goal oriented with the aim of solving a problem. In other words, for one to gain a better understanding of previous knowledge and situations Ughegbu, (2002) gave their views. He believes that goal identification determines the use of information. The essence of seeking information is primarily related to its demand and use. It is pertinent to note that the terms availability and accessibility are sometimes misinterpreted.

These various communication channels are believed to play significant role in the process of effective use of information. Also, the way in which information is been sent to the information seeker to a reasonable degree affects its use. Ughegbu (2002) then concur that communication channels should be in consonance with the language of the people, location, and sociology and that such information be provided for them at a cheapest price possible. With this, it is believed; will encourage and enhance optimum use of library resource materials by the clientele. Ugah (2008) explained further in his study that the problems of transmission, storage, and display of information have been combined with the problem of getting information to users quickly.

Although online searching and electronic bibliographic databases are now available in almost every field which confirms that as information expands, the ability of the user to process it remains fixed (Seth and Parida 2006). Mabawonku (2004) in her findings revealed that One hundred and ninety-nine (53.7%) students indicated that they seldom used the main libraries while 82 (22.2%) indicated that they had never used the main libraries before. Most of the respondents (55.8%) had never used another university library, while 46.9 had never used a public library before. Most of those who indicated using departmental libraries were those who studied or had studied before in departments that had libraries. Half of the respondents indicated that they had used their departmental and faculty libraries before. In exceptional cases, like in the Department of Library, Archival and Information Studies at the University of Ibadan, which had its library as a learning laboratory, the students had access to the library and the resources. Faculty and departmental libraries existed as reading rooms for students. They could also easily obtain useful core materials from the libraries.

Information Seeking Behaviour

Information seeking is highly complex task involving the interaction among the users, the information need and information resources. The heterogeneous environment which undergraduate users confront in academic libraries today increases the complexity, as they not only the format of information, but the number of resources seems to grow exponentially. In the traditional library, undergraduate students dealt with a fairly limited spectrum from the range of information sources – some basic reference sources, books, magazines, a few major newspapers and scholarly journals.

Information, as a concept has been considered and contrasted extensively with such term as data, knowledge and wisdom (Meadow, 1992). Information seeking behavior according to Wilson (2000) entails the totality of human behavior in relation to sources and channels of information, including active and passive information seeking. In the quest for information, different kinds of behavior are manifested as students have different reasons for wanting information, different levels of search skill and preference for some types of information bearing materials. Lekie, Pettigrew and Sylvia (1996) affirmed that information seeking behavior involves personal reasons for seeking information, the kinds of information

which are being sought and the ways and sources with which needed information is being sought. Today, the internet and World Wide Web are positioned as main sources of information for students and staff alike, which is why web searching has become of the most active information task in higher education. Kari and Savolainen (2001) explained that skills to search for and find information are especially necessary because there are wide selection of potentially relevant information sources on the web. Technological reforms are also matters of great importance in education as they affects, the information seeking habits of its patrons and the internet and web is one of the latest reform to impact on education.

Understanding users' information seeking behavior has always interested information science professionals. This understanding is crucial to the provision of better services to users and the design of information systems. According to Cutrell and Guan (2007) "understanding how users search for information on the web has enormous practical implications for both commercial and academic endeavors" Allen(1997) also observes that understanding the information needs of users is the first and most indispensable step in designing and building effective information systems. Fourie (2002) suggests that substantial web information seeking/searching studies are necessary to refine our knowledge of web information spaces, their design and maintenance and training- related issues. In the emerging electronic environment, knowledge about the information seeking behavior of students and staff on the web is crucial for those wishing to help. There is a universal assumption that man was born innocent or ignorant and should actively seek knowledge. Information seeking is thus a natural and necessary mechanism of human existence (Marchionini, 1995). Information seeking behavior is the purposive seeking for information as a consequence of a need to satisfy some goals in the course of seeking, the individual may interact with manual information systems (such as a newspaper or a library), or with computer-based systems (such as the web) (Wilson, 2000).

A number of studies on reading habits of different professional groups have been carried out by various individuals, associations, and institutions which partly indicated their information needs. Awwar (2007) reviewed different research studies on information needs and information – seeking behavior of different groups of people in Paksitan.

According to Girja Kumar (1990) the information need may be expressed as input-process-output model. The basic components of the system are: (a) problem, (b) problem solving process and (c) solution. The problem is analysed to determine information needs. It is indicative of the uncertainty in knowledge solution results in resolving of the situation by filling the gap in knowledge.

Information Use and Users Needs

To create information awareness and to promote the use of information, it is necessary to know the need of users. The present age of information explosion has resulted in an escalating growth rate of micro-documents vis-à-vis the information need of users as become varied and multidimensional. The information use and user needs both are directly concerned with users. The users are the ultimate recipients of information in the communication cycle. A user may belong to a user group with identifiable interests and environment. The individual as a user may differ with regard to: Attitudes; believes; values; goals; capabilities; communication attitudes; experience and habit, cultural background. (Hall Homer, 1981)

Information behavior has been the subject of many studies in the last thirty years. The highlights of research on information behavior includes the Ellis (1989) behavioral model of information searching strategies, Kuhlthau's (1993) Information searching process, and Wilson's (2000) problem-solving model. Many others contribute to shape our general understanding of information seeking.

Collectively, these studies suggest information seeking exist within context, and is linear process consisting of stages and iterative activities. A model may be described as a frame work for thinking about a problem and may evolve into a statement of the relationships among theoretical propositions. Dervin (1983, 1996). Dervin's sense-making theory has developed over a number of years and cannot be seen simply as a model of information seeking behavior: it is, rather, as she says a set of assumptions, a theoretical perspective, a methodological approach, a set of research methods, and practice. Ogunmodede, Adio and Odunola (2011) and Nwezen (2011) found that Nigerian University undergraduate's males used the library more than their female's counterpart. The author further

stressed that books were the most widely consulted library resources, while journals were sparsely used. The reason given for this was that accessibility was restricted on journals compared with books

Objectives of the Study

The main objective of the study is to examine the Utilisation of Information Resources available at the University Library by Kwara State University Students, Malete, Kwara State, Nigeria. The specific objectives of the study are to:

- discover which library resources are being used by the Students of KWASU
- determine whether the library resources meet the information needs of KWASU students
- determine which section of the library resources the students consulted most
- determine how often KWASU students use the library

Research Questions

1. Does the students of KWASU used library resources available in the University library?
2. Does the library resources available in KWASU library meet the information needs of the students?
3. Which section of the library resources does the students used most?
4. How often do KWASU students use the library resources?

Research Methodology

Survey research technique was adopted for the study. The simple random sampling technique was used to select respondents. Questionnaire was designed to elicit information from the respondents. 650 questionnaires were distributed to the respondents from which 520 copies were returned, completed and found suitable for analysis. 86.7% response rate was obtained. The statistical analysis used were percentages, tables and frequencies.

Results, Analysis, and Discussion

Stated below are the presentations of the result.

Table 1: Demographical information of the respondents

s/n		Labels	Frequency	Percentage
1	Age	15-25 years	500	96.2
		26-35 years	10	1.9
		36 above years	10	1.9
		Total	520	100.00
2	Levels	100 level	170	32.7
		200 level	220	42.3
		300 level	130	25.0
		Total	520	100.00
5	College	Arts, Humanities	160	30.8
		Sciences	260	50.0
		Information Communication Technology (ICTs)	100	19.2
		Total	520	100.00

The demographical information of the respondents are as given in the table 1 above shows:

- Age; 500(96.2%) respondents were within the age range of 15-25 years, 10(1.9%) was within the age range of 26-35 years while 10(1.9%) also was 35 years old and above. Students between the ages of 15-25 years uses the library most.

- Levels; 170(32.7%) respondents were in 100 level, 220(42.3%) were in 200 level while 130(25.0%) were in 300 level.

- College; 160(30.8%) respondents were in College of Arts, Humanities, 260(50.0%) were in College of Science while 100(19.2%) were in College of ICT respectively. This suggests that students of Humanities use the library more than students of other Colleges.

Table 2: Distribution of respondents by location of material of interest in the library

Do you find library material on your area of interest	Frequency	Percentage (%)
Yes	330	63.5
No	190	36.5
Total	520	100.0

From table above, 330(63.5%) respondents could find library material on their area of interest while 190(36.5%) could not find library materials on their area of interest. This result suggested that many students were able to find library materials useful for their studies.

Table 3: Distribution of respondents by their perception about the books in the library

How current are the books you find in the library?	Frequency	Percentage (%)
Up-to-date	430	82.7
Out-dated	90	17.3
Total	520	100.0

From the above, 430(82.7%) respondents indicated that books in the library are Up-to-date while 90(17.3%) indicated that the books are Out-dated, majority of the students affirmed that the resources at KWASU library is up-to-date and adequate for academic and research work.

Table 4: Distribution of respondents by usage of reference materials in the library

Do you use reference material in the library ?	Frequency	Percentage (%)
Yes	390	75.0
No	130	25.0
Total	520	100.0

The above table shows that 390(75.0%) respondents make use of reference material in the library while 130(25.0%) do not make use of any reference materials in the library. The result shows that KWASU students are making use of reference materials which assist in their research work.

Table 5: Distribution of respondents by how they use the reference materials

How often do you use them	Frequency	Percentage (%)
Daily	230	44.2
Monthly	260	50.0
Weekly	30	5.8
Total	520	100.0

The table above shows; 230(44.2%) respondents make use of the reference materials daily, 260(50.0%) make use of the reference materials on a monthly basis while 30(5.8%) respondents make use of the reference materials on a weekly basis. This indicated that KWASU students always go to the Library daily and sometimes monthly to update their knowledge.

Table 6: Distribution of respondents by usage of serials section of the library

Do you make use of the serials section of the library	Frequency	Percentage (%)
Yes	370	71.2
No	150	28.8
Total	520	100.0

From the table above, while 370(71.2%) respondents make use of the serials section of the library, 150(28.8%) respondents do not make use of the serials section of the library. The result revealed that the students at KWASU always make use of serial section to add current knowledge and information to the one been taught by the lecturers.

Table 7: Distribution of respondents by how often they use the resources in the serial section

How often do you use the resources in the serial section?	Frequency	Percentage (%)
No response	100	19.2
Daily	170	32.7
Weekly	170	32.7
Monthly	40	7.7
Not at all	40	7.7
Total	520	100.0

The above table shows that 170(32.7%) respondents do use the resources in the serial section on a daily basis, 170(32.7%) respondents also use the resources on a weekly basis, 40(7.7%) use the resources on a monthly basis and also 40(7.7%) were not vast to using the resources while 100(19.2%) respondents gave no response. The implication of this result is that 73.1% respondents make use of library resources in the serials section either daily, weekly, and on monthly basis.

Research Questions

RQ 1: Does the students of KWASU used library resources available in the University library?

Table 8

Do you patronize KWASU library?	Frequency	Percentage (%)
Yes	450	86.5
No	70	13.5
Total	520	100.0

From the table above, majority 450(86.5%) of KWASU students do patronize the university library which implies that the students do use the available library resources while 70(13.5%) students do not use the library resources. This finding support the findings of Ogunmodede, Adio and Odunola (2011) that Nigerian Undergraduates students make use of their library effectively.

RQ 2: Are the library resources available in KWASU library meet the information needs of the students?

