

FACTORS LEADING TO SUCCESSFUL ENGAGEMENT OF ACADEMIC LIBRARIES IN E-SCIENCE

Mary Piorun, MSLS, MBA
Simmons College
PhD Candidate
Managerial Leadership
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Problem Statement

- Many Association of Research Libraries (ARL) have a foundation in collaboration, outreach, and knowledge management from which to assist the research community and become a contributing partner in departmental and institutional level e-science initiatives.
- The degree to which these libraries have a role in e-science initiatives at the departmental and institutional levels and the internal changes implemented to assume that role, however, have not been examined.

This study fills that void by Exploring:

1. How and why research universities and their libraries became engaged in e-science,
2. The structural and programmatic changes that have occurred in the library to provide e-science services and programs, and
3. The leadership necessary to bring about those changes.

Call to Action

- The ARL Task Force on E-Science wants research libraries to “engage the broader community in a fundamental reassessment of the research library’s role and structure, in effect, in redefining the research library for a new era”
([Joint Task Force on Library Support for E-Science, 2007, p. 5](#))

Theoretical Framework

- *Organizational Transformation: Approaches, Strategies, Theories* by Amir Levy and Uri Merry
- **First-order change:**
 - occurs naturally as organizations grow;
 - supports continuity and order;
 - consistent with current values and norms;
 - is readily accepted; and
 - can be incorporated into daily activities using people's existing knowledge and skills.
 - First-order change does not involve a fundamental change in strategy, core values, or identity.

