

Empowerment of citizens with informatics: museums, Libraries and archives in the cyber space

Empoderamento de cidadãos através da informática: museus, bibliotecas e arquivos no espaço cibernético

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Abstract: Over the last two decades, all of the development and innovation in cyber space is transforming how we live, work and think. "Smart" devices, such as the iPhone, have generated the retrieval and sharing of information before, during and after a visit to a MLA location. MLAs are in the public eye without boundary of culture, heritage and language in our global village via internet social network, such Facebook, Twitter, and WeChat. The wave of informal learning in the cyber space may reshape our formal education. MLAs are more proactive in rethinking exhibition design criteria, education program development guidelines, information technology application plans, human capital development programs and public advocating initiatives at cyber space in our global village, following the trends of the new economy. Historic lessons in adult education for community development are being examined to help museums face challenges in dealing with the wave of information technology. Studies on strategic positioning of MLAs are growing in popularity as MLAs seek best practices in the empowerment of citizens with informatics. Future trend analysis on MLA strategic development in the information age needs to be reviewed to best understand the changing social mission of MLAs in the 21st century. U.S. public policy on education to build 21st century skills is examined to review the impact on the MLA sector's social mission.

Keywords: MLA. Museum. Library. Archive. Social media. Strategic management. Internet.

Resumo: Ao longo das duas últimas décadas, todo o desenvolvimento e a inovação no espaço cibernético estão transformando o modo como vivemos, trabalhamos e pensamos. Dispositivos "inteligentes", como o iPhone, geraram para recuperar e compartilhar informações antes, durante e após sua visita a uma localização MLA. MLAs estão em público, sem limites de cultura, patrimônio e linguagem em nossa aldeia global pela rede social da internet, através do Facebook, Twitter e WeChat. A onda de aprendizagem informal no espaço cibernético pode reformular nossa educação formal. Os MLAs devem ser mais pró-ativos em repensar critérios de design de exibição, diretrizes de desenvolvimento de programas de educação, planos de aplicativos de tecnologia da informação, programas de desenvolvimento de capital humano e iniciativas de advocacia pública no ciber espaço em nossa aldeia global para acompanhar a tendência da nova economia. As lições históricas em educação de adultos para o desenvolvimento da comunidade devem ser examinadas para ajudar os museus a enfrentar desafios ao lidar com a onda de tecnologia da informação. Os estudos sobre o posicionamento estratégico dos MLAs estão se tornando populares para o MLA para buscar melhores práticas em capacitação dos cidadãos com informática. A análise de tendências futuras sobre o desenvolvimento estratégico do MLA na era da informação precisa ser revisada para entender a missão social dos MLA no século XXI. A política pública dos EUA sobre educação para construir habilidades do século XXI foi examinada para avaliar o impacto da missão social pelo setor de MLA.

Palavras-chave: MLA. Museu. Biblioteca. Arquivo. Mídias sociais. Planejamento estratégico. Internet.

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1. 2nd Economy and social development

Over last three decades, the extensive development and innovation in cyber space is transforming how we live, work and think. For example, “smart” devices, such as the iPhone and iPad, have generated the retrieval and sharing information before, during and after public visits to a MLA (Museum, Library, and Archive) location. MLAs are in the public eye without any boundary of culture, heritage or language in our global village via the internet’s social networks. By Statista Portal (2017), the Top five social media networks covers six billion users¹.

Table1 - Top 5 social media network (Statista Portal, 2017)

	Users (million)
Facebook	1,968
WhatsApp	1,200
YouTube	1,000
FaceBook Messenger	1,000
WeChat	889

The wave of informal learning in the cyber space is reshaping our formal education. MLA professionals will be more proactive in rethinking exhibition design criteria, education curriculum development, information technology application, human capital development and public advocating initiatives.

Historic lessons in adult education for community development could become effective case studies to help us to face challenges in dealing with the wave of information technology.

Studies on strategic positioning of MLAs are becoming popular tools to seek best practices in the empowerment of citizens using informatics. Future trend analysis on MLA strategic development in the information age needs to be considered to best position the social mission of MLAs in the 21st century.