Table 9

Are the materials in the library organized by their discipline to suit your need?	Frequency	Percentage (%)
Yes	390	75.0
No	130	25.0
Total	520	100.0

From above, it was revealed that 390(75.0%) respondent indicated that the available library resources in KWASU library meet their information needs while 130(25.0%) indicated that it does not meets their needs. Majority of user/students of the institution agreed that the materials are organized to meet their needs.

RQ 3: Which resources in the library do the students used most?

Table 10

Library resources used most	Frequency	Percentage (%)
Newspaper	150	28.8
Periodicals	200	38.5
Magazines	90	17.3
Dissertations	10	1.9
Journals	70	13.5
Total	520	100.0

The table above shows that 200(38.5%) respondents used the periodicals section mostly and was followed by the newspaper section 150(28.8%), then by magazines sections 90(17.3%), Journals sections 70(13.5%) and lastly by Dissertations section 10(1.9%). This corroborates the findings of Nwezeh (2011) and Ogunmodede, Adio and Odunola (2011) that Dissertations are scarcely used by Nigerian Undergraduates, but periodical are mostly used to get current information on the course of study.

RQ 4: How often do they use the library resources?

Table 11

How often do you use the library resources?	Frequency	Percentage (%)
Daily	40	7.7
Weekly	310	59.6
During exam period	170	32.7
Total	520	100.0

From the above table, 310(59.6%) respondents do use the library on a weekly basis, 170(32.7%) respondents use the library only during exam periods while 40(7.7%) respondents use the library on a

daily basis. This assertion support the findings of Ogunmodede and Emeahara (2010) and Ogunmodede, Adio and Odunola (2011) that majority of undergraduates Students of Nigerian University make use of their University Libraries on weekly basis.

Conclusion

The study concludes that books were available for the use of students in Kwara State University library. Majority of library users were in the age bracket 15 and 25 years. It was discovered that the respondents knows how to locate library information resources on their own in the university library, this could be as a result of the age of the respondents, as 96.2% can be said to have been a little bit matured age wise. The perception of the student about the books in the library revealed that they were up to date, reference materials and serial section are seldomly used by the student. The result shows that KWASU library information resources meet the information needs of the students, 75.8% respondents affirmed this. 86.5% used library resources available in the University library. The study however, revealed that more student visit the library on weekly and during examination period than on daily basis.

Recommendations and Suggestions

Based on the findings of the study, the following recommendations are hereby suggested for improvements on the use of information resources available in Kwara State University library:

1. Although, Kwara State University is still a growing university, effort should be made to ensure that more information resources are acquired for the use of the students in order to fully use the materials for their study.
2. It also shown that the students have not been given orientation on the use of library to protect against theft and mutilation of library materials.
3. There should be improvement on user education given to the fresh students upon their arrival into the university system which will eventually enhanced the level of awareness of the students on the importance of library to the attainment of their educational pursuit.
4. Based on the observation of the authors, a more spacious library should be built as a matter of urgency to accommodate more students into the library.
5. Staff of the library appeared not adequate to provide needed services to the user. It is therefore suggested that more qualified staff be employed by the authority of KWASU.

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Engine Optimization for Libraries and Archives

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Introduction

Google search services and other search engines are increasingly the means by which people find information. People are satisfying every day information needs to more advanced research needs through web search engines. Ideally library and archive resources are being retrieved and ranked highly, when appropriate, on search engine result pages. Search Engine Optimization (SEO) is a tool by which libraries and archives can enhance the retrieval and ranking of their information objects in search engines. The following research addresses how search engines, with a focus on Google, index and rank webpages, what SEO techniques are available for libraries and archives, and which metadata fields play a key role in SEO.

Literature Review

The current research derives from a literature review completed previously by the author, *Metadata and Search Engine Optimization Activities*. A significant portion of the previous literature review has been re-presented here. A debate surrounding the use of SEO techniques in the library and information science (LIS) field as well as in academia in general is presented in the literature. Funke and Rushton (2011) note the "reservation or even actual contempt" (Funke & Rushton, 2011, Why SEO Matters section) felt by information professionals towards the use of SEO techniques. When, Jöran Beel, Erik Eilde, and Bela Gipp (2010) tried to submit a study for a conference about Google Scholar's ranking algorithm in relation to SEO, it was rejected and the feedback from reviewers included disapproval of the subject altogether (p. 186-187).

Part of the reason for this resistance to SEO lies in its repeated and continued misuse. Cahill and Chalut (2009) offer a thorough description of how SEO techniques are abused. These "black hat" SEO activities, as they are referred to in the discussion, are paired with "white hat" SEO techniques. White hat techniques are those that fairly and accurately reflect the content of a website, webpage, or digital information object. Some of the black hat techniques highlighted by Cahill and Chalut include misuse of keywords, misuse of links, and comment spam to name a few. Greg Notess (2012) indicates that the misuse of keywords specifically played a role in the resistance to SEO (p. 44). Because of the opportunity to manipulate search engine result pages, Cahill and Chalut argue that librarians need to incorporate the appropriate use of search engines into information literacy activities (p. 238-240, 234-235, 243-245). An interesting view they add to the debate is that SEO techniques in general lead to an information environment that is "skewed toward the white, English speaking mainstream" (Cahill & Chalut, 2009, p. 246). For such a strong statement as this, it is presented late in the discussion, specifically in the conclusion, and with very little supporting evidence. Regardless of this potential misuse, all of the literature supports the appropriate implementation of SEO techniques as a way to have a presence in search engine result pages.

A Dimitroff and Zhang (2003) study is cited in many of the more current studies and discussions presented here. The study's purpose was to determine if adding metadata to webpages would enhance its visibility in search engine results. Keywords were strategically placed in webpages specifically created

for the study. Keyword positions included full text, webpage title, the metadata fields of title, subject, and description, or a combination of locations. Keyword search queries were conducted in variety of search engines on a weekly basis for 21 weeks. Findings suggested that Google had the most extensive indexing coverage of the eight search engines that retrieved at least one of the study webpages (p. 697-698, 700). In addition, it was concluded that creating metadata for webpages did improve the pages visibility in a search engine results list. Also, the study webpages that had keywords in all three of the metadata fields tested were more visible than when just one or two fields were populated (p. 703-704). Search engines proved to be most responsive to keywords located in the metadata subject field over the title or description fields (p. 706). Based on these study findings, Cahill and Chalut make recommendations for certain SEO techniques which will be discussed in the "Results" section.

Funke and Rushton (2011) start with an introduction to SEO in "The Goodness in the Evil of SEO." A streamlined list of SEO techniques with associated descriptions is then presented. In their discussion, they claim that few information organizations have implemented SEO techniques for their web presence (Why SEO Matters section).

A portion of the literature focuses on metadata application as an SEO technique. Beall's (2010) "How Google Uses Metadata to Improve Search Results" focuses on the metadata fields used to limit Google Advanced Searches, Google News Advanced Searches, Google Books Advanced Searches, and Google Advanced Scholar Searches. He connects the advanced search limiters to the metadata fields that are being crawled and indexed. Glenda Browne (2010) promotes the value of metadata in the terms of access, particularly the ability to be found. Browne discusses keyword tags and highlights a number of metadata schemes currently in use including Dublin Core (p. 30). Indexes, classification, categorization, and social bookmarking are also highlighted as tools to encourage access.

Three very similar research articles provide the literature with a comparison of both Google's and Yahoo's indexing and ranking activities of information objects with either MARC or Dublin Core metadata schemes. They were all published between 2011 and 2012 with each one sharing an author with at least one of the other articles. Taheri's and Hariri's (2012) article is cited in both the other articles as "forthcoming" (Farajpahlou & Tabatabai, 2011, p. 592; Amiri, Farajpahlou, Moarrefzadeh, Osareh, & Taheri, 2012, p. 920). Also, all three articles cite many of the same references. In addition, the different authors of the three articles are affiliated with institutions in Iran. The similar content, similar references, sharing of authors, and same geographic area would suggest an environment of collaboration amongst the writers. Unfortunately, a translated version of the Amiri, Farajpahlou, Moarrefzadeh, Osareh, & Taheri (2012) study is not accessible and therefore its inclusion in this discussion is limited.

One of the fundamental differences in the studies is that Hariri and Taheri (2012) studied the indexing and ranking of information objects from "static information environments" (Farajpahlou & Tabatabai, 2011, p. 587) whereas the other articles worked with dynamic information environments. This difference might be the reason that Yahoo's search engine only indexed the content objects studied by Hariri and Taheri. Otherwise, the study findings are fairly comparable. For instance, the results of all three studies indicate that there was no difference in the indexing and ranking of Dublin Core metadata elements compared to MARC metadata elements outside of a singular instance. Hariri and Taheri found that Yahoo's search engine did in fact rank content objects with the different metadata schemes differently (Amiri et al., 2012, p. 920; Farajpahlou & Tabatabai, 2011, p. 590-591; Hariri & Taheri, 2012, Data Analysis section). With the variety of metadata schemes that are currently implemented, there is much more room in the literature for research projects such as these that compare how search engines react differently, if at all, to different schemes.

Two complementary components of the literature look into SEO for scholarly works and academic search engines with a focus on Google Scholar. Beel et al. (2010) introduce the concept of academic search engine optimization (ASEO). The authors define the concept as "the creation, publication, and modification of scholarly literature in a way that makes it easier for academic search engines to both crawl and index it" (Beel, Eilde, & Gipp, 2010, p.176). Beel et al. (2010) offer a thorough discussion of how academic search engines crawl, index, and rank websites, webpages, and digital information objects. They close the discussion by highlighting a number of ASEO techniques. The targeted audience appears to be creators of scholarly literature (Beel et al., 2010, p. 181-186).

Arlitsch and O'Brien (2012) present complementary research to Beel et al. (2010) that focuses on SEO and institutional repositories (IRs). In contrast however, Arlitsch and O'Brien's targeted audience appears to be managers of IRs compared to the creators of scholarly literature as in the Beel et al.

article. Arlitsch and O'Brien's efforts address the low indexing ratio of some IR content in Google Scholar including that of their own institution. Through their research they are able to discern some of the reasons behind the low indexing ratios of the IRs studied as well as propose SEO techniques developed specifically for IRs. A portion of the study includes implementing these techniques in the IR of Arlitsch and O'Brien's institution as a way to address the low indexing ratio of their particular IR's digital information objects.

In all, the literature covers a great deal of the SEO discussion. However, it is fractured into areas of focus that also potentially fracture a comprehensive understanding of the topic and how it is related to libraries and archives. The research presented here attempts to bring the fractured areas of focus together to provide a thorough discussion of SEO and its relevance for libraries and archives in one place.

Methodology

To identify how search engines, with a focus on Google, index and rank web pages, which metadata fields play a key role in SEO, and what SEO techniques are available for libraries, library literature related to SEO was collected and a qualitative analysis of this literature was undertaken. The document collection was conducted primarily in the library literature to maintain the focus on libraries. Pieces of the literature that addressed the research questions were pulled from the literature and brought together in an attempt to provide as full a picture as possible of how libraries can use SEO techniques. In addition, SEO techniques repeatedly highlighting particular metadata fields were isolated as a means to identify which metadata fields play a key role in SEO.