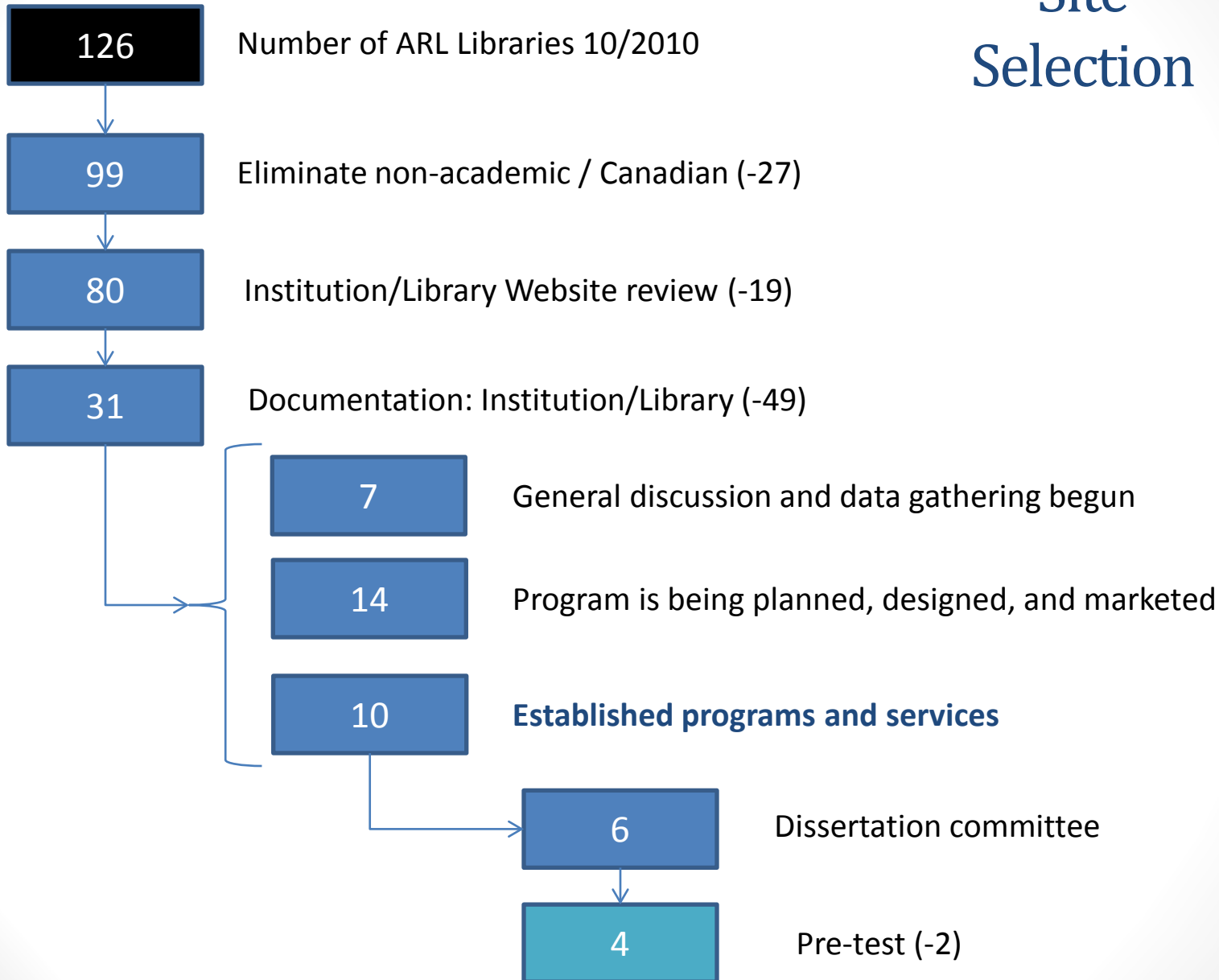
Theoretical Framework

- **Second-order change:**
 - transforms the core of the organization;
 - Multidimensional;
 - multi-level;
 - qualitative;
 - discontinuous, radical organizational change;
 - paradigm shift;
 - challenges or conflicts with prevailing values and norms; and
 - breaks from the previous way of thinking and doing.

Study Design

- Qualitative
- Multiple-case design
- Semi-structured interviews
 - Institution
 - Strategic partner
 - Library administration
 - Director
 - Associate director
- Focus groups
 - Librarians

Site Selection



CHANGE

Is there a transformational change occurring?

Changes

	A	B	C	D
New department	D, L	D, L	D, L	L
Workflow changes	D		L	
Oversight structure	D, A, L	D, A, L	L	
New services	L	L	L	L
Gain new skills, new training, sub knowledge	L	L (2)	A, L	
New position(s) created	L	L	A, L	L
Became embedded	L		L	
Added responsibility / change in staff role	L	L	D	L
Emphasis on electronic	L			
Reach new faculty members, students, administrators	L	L	D	L
New library role		L		L
New team / workgroup		L		
Working with a changing product		L		
Training website		L	L	
Acquiring new collections (data sets)			L	

D=Director, A=Associate Director, L=Librarian

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Reach new faculty members, students, administrators	L	L	D	L
New library role		L		L
New team / workgroup		L		
Working with a changing product		L		
Training website		L	L	
Acquiring new collections (data sets)			L	

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Change Process

Kotter: 8 Steps to Change Management	
1	Create Urgency
2	Create a Coalition
3	Develop a Vision & Strategy
4	Communicate the Vision
5	Empower Action
6	Get Quick Wins
7	Leverage Wins to Drive Change
8	Embed in Culture

Content Analysis Results	
1	Identified Need
1	Library Administration Acts
2	Assign 1 or 2 Librarians
3, 4, & 5	Shift from New Service to New Role
6	New Relationships Formed
7	Increase in Demand
8	New Staff / New Department

Quotes Related to Process

Step	Supporting Quotes
Identified Need	“I need a librarian to do this and I think you have the people who can do it. This is a really important priority. From day one we have been aware and committed to doing this.”
Library Administration Acts	“The data piece is specific enough that we should approach it in a dedicated way”
Shift from New Service to New Role	“It has been a real marked shift... in the last three or four years, from thinking we are a digital library, where we are collecting this to getting much farther into the research process”
New Relationships Formed	“They [department administrators] have been a really important partner and we recognized that early on and built that relationship solidly”

Future Changes

	A	B	C	D
Develop success measures	D			
Monitoring / environmental scan		D		D, A
Combining libraries			A	
Re-writing job descriptions			A	A
Train staff for new work			A	
Monitor national politics				D
New facilities				D
Obtain additional funding				D
New administrative issues				A