Both old and new school rules should be addressed for strategic management. Tapscott (2010) pointed out that the new economy exists concurrently with the social

¹ Social Media Top 5 Social Media Network Covers 6 Billion Users in 2017.<<https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>>

development in the information age [2]. As of today, all of the gaming rules are still no change fundamentally while the capitalism still works as market based economy. However, the characteristics of 21st-century capitalism has shaped a new economy entirely different from the old economy. Below is the famous “Six Reasons There is a New Economy” by Tapscott:

1. New infrastructure for wealth creation. Networks, specifically the internet, are becoming the basis of economic activity and progress. Unlike railroads, roads, the power grid, and the telephone supported the vertically integrated business, horizontal and vertical integration would keep changing our community into an all new eco system.
2. New business models. Instead of thinking of New Economy companies as internet technology based companies or dot-coms e-commerce based companies,
3. New sources of value. In our knowledge based economy today, value is created by brain power.
4. New ownership of wealth. In old days of industrial capitalism, the silk-hatted tycoons owned the most wealth. Today 60 percent of Americans have asset in the financial market, and the biggest shareholders are labor pension funds.
5. New education models and institutions. Post industrial revolution era generated much greater demand for lifelong learning. The model of pedagogy is also changing with the growth of interactive, self-paced, student-focused learning.
6. New governance. Cloud computing with big data will further break silos of government agency for efficiency. Horizontal, not vertical, based governance structure will transform administrative government into service oriented government (TAPSCOTT, 2010, p.5).

The popularity of Web 2.0 was acknowledged by the 2006 issue of TIME magazine's Person of The Year². In the cover story, Lev Grossman explains: It's a story about community and collaboration on a scale never seen before. It's about the cosmic compendium of knowledge Wikipedia and the million-channel people's network YouTube and the online metropolis MySpace. It's about the many wresting power from the few and helping one another for nothing and how that will not only change the world but also change the way the world changes.

2. Rethink social mission and public service of museums

2.1 - Social mission

Per Wang, it is the new global trend to view MLA as the knowledge source of civilization with focal points of conscience, wisdom and art (WANG, 2009). According to

²You - Yes, You - Are TIME's Person of the Year.
<<http://content.time.com/time/magazine/article/0,9171,1570810,00.html>>

the 2007 ICOM Vienna Statues, a museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment. The theme of ICOM ASPAC 2009 was “Rethinking of Museums’ Core Value and Regional Heritage in Asia-Pacific”. The theme of ICOM 2010 was “Museums and Harmonious Society”.

2.2 - Global practice on public services of museums

Over last three decades, many countries have integrated the social mission and public services of museums into the areas of supporting national lifelong learning and creating innovation state programs.

For example, nearly 6,000 museums in Japan are part of the three supporting columns of citizen lifelong learning system, including museums, citizen halls and libraries. The U.S. is home to 123,000 libraries and 17,500 museums. The Institute of Museum and Library Services is to help these institutions provide exemplary public service to millions of lifelong learners (IMLS, 2013). We need to assist the public in transforming their perception and make MLA as their lifelong learning platform. The first line educator in MLAs should become a “knowledge broker”. We cover the entire life cycle of the process of knowledge brokering: creating, acquiring, assimilating, using, and disseminating.

Current development of the culture sector will generate more opportunities and challenges for MLAs. Time will likely generate new business sectors, and simultaneously make certain businesses obsolete. Information and communication technology (ICT) is driving our society through the creation of quaternary sector of industry in the 21st century. We name this period as the information or knowledge era.

We classify movies, publishing, music, drama, opera, media related industry as culture industry. How should we position our MLA sector? Massive data communication of MLA could be viewed as the key driver of culture industry, or the core business of MLAs.

3. Challenges in the cyber space

3.1 - Member community

Digitalization changed our ways of work and life. According to the Neilson report, two-thirds of the world's internet population visits a social network or blogging site, and this sector now accounts for almost 10% of all internet time (NIELSEN , 2009).

3.2 - Impact to new roles of museum curators by social media

Are museums and museum professionals ready to surf the wave of information technology at the age of cyber space? Dicker conducted a survey which revealed that museum curator roles were impacted significantly by social media. The traditional roles of the curator as “expert” or “specialist” are fading away (DICKER, 2010).

Researcher or knowledge broker does not truly reflect the curator's reality today. Social media may generate new voices and new votes which may add new dimensions for the management of extended exhibition in the cyber space.

Technology development has created new platform for museums. What will be the impact on museum curators? Are curators integrating social media into curatorial practice? If so, how are they interacting in these spaces, and what impact does all this have on a curator's role and the collections for which they care? Curators are facing challenges from increased demand of bilateral or even multi-lateral communication, previously the domain of staff working on public programs, outreach, or web editing.