Results

Search Engine Indexing and Ranking

By combining pieces of the literature, an understanding of how search engines index and rank websites, webpages, and digital information objects emerges. Search engines use tools referred to as spiders that crawl webpages and the links on those webpages to harvest keywords and other metadata. Algorithms are then used on the harvested metadata to determine if that metadata will be included in a search engine's indexes (Arlitsch & O'Brien, 2012, p. 62, 64; Dimitroff & Zhang, 2003, p. 692; Funke & Rushton, 2011, p. 3-4). Beall (2010) implies that the limiters available in Google's advanced searches offer insights into the types of metadata that Google is indexing. Both a cached version of a webpage and an associated metadata record are stored in a search engine's databases. For Google specifically, a website or webpage owner can request that Google remove cached versions of a webpage or website from its database or the owner can request that Google not create cached versions of a webpage or website at all. (Beall, 2010, p. 44; Google). Web crawlers will occasionally return to websites, webpages, and digital information objects already indexed in their databases in order to crawl for new content (Arlitsch & O'Brien, 2012, p. 67).

Indexing activities specific to Google Scholar can also be found in the literature. These activities are particularly relevant for libraries that operate institutional repositories (IRs). For instance, Google Scholar spiders "chiefly" (Beall, 2010, p. 50) crawl the full text and citations of scholarly works (Beall, 2010, p. 50; Cahill & Chalut, 2009, p. 237). Additionally, Beel et al. (2010) claim that Google Scholar indexes digital information objects that are associated with publishers who "cooperate" (Beel et al., 2010, p. 183) with Google Scholar, digital information objects that are linked to by these cooperating parties, and those information objects on the websites and webpages that have been submitted to be crawled by their owners (p. 183).

A great number of factors play into how search engines rank websites, webpages, and digital information objects on their search engine result pages. Although the literature sheds some light onto the ranking activities of search engines, all of the factors that go into a ranking algorithm are not known. This is due to the commercial environment in which search engines operate (Beall, 2010, p. 43; Cahill & Chalut, 2009, p. 241). The ranking factors identified in the literature are as follows:

- the number of inbound links (Cahill & Chalut, 2009 p. 237; Funke & Rushton, 2011, p. 3-4);
- the "importance" given to the webpage linking to a particular webpage or information object (Cahill & Chalut, 2009, 237);
- the number of visitors (Funke & Rushton, 2011, p. 4);
- the number of repeat visitors (Funke & Rushton, 2011, p. 4);
- the average amount of time spent on a webpage, or information object (Funke & Rushton, 2011, p. 4);
- the number of times a keyword appears in a webpage or information object (Beel et al., 2010, p. 179);
- the weight applied to the location in which keywords appear, for instance appearance in a webpage title holds more weight than appearance in a reference (Beel et al., 2010, p. 179);
- the longevity of a website, webpage, or digital information object (Cahill & Chalut, 2009, p. 240);
- the information seeker and their previous searches (Cahill & Chalut, 2009, p. 242).

Beel et al. (2010) highlight ranking factors specific to Google Scholar. They indicate that "the most important factors are relevance, citation count, author name, and name of publication" (Beel et al., 2010, p. 108).

SEO Techniques for Libraries and Archives

The SEO process. While evaluating the literature to answer the research questions, an SEO process developed although it is not specifically addressed in the literature. Understanding how search engines index and rank webpages, websites, and digital information objects as well as understanding the variety of SEO techniques available is the first step in this process. This is followed by an evaluation of a library's or archive's presence in search engine result pages. Based on the level of need for improvements, appropriate SEO techniques should be implemented. Once implemented, a library's or archive's presence in search engine result pages can be reevaluated for improvements or lack thereof. Based on the reevaluation, further action can be taken to adjust techniques, introduce new techniques, or leave things as they are and plan for a future evaluation that will in turn influence future activities. Ideally this process is implemented into a library's or archive's workflow.

Evaluating the presence. To understand a website's, webpage's, or digital information object's presence in a search engine result page, actual searches need to be conducted. This step in itself presents a process of first identifying which search engines will be under investigation and revisiting these same search engines to the extent possible in future evaluations. Then, specific webpages or digital information objects need to be identified as the items to be searched for. Finally, the actual search query must be developed. For instance, searches could be conducted using single keywords or sets of keywords relevant to the webpage or digital information object.

Web analytic tools, such as Google Analytics, offer insight into the general web presence of websites and webpages. Libraries and archives can use the information provided by web analytic tools to further inform decisions about SEO activities (Arlitsch & O'Brien, 2011, p. 65; Funke & Rushton, 2011, Web Analytics section). Types of information these tools provide include "reports about incoming traffic sources, average time spent on pages, referring keywords, and visitor demographics" (Funke & Rushton, 2011, Web Analytics section).

Keywords. All of the literature reviewed covered the importance of using keywords as an SEO tool. Funke and Rushton (2011) state, "the selection and placement of keywords on a website is at the heart of SEO" (Funke & Rushton, 2011, Keywords section). Selection of keywords is the first step in actively using them as an SEO technique. There are a number of tools available that provide lists of commonly used keywords including a Google Keyword Tool (Beel et al., 2010, p. 184; Cahill & Chalut, 2009, p. 235-236, 293). If an analytic tool is in place during a selection of keywords, it can also be used. As noted previously, search engine analytic tools may keep track of keywords used in searches that refer people to the website, webpage, or digital information object.

After keyword selection, they should be strategically placed. Interestingly, the authors are not consistent in identifying the most important locations for them. For instance, Beel et al (2010) suggest that the most important locations for keywords are in the title, the abstract, and the full text of the information object or webpage (p. 184) whereas Beall (2010, p. 42-43) and Dimitroff and Zhang (2003, p. 691, 699, 713-714) indicate the importance of keywords located in metadata fields and titles. Funke and Rushton (2011) suggest in contrast that important keyword locations include the title, headings, ALT tags, and links (Keyword section). The Dimitroff and Zhang study findings indicate that keywords found only in the full text of an information object or a webpage are less likely to appear in search engine result pages. Furthermore, the study indicates that keywords located in metadata fields should be drawn from keywords located in the full text of a webpage and/or its title (p. 713-714). In addition to selection and placement of relevant keywords, keyword synonyms can be placed in the full text of an information object or webpage to further promote a valuable presence in search engine result pages (Beel et al., 2010, p. 184). The consistent suggestion across the literature for keyword placement is in titles.

Metadata. The use of metadata as an SEO technique is recommended by many of the authors in the literature. Metadata as a technique is discussed both in terms of populating metadata fields and in terms of implementing full metadata schemes. Funke and Rushton (2011) specifically discuss the value of the description metadata field because this field is used as the description presented on the search engine result pages (Metadata section).

Browne (2009) alongside Dimitroff and Zhang (2003) focus their discussions on the placement of keywords in metadata fields. However, Dimitroff and Zhang go into much further detail about the specific metadata fields studied. Their study findings suggest that placing keywords in metadata fields alongside placement in webpages will result in a better presence in search engine result pages (p. 702-703, 713-714). Dimitroff and Zhang selected to focus their research on title, subject, and description metadata fields stating that "keywords in these fields have the most potential to be crawled by search engines and further indexed as indexing terms in their databases" (Dimitroff & Zhang, 2003, p. 695-696). Their study findings also suggest that keywords in all three of these metadata fields rather than individually or in a two field combination resulted in the best presence on search engine result pages (p. 704, 710, 713-714). When each of the three metadata fields was tested with keywords individually, keywords in the subject field fared best in the search engine result pages (p. 706, 710, 714).

Although there is literature concerning metadata schemes as a whole and SEO, it is limited in scope. For instance, as noted in the literature review, three research studies solely look into MARC and Dublin Core metadata schemes (Amiri et al., 2012; Farajpahlou & Tabatabai, 2011; Hariri & Taheri, 2012). Additionally, the Arlitsch and O'Brien (2011) study focuses on metadata schemes for IRs. Based on their study findings, Arlitsch and O'Brien suggest using one of the Google Scholar recommended metadata schemes. They found that the use of these schemes result in the best search engine result presence. Google Scholar's recommended metadata schemes tend to be those used by publishers and include Highwire Press, Eprints, Bepress, and PRISM (p. 61, 70, 72, 74, 76). The metadata fields identified as important vary amongst the authors. Through analysis of the literature presented in this section, it was found that the title and description fields played the most important role across the literature.

Google Scholar. A number of SEO techniques identified focus on academic search engines, particularly Google Scholar. For instance, when working with digital information objects in Google Scholar, Arlitsch and O'Brien (2011) recommend assigning one of the seven Google Scholar developed paper types (p. 75). In addition, Beel et al. (2010) recommend using common structure and established scientific layouts so that digital information objects are understood by web crawlers to be of a scholarly nature (p. 184-185).

Google Scholar provides access directly to PDF files through links on search result pages and therefore a number of SEO techniques in the literature relate directly to handling PDF files. When Google Scholar links directly to a PDF file, the encoding of the associated website or webpage is not connected with the file. This could affect the level of traffic reported for the website or webpage hosting the PDF file. Arlitsch and O'Brien suggest using a PHP script with the tracking code that will collect the appropriate analytics before the PDF file is delivered (p. 62). Additionally, Arlitsch and O'Brien (2011) broadly suggest embedding metadata directly into PDF files (p. 74) whereas Beel et al. (2010) specifically suggest embedding the author, title, and abstract metadata with PDF files (p. 186).

Images, Spreadsheets, and Audio. Portions of the literature provide SEO guidance for images, spreadsheets, and audio as special considerations. One of the things to consider with these types of

formats is that web crawlers index text and not images or sounds (Funke & Rushton, 2011, Indexing section). One suggestion to accommodate web crawler activities is to embed figures and images with text as vector graphics rather than raster graphics. Examples of raster graphics include PNG, GIF, TIF, and JPG (Arlitsch & O'Brien, 2011, p. 64; Beel et al., 2010, p. 80, 85). Additionally, Funke and Rushton (2011) suggest manipulating page content in a way that allows for textual description of images or audio files. For instance, they recommend using descriptive file names, using ALT tags, and using adjacent captions (Indexing section).

General Techniques. A number of additional SEO techniques were presented in the literature and include the following:

- Create a sitemap for a website and submit it to a search engine. A sitemap will serve as a guide for a web crawler as it navigates a website and will help web crawlers to identify preferred URLs (Arlitsch & O'Brien, 2011, p. 64, 73; Funke & Rushton, 2011, Links section).
- Submit websites to be included in credible directories which have more weight in the ranking of search engine results (Cahill and Chalut, 2009, p. 240).
- Address errors identified by web crawlers. Some search engines offer free tools to assist with remedying these errors (Arlitsch & O'Brien, 2011, p. 64, 73).
- As much as possible, proper names used in websites, webpages, and digital information objects should be spelled the same throughout so that alternate spellings are not identified as different names by web crawlers (Beel et al., 2010, p. 184). Referencing an established controlled vocabulary can help with this technique of consistent naming.
- Because location plays into how search engines rank search results, an appropriate selection of content and link connections of websites, webpages, and digital information objects can indicate relevant locations to web crawlers (Funke & Rushton, 2011, Local SEO section). Populating a metadata field related to location is another way to communicate this type of information to web crawlers. However, populating a metadata field used to identify location was not discussed or studied in the literature.
- The language of websites, webpages, and, to the degree possible, digital information needs to be current (Beel et al., 2010, p. 186).
- Links to websites, webpages, and digital information objects can be posted on social media to increase the number of inbound links to these resources (Funke & Rushton, 2011, Social Media section).
- Design a webpage with a chronological listing of information objects (Arlitsch & O'Brien, 2011, p. 70-72).
- Devoting a section of a webpage or an entire webpage to recently added information objects will assist web crawlers in identifying these items (Arlitsch & O'Brien, 2011, p. 70-72).
- Maintain a minimal number of clicks needed to get to an information object. A landing page can be created only a few links from the homepage of a website that contains links to information objects (Arlitsch & O'Brien, 2011, p. 72, 74).