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Experience of Change

	A	B	C	D
New attitude/view	A		L	
Requires self-education	L		L	
Outside / faculty resistance	L		L	
Grassroots effort		L		
Opportunity to form new relationship		L	L	
Formalization of what was already being done		L		
New area			L	L
Large learning curve			L	
Focus on services not content				L
Adjustment period			L	
Limited opportunities for success			L	
Consistent message – e-science is important			L	
Difficult to meet expectations early on			L	

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Type of Change

	A	B	C	D
Evolutionary	D, A, L (2)	L	D, A, L (5)	D, A
Evolutionary but feels transformative	L			
Blend		D, L (3)	L	L
Reaction to outside forces	L	L	L	

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Evolutionary

- Eight Librarians:
 - “Rapid little steps”
 - “Hurry up and wait”
 - Library was reacting to external forces: truly transformational changes were occurring outside of the library.
 - How scientific research is being conducted
 - Emphasis on collaboration and interdisciplinary research
- Three directors agreed with them testifying that
 - The library had been slowly developing a vision and setting goals to gradually bring about the changes.
 - Reasons given for the evolutionary pace of change given were:
 - Everything is processed,
 - Applying the resources took time,
 - There was a period of experimentation, and
 - Evolutionary because success has been limited.

Blend

- Personnel at three locations indicated there was an element of the transformative present:
 - “The ideas are a revolutionary way to think of librarianship”
 - “If we had more time to dedicate to the projects it could be revolutionary”
 - “Part of the constraints on how transformational it is for us is the resource constraints that we are under”
 - “I think for the library at large, it is revolutionary. I would share that my manager looks at it and says this is the future of libraries. It is quite revolutionary. It really shakes the fundamentals of what libraries do but we are just at the early stages of it. But it has great potential”

Change in

	A	B	C	D
Content		L		
Context	L	L	L(3)	L(2)
Both content and context	L(2)	L(2)	L	

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Context

- Eight librarians agreed that the change was in context (environment, role). In their opinion the content was seen as being the same; however, librarians were now getting involved earlier in the research process and data life cycle, forming new relationships, and placing a greater emphasis on services:
 - “It certainly is the context because we’ve traditionally been at the point of helping the faculty member find supplementary information to help them with their current research. Here we are helping them conduct their real research as opposed to the literature review or looking up things that they might use.”

Blend

- “I would say when you start doing it; it feels like a whole new area. It’s not something that you can just walk in and instantly feel comfortable with. There is a large learning curve to be able to adequately understand even what you are talking about. ... There was a lot of self-education that had to happen there. Once you are in it, I see a lot of parallels with what I am already doing. I think it depends on how far you are into it whether that is the case or not.”
- “The content is a different kind of content and yet the content is so different that the context is different too. I am still using a lot of the same skills that I always had, analyze, breakdown, facilitate. I don’t think that taking a data set and moving it through the process of getting it absorbed by the library, for example, is really anything like what we’ve done before because there is something so inherently different about the content. We have to change how we do that because it just doesn’t make sense anymore.”

Characteristics of First-Order Change and Second-Order Change

First-Order Change	Second-Order Change
A change in one or a few dimensions, components, or aspects	Multidimensional, multicomponent, and multiaspectual
A change in one or a few levels (individual and group levels)	Multilevel change (individuals, groups, the whole organization)
Change in one or two behavioral aspects (attitudes, values)	Changes in all behavioral aspects (attitude, norms, values, perceptions, beliefs, world view, behaviors)
A quantitative change	A qualitative change
A change in content	A change in context
Continuity, improvements, and development in the same direction	Discontinuity, taking a new direction
Incremental changes	Revolutionary jumps
Logical and rational	Seeming irrational, based on different logic
Does not change the world view, the paradigm	Results in a new world view, new paradigm
Within the old state of being (thinking and acting)	Results in a new state of being (thinking and acting)

Source: *Organizational Transformation: Approaches, Strategies, Theories* by Amir Levy and Uri Merry.
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Research Question(s)

- Is there a transformational change occurring?
- Role of the library in the eyes of the institution?
- Role of library administration?
 - Challenges
- What happens next?

Funding Received From

- Institute of Museum and Library Services
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- Simmons College

Contact Information

Mary Piorun, MSLS, MBA
Associate Director
Lamar Soutter Library
University of Massachusetts Medical School
P) 508/856-2206
mary.piorun@umassmed.edu