Conclusion

It took a combination of all the literature to answer the research questions to the extent that was possible in this discussion. SEO research and implementation are valid avenues for libraries and archives as search engines have become a staple in the information seeking process. In addition to the SEO process presented, the research attempted to shed light on how search engines index and rank websites, webpages, and digital information objects. Also, a number of SEO techniques were identified in the literature and presented here. Not all of the techniques may be a good fit for all libraries and archives, rather a combination of techniques suited to local needs and circumstances can be developed. To carry out the steps in the SEO process, including the implementation of SEO techniques, takes time and administrative support. SEO could be incorporated into the marketing strategy of libraries and archives or as a workflow on its own. The process does not have to move at lightning speed but can be carried out at a comfortable pace.

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Using Museum Collection Data to Create Darwin Core Records

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Introduction

All over the world, data are collected to describe and analyze our natural environment and its inhabitants. From well-funded scientific exploration to third graders on a field trip, the data often serve to answer the immediate research question and then are stored or discarded. The ability to share data globally through the exchange of electronic biodiversity data is creating new access to view and analyze individual collections of data. This electronic data exchange is changing the way the data are managed, discovered, analyzed, and preserved.

Data standards facilitate the sharing of information about biological diversity. Management of data has issues in data sharing, loss, and integrity: issues the use of standards can address. The Internet provides increased opportunity for data sharing, and the rapidly changing electronic environment and global use of data have forced data out of their respective silos resulting in a collaborative environment of shared data. Documenting metadata projects at the time of implementation supports data sharing, decreases data loss, and maintains data integrity, but transferring "old" data to new format standards presents challenges. A study by Savage and Vickers et al. on data sharing resulted in the following conclusion: "researchers often fail to develop clear, well-annotated data to accompany their research (i.e. metadata), and may lose access and understanding of the original dataset over time" (Tenopir et al., 2011, p. 3). The purpose of this project is an exploration of biodiversity data standards through the application of the Darwin Core standards with a focus on the challenges of applying the standard to "old" data held in another format.

Literature Review

Literature on the Darwin Core standard will serve as an example of how using a shared standard to describe resources supports biodiversity data management, increases data access, facilitates analysis by using shared vocabularies, and provides structure for data preservation. The literature covers the need for standards use in the biodiversity community as well as the "nuts and bolts" of the Darwin Core.

Data Management

The overwhelming consensus is that the volume of biodiversity data being produced worldwide is unprecedented (Bisby, 2000; Goddard et al., 2011; Tenopir et al., 2011). Bisby (2000) provides an early view of the relationship between biodiversity informatics and the Internet: Managing and sharing this massive volume of independently produced data as key in realizing new ways to view and analyze the interdependent nature of biodiversity data. Bisby identifies early on the need for systems to provide for interoperability and shared taxonomy. Tenopir et al. (2011) expands on the advantages of data sharing, which are summarized:

- easily verification of results
- allows for new analysis and interpretation
- data integrity is retained

- access to previously collected data reduces recollection efforts
- decrease in data fabrication and falsification
- allows for replication studies as training tools for new researchers

Concerns regarding the state of biodiversity data collection includes the "chaotic" nature of finding information on the Internet (Bisby, 2000), poor record keeping (Goddard et al., 2011), and poor data sharing practices (Tenopir et al., 2011). Tenopir et al. (2011) conducted a survey of scientists from different subject disciplines on the culture and practice of scientific data sharing and identified time, financial constraints, and lack of training in data management as factors that inhibit the sharing of scientific data. Goddard et al. (2011) points out that a result of the lack of shared data results in a biodiversity data infrastructure of "separated silos of data from disparate groups" (p.1). The solution for shared data lies in the willingness to share, the infrastructure for shared data standards, and the support of project management.

Standards for biodiversity data predate the Internet with prescribed ways of describing and cataloging specimens (Wieczorek et al., 2012). In a web environment, biodiversity data silos exist when there is a lack of shared standards and communication protocols. According to Goddard et al. (2011), "standards are the key component to enabling effective, scalable data transfer between independently developed systems" (p. 4). Goddard's article on creating a data hosting infrastructure for biodiversity data outlines both short and long term goals. However, acceptance of standards by the biodiversity community is described as "ongoing" with increased stakeholder input via working with standards management associations to create flexibility and inclusivity driving increased acceptance (Goddard et al., 2011).

Darwin Core

One standard widely used for the facilitation of biodiversity information sharing is the Darwin Core. The elements in the Darwin Core standard represent the elements found in zoological specimen records, and the standard is used to share these kinds of taxonomic data. The Darwin Core standard is managed by the Biodiversity Information Standards' Taxonomic Databases Working Group (TDWG), and the history, rationale and contents of the standard can be found on their website (rs.tdwg.org/dwc/index.htm). Darwin Core is also outlined in Wieczorek et al. (2012). Darwin Core is based on work done by the Dublin Core Metadata Initiative. Similarities between the two standards are made evident by the use of a glossary of terms to provide stable semantic definition in a flexible framework to maximize usability. This combination maximizes usability in a variety of contexts, which is proven by the wide adoption of Dublin Core in digital projects worldwide (see dublincore.org). Darwin Core is also achieving global acceptance and success with record creation by multiple agencies in multiple countries.

Darwin Core seeks to "create a common language for sharing biodiversity data" and beyond that, to "compliment and reuse metadata standards from other domains wherever possible" (Wieczorek et al., 2012, p. 2). The challenge of common language creation is especially significant given the myriad sources of this kind of data. Darwin Core succeeds because of its flexibility (from simple spreadsheets to integration in application profiles) and adaptability in response to changing needs (p. 4). The standard achieves this flexibility and adaptability because of ongoing management from the TDWG with input from the biodiversity community, and through this constant review and collaboration, Darwin Core is described as a "living standard" (Wieczorek et al., 2012, p. 7).

The Darwin Core Task Group maintains a number of reference documents on the TDWG website. Documents used for this project include the *Simple Darwin Core*. This outlines the use, limitations, and structure of the standard. Key concepts include discussion of the simplicity and flexibility of the standard: the lack of structure and content restrictions. This maximizes data sharing and provides for the flexibility of sharing only what is meaningful to users. This document also contains the *Guiding Principles* for best use of the standard (DCTG, 2009).

In terms of constructing XML schemas, the DCTG hosts the *Darwin Core XML Guide* that covers implementation. Links to schemas for expressing Simple Darwin Core and for schemas that use classes in structure are provided (DCTG, 2010). The Darwin Core terms are described thoroughly in the document, Darwin Core Terms: a Quick Reference Guide. Term definitions are provided, including the term name, identifier, class, definition, comments and details (DCWG, 2011).

Project Description

The project is an exploration of how assemble Darwin Core records: to test the feasibility of using Darwin Core to supply metadata for a specific collection. The project focus on the exploration of the Darwin Core scheme, semantics, content rules (the recommended use and controlled vocabularies of the content), and syntax (XML). The data used are provided by the Humboldt State University's Vertebrate Museum; specifically, from a spreadsheet of the mammal research collection found in the mammal collection database (<http://www.humboldt.edu/vmuseum/database.html>). A description of the collection follows:

The Vertebrate Museum's mammal collection contains approximately 8,750 specimens, including skins and skeletal material from a variety of terrestrial, aquatic, marine and volant mammals. The research collection is currently the second largest of its kind in the California State University System at just under 8,000 specimens. The collection dates back to 1923 and is particularly strong in marine mammals of the Pacific Ocean and terrestrial mammals from northern California and the Great Basin. It is fully accredited by the American Society of Mammalogists. We also have an outstanding teaching collection of over 800 specimens, with exceptional coverage of the Orders and Families of living mammals (Humboldt State University, n.d.)

Darwin Core is described as "primarily based on taxa, their occurrences in nature by observations, specimens, and samples, and related information" (DCWG, 2009). According to Thor Holmes, Collection Manager, HSU Vertebrate Museum, the data captured in their database focuses on the taxa and date collected (personal communication, July 22, 2013). This seemed to be a good match for data migration to the Simple Darwin Core.

Steps

After a thorough review of the Darwin Core documentation, the steps to complete the project were as follows:

1. Analyze elements of mammal research collection Excel spreadsheet (Table 1).
2. Use *Figure 2. Darwin Core Categories* (Wieczorek et al., 2012) to assign elements to Darwin Core category terms: Occurrence, Event, Location, Identification, Taxon, Geological Context (Table 2).
3. Use the *Darwin Core Terms: a Quick Reference Guide* (DCTG, 2011) to compare/contrast collection elements to Darwin Core terms and map collection element to Darwin Core terms (Table A1).
4. Use *Guiding Principles* (DCTG, 2009, 1.4) to construct a Simple Darwin Core record (Example 1).
5. Use *Simple Darwin Core XML Schema* (rs.tdwg.org/dwc/xsd/tdwg_dwc_simple.xsd) and *Darwin Core XML Guide* (DCTG, 2010) to construct records (Examples 2 & 3).

Procedure

Step 1: Through conversation with the Collection Manager, the elements of the mammal research collection database were defined for analysis. Elements that were not used in the collection (AccNum, Longitude_Latitude) were dropped.

Table 1: HSU Vertebrate Museum Excel elements defined.

Elements	Use/documentation
ID#	Database ID number
CatNum	Catalog number
Order	Taxon descriptor
Family	Taxon descriptor
Genus	Taxon descriptor
Sp_ Epithet	Taxon descriptor for Specific Epithet
Sex	Sex of specimen
Country	Country specimen found in
State	State specimen found in
County	County specimen found in (not always used)
Locality	For specific location description (not always used)
Nature	Descriptor for specimen: ALCO=alcohol prep NICO=tissue prep SKEL=skeleton SKIN=skin SKUL=skull SSKE=skin & skeleton SSKU=skin & skull
Collector	Name of collector of the specimen
Preparer	Name of person preparing the specimen for the collection
Field #	Field number; used to trace field number to catalog number
VM#	Not HSU collected; none personified.
AccNum	Not used; would be used to identify a group of collectors for a specific collection trip.
Measurements	Usually 4 numbers: 1=total length (nose to caudal tail vertebrae) 2=tail length 3=hind foot (back of heel to longest toenail) 4=ear length (notch to max height of ear) If 5 then specimen is a bat and the measurement is for wing i.e. length of arm. Final number is total weight in grams.
Habitat	The habitat the specimen is found in (not always used).
Remarks	Could be anything - identifying a gift, identifying specimen from captivity, etc.
Continent_Ocean	Location in relation to continent or ocean the specimen was found in.
Latitude_Longitude	Not used.
Date	Date specimen found.

Step 2: Using *Figure 2* from Wieczorek et al., 2012, the data elements were assigned to the seven categories of terms. Because the project goal was to use the Simple Darwin Core, the relational element, i.e., measurement data, was dropped. Through the process of assigning the data elements to the categories missing elements in the categories of Record Level Terms, Identification, and Geological Context was revealed. While the Identification and Geological Context categories didn't necessitate populating, the Record Level terms provide information for the institution and collection. Therefore, in order to effectively illustrate the Simple Darwin Core record, it was necessary to create data values to populate these fields: rightsHolder="Humboldt State University"; InstitutionID="Humboldt State University Vertebrate Museum"; collectionID="Mammal Research Collection"; institutionCode="HSUVM"; collectionCode="Mammals."

Table 2: Mapping museum fields to Darwin Core categories.

Darwin Core Categories	Excel Fields
Record Level Terms	
Occurrence	CatNum ID VMNum Remarks Collector Nature
Event	Date Habitat Field Number
Location	Country State County Locality Continent/Ocean
Identification	
Taxon	Order Family Genus Sp_Epithet
Geological Context	

Step 3: The Darwin Core Terms: A Quick Reference Guide provides information on the term name, identifier, class, definition, comments, and details for the over 100 terms in the standard. In addition, the TDWG website displays links for the Darwin Core Wiki pages that host various user resources. A list of Darwin Core terms is available for download on the Wiki resources page, and using this tool in conjunction with the quick reference guide, the terms that were applicable to the collection data elements were identified (Table A1).

Step 4: The *Guiding Principles* are listed in the Simple Darwin Core (DWTG, 2009, 1.4) and are summarized below:

1. Any Darwin Core term name can be used as a field name.
2. No field name may be repeated in a record.
3. Do not use a Class as a field.
4. Provide data in as many fields as you can.
5. Use the dc:termstype field to say what Dublin Core type the record represents, if possible.
6. Use the basisOfRecord field to say what Darwin Core type the record represents.
7. Populate fields with data that match the definition of the field.
8. Use the controlled vocabulary for the values of fields that recommend them.
9. If data are withheld, use informationWithheld to say so.
10. If data are shared in lower quality than the original, use dataGeneralizations to say so.

Following these principles and the term definitions outline, the following record was created using one collection occurrence (i.e., one line from the collection Excel spreadsheet) picked at random. The data mapping was relatively straightforward. There were instances where data had to be constructed using best judgment for the sake of providing the most useful example: for the Event ID, events/1973/28/32 uses the year, day and record number to create a unique value for the element; the Location ID is built from State and County abbreviations (AZY for Yuma, Arizona).

Step 5: Using the *Simple Darwin Core XML Schema* and *Darwin Core XML Guide* to construct records, a single record and a record set were constructed from the museum data picked at random. The XML Guide instructs users to encode properties as XML elements and values as the content of those elements: <dc:property>Value</dc:property> rather than <dc:property value="value"/>. Because the records contain both Dublin Core and Darwin Core terms, the document declaration includes the

namespace for both. Because many of the 100+ elements in the Darwin Core would have a null value for this data set, they were omitted; however, if the value was present in some records, but not in others, the element was included and coded when the value was null for the record as `<dwc:property xsi:nil="true"/>` The record set acts as a class because all the records share the same basis of the record: "Preserved Specimen."

Product

Examples of the Simple Darwin Core Record, the Record in XML, and a Record Set in XML follow.

Example 1: Simple Darwin Core Record

```
type="Physical Object"
modified="2013-07-20T11:30-0700"
language="en"
rightsHolder="Humboldt State University"
InstitutionID="Humboldt State University Vertebrate Museum"
collectionID="Mammal Research Collection"
institutionCode="HSUVM"
collectionCode="Mammals"
basisOfRecord="Preserved Specimen"
occurrenceID="urn:catalog:HSUVM:Mammals:1678"
catalogNumber="1678"
occurrenceRemarks="Phallus"
recordNumber="32"
recordedBy="J. Renger"
individualID="JR"
individualCount="1"
sex="Female"
preparations="Skin; skull"
eventID="events/1973/28/32"
eventDate="1973-28-05"
year="1973"
month="05"
day="28"
habitat=0
fieldNumber="128"
locationID="AZY"
continent="North and Central America"
country="United States"
```

countryCode="US"
stateProvince="Arizona"
county="Yuma"
locationAccordingTo="Getty Thesaurus of Geographic Names"
verbatimLocality="2 mi. NE Laguna"
order="Rodentia"
family="Sciuridea"
genus="Ammospermophilus"
specificEpithet="harrisii"

Example 2: Simple Darwin Core Record in XML

```
<?xml version="1.0"?>  
<dwr: SimpleDarwinRecordSet  
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
xsi:schemaLocation="http://rs.tdwg.org/dwc/xsd/simpledarwincore/  
http://rs.tdwg.org/dwc/xsd/tdwg_dwc_simple.xsd"  
xmlns:dcterms="http://purl.org/dc/terms"  
xmlns:dwc="http://rs.tdwg.org/dwc/terms/"  
xmlns:dwr="http://rs.tdwg.org/dwc/xsd/simpledarwincore/">  
<dwr: SimpleDarwinRecord>  
<dcterms: type>Physical Object</dcterms: type>  
<dcterms: modified>2013-07-20T11:30:0700</dcterms: modified>  
<dcterms: language>en</dcterms: language>  
<dcterms: rightsHolder>Humboldt State University</dcterms: rightsHolder>  
<dwc: collectionID>Mammal Research Collection</dwc: collectionID>  
<dwc: collectionCode>Mammals</dwc: collectionCode>  
<dwc: institutionCode>HSUVM</dwc: institutionCode>  
<dwc: basisOfRecord>Preserved Specimen</dwc: basisOfRecord>  
<dwc: occurrenceID>urn:catalog:HSUVM:Mammals:1678</dwc: occurrenceID>  
<dwc: catalogNumber>1678</dwc: catalogNumber>  
<dwc: occurrenceRemarks>Phallus</dwc: occurrenceRemarks>  
<dwc: recordNumber>32</dwc: recordNumber>  
<dwc: recordedBy>J. Renger</dwc: recordedBy>  
<dwc: individualID>JR</dwc: individualID>  
<dwc: individualCount>1</dwc: individualCount>
```

```

<dwc:sex>Female</dwc:sex>
<dwc:preparations>Skin; skull</dwc:preparations>
<dwc:eventID>events/1973/28/32</dwc:eventID>
<dwc:eventDate>1973-28-05</dwc:eventDate>
<dwc:year>1973</dwc:year>
<dwc:month>05</dwc:month>
<dwc:day>28</dwc:day>
<dwc:habitat xsi:nil="true"/>
<dwc:fieldNumber>128</dwc:fieldNumber>
<dwc:locationID>AZY</dwc:locationID>
<dwc:continent>North and Central America</dwc:continent>
<dwc:country>United States</dwc:country>
<dwc:countryCode>US</dwc:countryCode>
<dwc:stateProvince>Arizona</dwc:stateProvince>
<dwc:county>Yuma</dwc:county>
<dwc:locationAccordingTo>Getty Thesaurus of Geographic Names</dwc:locationAccordingTo>
<dwc:verbatimLocality>2 mi. NE Laguna</dwc:verbatimLocality>
<dwc:order>Rodentia</dwc:order>
<dwc:family>Sciuridea</dwc:family>
<dwc:genus>Ammospermophilus</dwc:genus>
<dwc:specificEpithet>harrisii</dwc:specificEpithet>
</dwr:SimpleDarwinRecord>
</dwr:SimpleDarwinRecordSet>

```

Example 3: Simple Darwin Core Record Set in XML

```

<?xml version="1.0"?>
<dwr:SimpleDarwinRecordSet
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://rs.tdwg.org/dwc/xsd/simpledarwincore/
http://rs.tdwg.org/dwc/xsd/tdwg_dwc_simple.xsd"
xmlns:dcterms="http://purl.org/dc/terms"
xmlns:dwc="http://rs.tdwg.org/dwc/terms/"
xmlns:dwr="http://rs.tdwg.org/dwc/xsd/simpledarwincore/">
<dwr:SimpleDarwinRecord>
<dcterms:type>Physical Object</dcterms:type>

```

<dcterms:modified>2013-07-20T11:30-0700</dcterms:modified>
<dcterms:language>en</dcterms:language>
<dcterms:rightsHolder>Humboldt State University</dcterms:rightsHolder>
<dwc:collectionID>Mammal Research Collection</dwc:collectionID>
<dwc:collectionCode>Mammals</dwc:collectionCode>
<dwc:institutionCode>HSUVM</dwc:institutionCode>
<dwc:basisOfRecord>Preserved Specimen</dwc:basisOfRecord>
<dwc:occurrenceID>urn:catalog:HSUVM:Mammals:1678</dwc:occurrenceID>
<dwc:catalogNumber>1678</dwc:catalogNumber>
<dwc:occurrenceRemarks>Phallus</dwc:occurrenceRemarks>
<dwc:recordNumber>32</dwc:recordNumber>
<dwc:recordedBy>J. Renger</dwc:recordedBy>
<dwc:individualID>JR</dwc:individualID>
<dwc:individualCount>1</dwc:individualCount>
<dwc:sex>Female</dwc:sex>
<dwc:preparations>Skin; skull</dwc:preparations>
<dwc:eventID>events/1973/28/32</dwc:eventID>
<dwc:eventDate>1973-28-05</dwc:eventDate>
<dwc:year>1973</dwc:year>
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<dwc:fieldNumber>128</dwc:fieldNumber>
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<dwc:stateProvince>Arizona</dwc:stateProvince>
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<dwc:locationAccordingTo>Getty Thesaurus of Geographic Names</dwc:locationAccordingTo>
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<dwc:order>Rodentia</dwc:order>
<dwc:family>Sciuridea</dwc:family>
<dwc:genus>Ammospermophilus</dwc:genus>
<dwc:specificEpithet>harrisii</dwc:specificEpithet>

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<dwr: SimpleDarwinRecord>
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<dwc: individualID>JR</dwc: individualID>
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<dwc:preparations>Skin</dwc:preparations>
<dwc:eventID>events/1973/09/45</dwc:eventID>
<dwc:eventDate>1973-09-05</dwc:eventDate>
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<dwc:habitat>Rocky lava and sagebrush</dwc:habitat>
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```

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<dwc:family>Sciuridea</dwc:family>
<dwc:genus>Ammospermophilus</dwc:genus>
<dwc:specificEpithet>leucurus</dwc:specificEpithet>
</dwr:SimpleDarwinRecord>
</dwr:SimpleDarwinRecordSet>

```

Conclusion

Darwin Core records were created using the Vertebrate Museum data and the project provided for a more thorough exploration of the Darwin Core standard and its applications. The ease of data migration made possible via the lack of field restrictions, and the resultant simple record structure to share only what was meaningful, exemplified the simplicity and flexibility of the standard. The Vertebrate Museum data elements that could be mapped to Darwin Core terms were, while many terms were not used. The glossary of terms provided stable semantic definitions and the use of controlled vocabularies would result in optimized search and browse capabilities. The standard is built for the user to determine how to use it appropriately: what data is shared, what applications are used, what tools for data cleaning might be needed, etc. In real world applications, input from museum staff and those with whom they intend to share their data with would drive those decisions.

The process of creating the example records served as a beginning point to show the flexibility and adaptability of the standard for use in different contexts. While the Simple Darwin Core examples represent a portion of the museum's data set similar to the flat structure of the Excel spreadsheet, additional schemas could be constructed using the class identification terms (Event ID, Taxon ID, etc.) and referencing them to create relationships (i.e. one location with numerous occurrences using the Location ID in the Occurrence Class).

The project also highlighted issues in migrating "old" data to new formats. In this age of electronic information exchange, data management should include the documentation and application of metadata to streamline the process, standardize data for sharing, and protect against data loss. The Vertebrate Museum data serve as an example of the issues inherent of data management practices that lack standardization and documentation: data created using unknown guidelines, unknown reasons for data documentation, and undetermined staff documentation. For example, the records created could have included enriched taxonomic description if there had been documentation in the Excel spreadsheet. Migration of the data would have been easier if verbatim location data were standardized. If the abbreviation key for the nature of the specimen or measurements was included, it would eliminate the need to contact staff, which may not always be possible. Given that this collection spans over 50 years, it is not surprising that doesn't conform to more current standards or isn't well documented. However, accessing historical biodiversity data will continue to be important for describing both local and global environmental issues. As more of this kind of data is released from their respective silos, issues on migrating it to new format standards will continue to present challenges.

Goddard et al. (2011) states "...biodiversity data collected today are as endangered as the species they represent" (p.1) because of poor record keeping and data management practices, and the misinterpretation and misrepresentation of data contribute to inaccurate conclusions. The issue is compounded by the volume of data, the multitude of sources they originate from and formats in which they are stored. Biodiversity data is used to provide understanding of our natural environment, and equally important, to create policies to protect it. Biodiversity data standards are a key application in data management best practices. Darwin Core has deep biodiversity community development roots and draws from the success of library science standards use. It is expected that this evolving standard will continue to play an important role in the management of biodiversity data.

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Appendix A

Table A1: Select Darwin Core Terms used for data migration

Term Name	Term Definition	Term Comments
dcterms:type	The nature or genre of the resource. For Darwin Core, recommended best practice is to use the name of the class that defines the root of the record.	Examples: "StillImage", "MovingImage", "Sound", "PhysicalObject", "Event"
dcterms:modified	The most recent date-time on which the resource was changed. For Darwin Core, recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).	Examples: "1963-03-08T14:07-0600" is 8 Mar 1963 2:07pm in the time zone six hours earlier than UTC1809
dcterms:language	A language of the resource. Recommended best practice is to use a controlled vocabulary such as RFC 4646 [RFC4646].	Examples: "en" for English, "es" for Spanish.
dcterms:rights	Information about rights held in and over the resource.	Example: "Content licensed under Creative Commons Attribution 3.0 United States License".

Term Name	Term Definition	Term Comments
	Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.	
dcterms:rightsHolder	A person or organization owning or managing rights over the resource.	Example: "The Regents of the University of California."
institutionCode	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Examples: "MVZ", "FMNH", "AKN-CLO", "University of California Museum of Paleontology (UCMP)"
collectionCode	The name, acronym, coden, or initialism identifying the collection or data set from which the record was derived.	Examples: "Mammals", "Hildebrandt", "eBird"
basisOfRecord	The specific nature of the data record - a subtype of the dcterms:type. Recommended best practice is to use a controlled vocabulary such as the Darwin Core Type Vocabulary (http://rs.tdwg.org/dwc/terms/type-vocabulary/index.htm).	Examples: "PreservedSpecimen", "FossilSpecimen", "LivingSpecimen", "HumanObservation", "MachineObservation"
occurrenceID	An identifier for the Occurrence (as opposed to a particular digital record of the occurrence). In the absence of a persistent global unique identifier, construct one from a combination of identifiers in the record that will most closely make the occurrenceID globally unique.	For a specimen in the absence of a bona fide global unique identifier, for example, use the form: "urn:catalog:[institutionCode]:[collectionCode]:[catalogNumber]". Examples: "urn:lsid:nhm.ku.edu:Herps:32", "urn:catalog:FMNH:Mammal:145732"
catalogNumber	An identifier (preferably unique) for the record within the data set or collection.	Examples: "2008.1334", "145732a", "145732"
occurrenceRemarks	Comments or notes about the Occurrence.	Example: "found dead on road"
recordNumber	An identifier given to the Occurrence at the time it was recorded. Often serves as a link between field notes and an Occurrence record, such as a specimen collector's number.	Example: "OPP 7101"
recordedBy	A list (concatenated and separated) of names of people, groups, or organizations responsible for recording the original Occurrence. The primary collector or observer, especially one who applies a	Example: "Oliver P. Pearson; Anita K. Pearson" where the value in recordNumber "OPP 7101" corresponds to the number for the specimen in the field catalog (collector number) of Oliver P. Pearson.

Term Name	Term Definition	Term Comments
	personal identifier (recordNumber), should be listed first.	
individualID	An identifier for an individual or named group of individual organisms represented in the Occurrence. Meant to accommodate resampling of the same individual or group for monitoring purposes. May be a global unique identifier or an identifier specific to a data set.	Examples: "U.amer. 44", "Smedley", "Orca J 23"
individualCount	The number of individuals represented present at the time of the Occurrence.	Examples: "1", "25"
sex	The sex of the biological individual(s) represented in the Occurrence. Recommended best practice is to use a controlled vocabulary.	Examples: "female", "hermaphrodite", "8 males, 4 females"
preparations	A list (concatenated and separated) of preparations and preservation methods for a specimen.	Examples: "skin; skull; skeleton", "whole animal (ETOH); tissue (EDTA)", "fossil", "cast", "photograph", "DNA extract"
eventID	An identifier for the set of information associated with an Event (something that occurs at a place and time). May be a global unique identifier or an identifier specific to the data set.	
eventDate	The date-time or interval during which an Event occurred. For occurrences, this is the date-time when the event was recorded. Not suitable for a time in a geological context. Recommended best practice is to use an encoding scheme, such as ISO 8601:2004(E).	Examples: "1963-03-08T14:07-0600" is 8 Mar 1963 2:07pm in the time zone six hours earlier than UTC.
year	The four-digit year in which the Event occurred, according to the Common Era Calendar.	Example: "2008"
month	The ordinal month in which the Event occurred.	Examples: "1" (=January), "10" (=October)
day	The integer day of the month on which the Event occurred.	Example: "9", "28"
habitat	A category or description of the habitat in which the Event occurred.	Example: "oak savanna", "pre-cordilleran steppe"
fieldNumber	An identifier given to the event in the field. Often serves as a link between field notes and the Event.	Example: "RV Sol 87-03-08"

Term Name	Term Definition	Term Comments
locationID	An identifier for the set of location information (data associated with dcterms:Location). May be a global unique identifier or an identifier specific to the data set.	
country	The name of the country or major administrative unit in which the Location occurs. Recommended best practice is to use a controlled vocabulary such as the Getty Thesaurus of Geographic Names.	Examples: "Denmark", "Colombia", "España"
countryCode	The standard code for the country in which the Location occurs. Recommended best practice is to use ISO 3166-1-alpha-2 country codes.	Examples: "AR" for Argentina, "SV" for El Salvador
stateProvince	The name of the next smaller administrative region than country (state, province, canton, department, region, etc.) in which the Location occurs.	Examples: "Montana", "Minas Gerais", "Córdoba"
county	The full, unabbreviated name of the next smaller administrative region than stateProvince (county, shire, department, etc.) in which the Location occurs.	Examples: "Missoula", "Los Lagos", "Mataró"
municipality	The full, unabbreviated name of the next smaller administrative region than county (city, municipality, etc.) in which the Location occurs. Do not use this term for a nearby named place that does not contain the actual location.	Examples: "Holzminden"
locality	The specific description of the place. Less specific geographic information can be provided in other geographic terms (higherGeography, continent, country, stateProvince, county, municipality, waterBody, island, islandGroup). This term may contain information modified from the original to correct perceived errors or standardize the description.	Example: "Bariloche, 25 km NNE via Ruta Nacional 40 (=Ruta 237)"
verbatimLocality	The original textual description of the place.	Example: "25 km NNE Bariloche por R. Nac. 237"

Term Name	Term Definition	Term Comments
locationAccordingTo	Information about the source of this Location information. Could be a publication (gazetteer), institution, or team of individuals.	Example: "Getty Thesaurus of Geographic Names", "GADM"
taxonID	An identifier for the set of taxon information (data associated with the Taxon class). May be a global unique identifier or an identifier specific to the data set.	Examples: "8fa58e08-08de-4ac1-b69c-1235340b7001", "32567", "http://species.gbif.org/abies_alba_1753", "urn:lsid:gbif.org:usages:32567"
order	The full scientific name of the order in which the taxon is classified.	Example: "Carnivora", "Monocleales"
family	The full scientific name of the family in which the taxon is classified.	Example: "Felidae", "Monocleaceae"
genus	The full scientific name of the genus in which the taxon is classified.	Example: "Puma", "Monoclea"
specificEpithet	The name of the first or species epithet of the scientificName.	Example: "concolor", "gottschei"

Adapted from Darwin Core Terms: a Quick Reference Guide (DCWG, 2011)

Building a Better SLED!

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Introduction

Alaska poses some unique challenges to providing and connecting information to its residents: small, remote and isolated communities; sparse population; a limited road system; harsh weather conditions (extreme temperatures, ice fog, heavy snowfall, and high winds); rugged terrain; permafrost; and phone lines stretched across vast distances. Historically residents have been separated not only by climate, distance, and geography, but by access to information resources as well. As there are few libraries in rural Alaska. In the early 1990s the State of Alaska began a project to help bridge the information gap between urban and rural areas of the state by providing more equitable access to information resources (Newkirk 1993). These efforts culminated in the creation of Alaska's Statewide Library Electronic Doorway, more commonly known as SLED. Today, more than eighteen years following its creation, SLED continues to grow, evolve, and serve the information needs of all Alaskans.

Welcome to SLED, Alaska's Digital Library and Archives!

Digital Pipeline - Alaska's conduit for information from articles and selected reference sources

BrainPOP, Teen Health & Wellness, A-Z List, Alaska's Digital Archives, Live Homework Help, Testing & Education Reference Center, Research Resources, Small Engine & Auto Repair Reference, tutor.com, College & Elementary, NovelList, Heritage Quest Online, Mango Languages, Oxford Reference

Search Our Sites!

This search is looking for published sites and static SLED content.

SEARCH

Alaska Communities
Alaska FAQs
Arts, Literature & History
Business & Commercial
Culture & Religion
Daily Living, Recreation & Sports
Digital Projects from Around the State
Education & Training
Environment, Science & Natural Resources
Family Resources
Genealogy
Government & Law
Health, Disabilities & Social Services
Hot Topics
Job & Employment Resources
Kids' Stuff
Languages
Library Catalogs & Resources
Live Homework Help
Native & Indigenous Peoples
News & Weather
Reference Desk
Teen Express
Tourist Information
Web Search Tools

SLED is Alaska's portal to electronic resources about Alaska or of interest to Alaskans. It provides equitable access to electronic information resources for Alaskans using a simple World Wide Web site. Today anyone with Internet access can easily access library resources, federal and state government, local communities, Internet information, Alaska's Digital Archives, our statewide databases (known as the Digital Pipeline), and more. SLED is designed and organized to make information easier to find and use.

SLED is maintained by the SLED Advisory Group, which is composed of librarians from public, academic, and school libraries located throughout the state. The librarians volunteer their time to develop, maintain, and promote SLED by selecting sites for the group to review for inclusion in SLED, resolving broken links on SLED, and deselecting sites from SLED. SLED began with as many as fifteen advisory members. However, we currently have eight members, representing seven different libraries across the state from the following communities, Juneau, Ketchikan, Fairbanks, Anchorage, and Barrow. The group meets eight times per year via monthly one-hour audio-conferences and at the Alaska Library Association Conference. The group takes a two-month break in the winter and a second two-month break in the summer. Interim discussions occur via listserv. SLED depends on these volunteer librarians who take considerable time to attend meetings, investigate new sites, and review current content that may need updating (Smith, 2013). Each member selects subject areas to provide collection development by selecting sites for the group to review for inclusion in SLED. At our monthly meetings sites are evaluated based on accuracy, timeliness, uniqueness, authority of sources, technical compatibility, usability, and the "can Steve's mother use it?" test. Members also monitor their category pages to resolve broken links and deselect sites (Hahn, 2005).

The majority of SLED users are Alaskan residents, who are also our intended audience. Many school, public and academic libraries throughout the state provide access to SLED via their websites, as do state departments and agencies. During 2012, 84.6% of visits were from Alaskans from every corner of the state. Most other SLED visitors are located in other parts of the U.S. but there are a few from more exotic places such as the Philippines, Russia, Pakistan, Switzerland, Finland, Greece, and Ghana to name just a few (Google Analytics, SLED).



The SLED project began in early 1993 with the Alaska Community Information Systems Investigative Report, a study sponsored by the Alaska State Library (Elliott, 1994). This study explored the feasibility of creating a community information system to provide equitable information over the vast distances of the state to its scattered population (Newkirk 1993).

Working collaboratively, the Alaska State Library, the Elmer E. Rasmuson Library and the University of Alaska Fairbanks Computer Network developed SLED with funds provided by the Alaska State Legislature and Rasmuson Library. By mid-April 1994, SLED was online (Elliott, 1995). Users could telnet into SLED using the University of Alaska Computer Network (UACN) or the Internet at the University of Alaska Fairbanks as a telnet site providing Internet access to libraries and the general public. SLED was available to the public free-of-charge and could be accessed via an AlaskaNet 800 number.

From the beginning SLED was popular, receiving more than 35,000 calls per month, which quickly consumed a large portion of the budget. To help contain rising costs the State Library used LSCA money to fund connections through public libraries in the larger communities of Anchorage, Fairbanks, and Juneau for high-speed access. In 1996, an agreement for a flat monthly fee was finalized with Alascom (Alaska State Library, 2005).

Within four years, AlaskaNet's 800 number extended to most of the state's population, serving more than 98% of Alaska's population living in 51 communities (Elliot, 1994). Alaskans throughout the state simply dialed into the nearest Alaska node using a local telephone number, without incurring long-distance charges (Elliot, 1994).

In 2001, as the number of Internet Services Providers throughout the state increased, dial-up service for SLED was discontinued (Hahn, 2005). Although it was recognized that in some locations Internet Service Providers (ISPs) were not available, the majority of Alaska's population did have Internet access.

SLED adapted to changing technology conditions as the WWW evolved, and by 1995 SLED was redesigned and moved to the web, where it currently resides. When SLED first appeared on the WWW, only seven subject categories were featured: Business, Education, General Reference, Government Information, Legal/Medical, Library Catalogs and Resources, and News and Current Events. Over the years, however, additional subject categories were added as Alaskan needs and interests were identified, such as Family Resources, Genealogy, Kid's Stuff, Teen Express, Digital Projects from Around the State, Languages, Job & Employment Resources, Native & Indigenous Peoples, and more. Currently, SLED

maintains more than twenty subject categories that span a wide variety of topics and resources. Today anyone with access to the Internet can access SLED at <http://sled.alaska.edu>.

In 1998, the Alaska State Legislature funded a group of subscription databases for all Alaskans to further reduce the information gap between urban and rural communities. The online databases are known collectively today as the Digital Pipeline. SLED re-designed its website to include the statewide databases and began providing access right away (Ruess, 2009).

The cost of providing the statewide databases has risen over the years, but today the annual average cost is \$1.07 per Alaskan. This is an exceptional value for 24/7 online access to 47 full-text resources or services covering a broad range of topics, including business, education, health, psychology, newspapers, current events, reference resources, auto and small engine repair, tutoring services, and more. To date the statewide databases have provided over 7 million articles for Alaskans. Without the Digital Pipeline, the estimated cost to provide those articles would have cost Alaska's libraries more than \$84 million (Rollins, 2013). Steve Rollins, chair of the Digital Pipeline Steering Committee likes to refer to the databases as Alaska's information dividend (Rollins, 2013).

The statewide databases are reviewed by the Digital Pipeline Steering Committee, which consists of librarians scattered throughout the state that meet annually and hold interim discussion via email, if needed. Over time new resources have been added. Last year, for example, BrainPop and Teen Health and Wellness were two new additions.

In 2004, with the addition of the Alaska's Digital Archives, SLED became Alaska's Virtual Library and Digital Archives. The Digital Archives began as a collaboration between the Rasmuson Library at the University of Alaska Fairbanks, the University of Alaska Anchorage Consortium Library and the Alaska State Library in Juneau to digitize historical resources located in museums and libraries throughout the state. Funding was provided by the Alaska State Legislature. In addition to the original three institutions, today's project partners include the Anchorage Museum of History and Art, Seward Community Library Association, University of Alaska Museum of the North, and Sitka Tribal Library (Alaska's Digital Archives, n.d.).

Early work of the project focused on web development, adoption of metadata and digitization standards, and the scanning of materials for the online archives. The Alaska Digital Archives was available online by March 2004. Further project work enhanced the website, developed a Best Practices guidebook, created recommendations for partnership models, and incorporated additional materials into the database (C. Sturm, personal communication, June 8, 2005).

The Digital Archives provides a single easy to use portal for institutions across the state to share their historical resources. Visitors can expect to find selected historical photographs, albums, oral histories, moving images, maps, documents, physical objects, and other materials in an online searchable database from libraries, museums and archives throughout our state. For complete holdings, visitors should be sure to visit each institution (Alaska's Digital Archives, n.d.). The Digital Archives is currently comprised of more than 72,314 items from around the state which are available online (R. Forshaw, personal communication, June 25, 2013).

2004 also saw the addition of Tutor.com's Live Homework Help to SLED. Students in grades K-12 and intro-level college anywhere in the state can access free homework or writing assistance from online tutors. Help is also available at the Adult Education Center for those who wish to study for the Citizenship test or GED; they can also visit the Career Center to prepare for their job search. Live Homework Help has been very popular and is available seven days a week from 1 pm to midnight, Alaska Time (Tutor.com, n.d.) when users are most likely to be studying or working at home.

SLED's next projects involved improving its infrastructure. Google Analytics was added to improve statistics tracking. Google Analytics generates easy to use, detailed, customizable statistics about the website's traffic and traffic sources. This is proving very useful as we examine what technology users employ to access the SLED website and how SLED might accommodate that.

In 2011, SLED converted to a content management system, Drupal. The content management system provided several improvements and is the system SLED still uses today. SLED advisors now have easier access and control over the category pages they manage. Advisors nominate new potential websites for consideration throughout each month, evaluate these websites, post comments about a site during the discussion phase of the voting process, and vote to accept or reject websites for inclusion in

SLED. Accepted websites are then published or deleted if they are rejected. All this is accomplished online using the administrative side of the SLED website. Using the content management system also ensures that page formats remain consistent and do not deviate over time from a pre-determined structure comprised of Alaska Resources and General Resources.

SLED's search functionality was also improved. The search box was expanded to facilitate several search options including searching the Alaska Library Network Catalog (ALNCat), EbscoHost's Masterfile Premier, and Alaska's Digital Archives, in addition the SLED websites.

In 2012, a significant amount of work was invested to enhance Alaskans' access to available statewide information resources. For several years SLED has been working with the Digital Pipeline committee to better represent the statewide databases. The SLED Advisory Group met with Steve Rollins to discuss merging the SLED and Digital Pipeline websites to form a single access point to better serve our users. After several meetings working out the best way to promote the Digital Pipeline resources, we drafted a layout for a new front page for SLED and even developed a new SLED logo (Altman & Hahn, 2012). While plans were underway for a possible discovery service, databases that would not be searched by the service (non-discoverable databases) were prominently placed and linked on the SLED homepage. Familiar SLED websites moved to the side to accommodate the additional databases. The new design will be available online by fall 2013.

What's Next for SLED?

SLED continues to be a work in progress as new sites and services are added. Now that the re-designed SLED is due to roll out in the fall, work is already underway examining our next two projects: going mobile and adding a discovery service.

SLED is going mobile. Mobile devices provide another easy way for users scattered across the state to access the information they need. SLED statistics indicate that Alaskans are beginning to access SLED using their mobile devices and the trend is increasing. In 2011, 2.08 percent of users accessed the SLED website using their mobile devices, while 2012 indicated that had increased to 3.75 percent (Google Analytics, 2013).

The popularity of cell phones is increasing both nationwide and within Alaska. According to CTIA, an international nonprofit trade association representing the wireless communication industry, the number of wireless subscription connections has steadily increased since 1985, culminating in approximately 321 million connections in the U.S. in June 2012. (CTIA, 2012). Cell phone service is also increasing in Alaska. Four major service providers are geared up to introduce or expand cell phone services within the state. AT&T currently has 187 cell towers covering approximately 90 percent of Alaska's population (Richardson, 2012). General Communications Inc. (GCI) is upgrading the 144 cell towers it has around the state (Jensen, 2011). Alaska Communications Systems Group Inc. (ACS) and (GCI) have announced that they will be partnering to share infrastructure costs (Richardson, 2012). In 2010, AT&T, ACS, and GCI, combined had more than 509 thousand wireless customers and all three companies are currently upgrading and expanding their services in the state (Jensen, 2011). All Alaska telecoms are upgrading 3G service and are developing 4G capabilities. Verizon is also entering the Alaska market with plans on starting in the central region of state and working outwards. The company has been working on towers in Alaska since 2011 and is scheduled to introduce service by mid-2013 (Richardson, 2012). Verizon will also bring 4G service to Alaska (Jensen, 2011).



As wireless access is poised to improve substantially in Alaska within the next few years, going mobile is a top priority. To accomplish this goal SLED is developing a mobile website. Mobile websites accommodate the maximum number of mobile users and are not platform specific. Anyone with a mobile device equipped with a mobile browser can access a mobile website, regardless of the users' method of access, such as iOS, Android, BlackBerry, Symbian, Windows Phone, Badu, Palm's webOS, etc. (Costa, 2010).

Mobile websites can also be developed using tools already familiar to most library web developers and their functionality can be easily tested (Wisnieski, 2012). This makes mobile websites easy to develop

and maintain. Although SLED is a fairly simple website consisting of a homepage and subject pages, some mobile optimization can be done to enhance our users' access to statewide resources.

Discovery Service

SLED will also be adding a discovery service. Discovery services have been around since 2007 (Vaughan, 2010). These services allow users to search across multiple and varied local and remote library holdings, such as, the library catalog, subscription databases, institutional and open-access repositories, and digital collections. (Vaughan, 2011b) This allows users to accomplish in one search what previously required many separate searches and knowledge of specific resources.



SLED is currently looking at Summon as its discovery service. Summon has been available for about four years, having debuted in 2009. (Vaughan, 2011a) For SLED, Summon would allow our users to search across most of the statewide databases and websites. Those databases which are not discoverable using the service have been placed on SLED's homepage to allow more visibility and easier access to those resources.

By default Summon's interface is a single search box, with advanced searching available following the initial search (Vaughan, 2011a). Once Summon is in place, SLED's search box will reflect the change to a discovery search. Summon also offers additional features which provide added functionality for users including: "Did You Mean?" functionality; persistent URLs; and a mobile interface. For administrators, Summon Analytics is available to track statistics (Vaughan 2011a). Functionality, favorable pricing, and available support through the staff at the University of Alaska Anchorage campus that have previous experience using the product make Summon an appealing choice (S. Rollins, personal communication, June 12, 2013).

Once the mobile website and the discovery service projects are complete, SLED will looking for the next enhancement and exploring ways to reach out to populations in remote areas of our state. Many schools, libraries, and state government offices already link to SLED, but many communities in Alaska are very small. Villages of less than 25 residents are common, so reaching them can be challenging. Historically we have been moderately successful promoting SLED as an information resource using presentations and poster sessions at conferences, through librarians and teachers, audio clips advertising the statewide databases broadcast statewide on public radio, and the usual array of brochures and bookmarks. We continue to explore new ideas and technologies, always searching for ways to build a better SLED.



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Metadata and Corporations

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Introduction

There is a great deal of interesting recent literature on the ways in which corporations are looking at and considering metadata in their organizations – from Ruffilo's five degrees to Mehra's technical assessment to Lai and Taylor's is between libraries and global consulting firms. The literature discusses the idea that metadata management was critical to the success of any organization.

Organizations today continue to be challenged on developing and maintaining strong metadata strategies and approaches. This is partly understandable – continually changing and emerging technologies defy the once standard five- and ten-year strategic plans that many corporations used to employ at the highest level. With the constant introduction of the newest/best/fastest technology on the market, it is challenging for an organization that wants to stay ahead to stop and try to develop a strategy that would have an enterprise-wide impact.

Literature Review

Nick Ruffilo (2011) discusses metadata as it relates to book sales and revenues in the publishing industry. Ruffilo contended that the marketing and editorial departments of a publishing company should work together to define the attributes of books in order to improve the overall quality of its associated metadata. Ruffilo advocates that a complete "overhaul" of an organization was not necessary, instead he proposed a "five degrees rule" – suggesting that making small changes, merely five degrees at a time, could be just as or even more impactful than completing a large scale effort (Ruffilo, 2011, p.156). Although not specific in what a five-degree shift might entail, Ruffilo suggests that such a change could result in "generating better data in three months" with accompanying business and operational results in less than a year (Ruffilo, 2011, p.156).

Joost Kircz suggests that encoding metadata during the creation of a product could be the key to the success of that product in the market place, rather than specifying metadata after the product has already been created. Kircz advocated that the creator of a product would have the most intrinsic and specific knowledge of said product, and thus would be the best qualified to select the relevant metadata for that product, instead of a potentially arbitrary, third party marketing or publishing agent at some later date (Kircz, 2007). Kircz concedes that an overall metadata schema, or "super-metadata," that would bring together and enable the manipulation of various product information is a field that required additional work to develop and understand (Kircz, 2007, p.556).

Ron Roszkiewicz discusses the interrelationships of metadata requirements and usage across different departments within an enterprise in his 2010 article in the *Journal of Digital Asset Management*. Roszkiewicz (2010) argues that with metadata management, proper organization and controls could increase the productivity, compliance, and scalability of an organization. The keys to a successful metadata management strategy includes properly defining business drivers and measures of success, having a strong plan for launch, and normalizing metadata standards and terminology (Roszkiewicz, 2010). Roszkiewicz (2010) also contends that consolidating records and digital assets into one repository was critical to proper organization and controls.

Vivek Mehra's very technical 2005 article discusses traditional metadata patterns and strategies, a holistic integration strategy, with additional information on ontology and metadata registries. Mehra (2005) includes graphics and illustrations to show the differences in how metadata can be structured in an organization across departments – from isolated silos to a centralized repository to virtual integration. Mehra also lists thirteen key requirements for building a successful metadata-driven enterprise (Mehra, 2005, p.12):

- Effectiveness
- Extensibility
- Reusability
- Interoperability
- Efficiency and Performance
- Evolution
- Entitlement
- Flexibility
- Segregation
- User interface
- Versioning
- Versatility
- Low maintenance cost

Lai and Taylor focus on knowledge management and parallels with metadata management can be easily made. How consultants "describe knowledge with attributes and facts" (Lai and Taylor, 2011, p.395) are the same as how Dublin Core requires a librarian to identify aspects of a book. The authors' statement that "knowledge organization is not separate from other components of a knowledge management system" (Lai and Taylor, 2011, p.387) can be paralleled with how data from different parts of a corporation should not be separate from a data management system. The need for all users to contribute (i.e., gain user buy-in) is also implied with the acknowledgement that all "consultants are required to contribute" (Lai and Taylor, 2011, p.401).

William Inmon and team define business metadata as the "business context behind data" and asserted "data without context is worthless" (Inman, et al., 2007, p.xix). To me, the key differentiator that stood out in this work as compared to other literature I reviewed about metadata was the authors' proposal that "business metadata is much broader than, and quite different from, the structured technical metadata" that has historically been considered (Inman, et al., 2007, p.38). Clearly this is a very different approach than the arguably more traditional, very technically focused perspective of metadata in a library setting. The authors explore in depth the value and challenges involved in defining, collecting, and managing business metadata across the organization – including the very interesting point of where the ownership of such data lies. Perhaps the gut instinct is that of course the information technology (or "IT") department of an organization would 'own' metadata, but again the key is the business context that makes the data meaningful. Thus, the IT department can not be the sole owner of business metadata; the business and client must also be involved in order to ensure the data is meaningful.

Heather Havenstein explored the history and "revival of metadata management" in corporate IT departments and the challenges faced by today's IT managers (Havenstein, 2005, p.6). Although IT organizations have made efforts toward metadata management since the 1980s, early efforts were unsuccessful primarily due to the immaturity of vendor technologies and internal corporate processes, and were also challenged by the length of time required to mine data (Havenstein, 2005). Havenstein (2005) contended that there has been a renewed interest in metadata management for a variety of reasons, including the increasing importance of business intelligence projects for management to make decisions based on reliable information. Also, "today's Web-based tools use a real-time architecture" allow IT managers to shorten the timeframe between when software is installed and when they can start seeing the results of their data queries (Havenstein, 2005, p.6). Havenstein gave multiple examples of emerging vendor technologies as well as organizations that have started metadata management projects of their own. One example that particularly resonated with me was the lesson learned and strategy realized by the state of New Jersey's IT department (Havenstein, 2005, p.7):

Research Questions

- How does a corporation or any organization 1) recognize their need for a metadata management strategy, and then 2) what steps to take in order to develop a metadata management strategy to meet their needs?
- How do they assess their current metadata standards and define their 'as-is' state so as to identify gaps and determine what their requirements of a management strategy should entail?
- How do they obtain user buy-in and define success criteria? Who are the relevant stakeholders, and what is their impact on the design of a standard?
- What are the root causes they are trying to resolve?
- What risks and issues could potentially come up, and how would these be mitigated?
- What benefits will be realized? What are the estimated costs, who has the responsibility for paying these costs, and how much of the costs are recurring versus one time?
- What is the expected return on investment?

Methodology

As Bauber and Bauber put it, "qualitative research asks very different questions and taps into what can usefully be viewed as a different sort of curiosity" (Bauber and Bauber, 2003, p.180). Since I was not sure where my questions would lead or what answers I would find, a qualitative approach also seemed like a good starting place since "questions may broaden out...as the research progresses" (Bauber and Bauber, 2003, p.180).

To maintain confidentiality, I state only that the organization is a large multi-national corporation and a top automotive manufacturer in the United States. I decided to conduct this examination by conducting interviews with some of the database and business intelligence subject matter experts in the company's information technology department. I also reviewed in detail some of the relevant artifacts and materials these experts are developing to document and build their enterprise metadata management strategies.

Results

My interviews with database and business intelligence subject matter experts along with my reviews of their documents were enlightening. As found in the literature review, although the theories and information around metadata have been around for decades, my interviewees agreed and even admitted that their well-established and well-regarded, multi-national corporation still struggles today with developing a coherent and comprehensive approach to managing data and information.

One of the key challenges they feel is their lack of resources – while the industry may awash in expert consultants and tools and technologies, within their organization there are just a prime few who are considered to be the experts, having knowledge of not only the relevant technologies but also of the organization's business drivers and processes (i.e., requirements!). There is then a LOT of pressure on these few to be the fount of all knowledge, recommendations, and strategies for all things metadata; thus what should be an enterprise-wide endeavor with cooperation from both IT and the business users tends to fall only on these few.

Echoing Havenstein's article (2005), another of the key challenges these database and business intelligence professionals struggle with most is obtaining user buy-in. In the highly competitive yet consensus-driven corporate culture the company cultivates, in order to take the time and work necessary to develop and execute a metadata management strategy, this team is required to submit a request to proceed from IT management. Historically, other priorities, other projects always took precedence over taking the time to develop an encompassing data management strategy. This was made evident by the number of presentations and proposals that had to be submitted, were rejected, and then re-submitted for approval by IT management. Once approved, business cases with detailed cost and benefits estimates had to be drafted and submitted as well, for review and approval by IT management. A complex and long-drawn process indeed! On the positive side, however, this process did draw in all stakeholders and thus getting user buy-in was perhaps eased because of this process.

The presentations and business cases provided a wealth of information. It was exciting to get a direct, front-row-seats type of view into an organization's nascent metadata management development! From one of the project's executive summary reports, I saw that they took an approach that echoed that taken by the State of New Jersey (Havenstein, 2005) – while they were developing a single source for core data to be shared across business process and applications, they intended to define three different types of 'data entities' to include:

- Party Data – e.g., for different affiliates, third-party vendors
- Product Data – e.g., for bill of materials, sale products, parts
- Finance Data – e.g., for chart of accounts, cost centers

The identification of why the corporation needed to develop a comprehensive metadata management strategy is clearly depicted in the list of 'pain points' included in both executive summary reports and business cases alongside descriptions of the current 'as-is' state of the organization. They also clearly state why developing a single source of metadata is necessary and the consequences of inaction. A high level root cause analysis, proposed mitigation strategies, an estimated timeline, and a costs and benefits analysis along with a proposed 'future state' environment are also detailed and provided for IT management review. The business cases for these projects provided more detailed information on, of course, cost estimates, but also on project phases and timelines, risks and issues to be addressed and mitigated, and expected benefits to be realized.

Discussion and Conclusion

While inconsistency in and the unavailability of accurate data reporting are key, what also stands out to me from my interviews and reviews of documents is the substantial cost due to having non-standard data. Firstly, there is great potential for increased costs to build or integrate new systems or applications because either a) existing data must be evaluated to ascertain accuracy, relevance, duplication; or b) data must be copied, rebuilt, redefined, and/or replicated in order for it to be in a usable form for the new system or application. Given that, there would then be the potential for increased costs in infrastructure and storage hardware/cloud to correlate with the additional capacity that would be required by the increased data requirements. Couple this, too, with the required software maintenance that would go hand in hand with the additional infrastructure requirements. This could easily equate to hundreds of thousands of dollars a year in arguably unnecessary spend, even for a small to middle sized organization. Taking a step back, it seems that it would be well worth the cost of taking the time to develop a comprehensive metadata management strategy, even say, if it cost a half million dollars. For a company that size, the return on investment could ostensibly be in less than three years after deployment.

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