3.3 - Museum website evolution - web 1.0 to 2.0

Without formal definition, people will normally consider the following four points as main characteristics of Web 2.0:

- 1) Information Sharing (1 to 1, 1 to many, many to 1, and many to many)
- 2) Interoperability (ability of diverse systems and organizations to seamlessly work in concert)
- 3) User friendly design (user centric philosophy)
- 4) Collaboration (multi-parties working together for a common goal)

Museum website evolution has been impacted by the rapid development of social media, which is considered the gateway to our cyber space. The early state of social media was labeled the AOL Age. We consider web as the source for information. Museum web sites are designed to provide information and support trip planning.

Now, in the Facebook Age, potential visitors will find your museum by its social network posting. Social media has become the gateway to the web. Member communities' strong influence will challenge museums authoritative roles seriously. Presence on social network by museum curators should be considered with administrative procedure.

4. MLA strategic management

4.1 - Awareness of strategic positioning of MLA

In the 21st century, citizens are having more leisure time to enjoy life and engage in lifelong learning programs for their professional development. As MLAs are increasingly focus their attention on audience development and better service to their visitors, these potential audiences are deluged by an increasing volume of information and numerous channels bringing choice between leisure time and learning opportunities. Thus, rising public participation in MLAs is being challenged by increasing competition.

It is a growing important issue for museum leadership to identify how MLAs use strategies of positioning and branding to more effectively target communication to their priority audiences. And, MLAs need to position their offerings in a context that is both meaningful and memorable in order to fulfill their social mission responsibilities.

4.2 - Setting strategy for MLAs

Porter further elaborated his theory on competitive strategy for the museum sector. He pointed out that an organization may promote the public good, however serving the community, charity, philanthropy, and giving are the components of the wrong mindset. Instead, the right goals are: delivering social services, meeting the needs of a "customer", and achieving high value (PORTER, 2007).

Doing good requires good strategy. The most important step is to define appropriate goals, which will then guide the MLA operation in answering the critical questions: where to serve, what services to provide, how to serve, and how to align

these services with the community's developmental goals. The obligation of the MLA is to create social value in such a way as to minimize the resources engaged while maximizing social benefits. Defining, measuring and reporting are the three fundamental steps for implementation of any strategic initiative.

Below are the top three conceptually flawed thinking of yesterday:

- 1) “Strategy as aspiration: Our strategy is to serve one thousand families and create 250 jobs...”
- 2) “Strategy as action: Our strategy is to erect a new building and ... give \$100,000 in family support...”
- 3) “Strategy as vision / mission: Our strategy is to serve our community and ...to demonstrate our charity...”

Strategy is an overall approach to creating the maximum social value for the target recipients/customers. Setting goals for social service of a museum requires specifying and weighing the social benefits to be achieved. In practice, goal definition and strategy are inextricably intertwined for museums as not for profit organization.

5. MLA and 21st century skills – IMLS initiative in the U.S.A.

5.1 - What the internet brought to us

Cloud-based technologies delivered over utility networks has been widely deployed for rapid growth of online videos and rich media. Our current expectation is that the data network will have almost infinite capacity and will be nearly cost free. The application of the internet as a catalyst has been constantly challenging us to rethink not only education, but also informal learning.

That Used to be Us: How America Fell Behind in the World It Invented and How We Can Come Back is a book written by Thomas Friedman and Michael Mandelbaum, (2011, p.137). It addresses the four major problems America faces today and their solution. These problems are: globalization, the revolution in information technology, the nation's chronic deficits, and its pattern of energy consumption. The authors are visionary to describe so well our new learning ecosystem and why 21st century skills will become critical in these new environments: “For us to grow, we have to educate people to do jobs that don't yet exist, which means we have to invent them and train people to do them at the same time. That is harder, and it is why we need everyone to aspire to be a creative creator or creative server.”

5.2 - How 21st century skills initiative developed

The Partnership for 21st Century Skills (“P21”) was formed in 2002 through the efforts of public private partnership. P21’s mission is to serve as a catalyst to position 21st century readiness at the center of U.S. K12 education by building collaborative partnerships among education, business, communities and government leaders³.

To develop a globally competitive workforce for the future, the 3Rs and 4Cs are identified as the core elements for the P21 initiative to successfully align U.S. class room environment with real world environment by fusing. The 3Rs (Reading, Writing and Arithmetic)include: English, reading or language arts; mathematics; science; foreign languages; civics; government; economics; arts; history; and geography. The 4Cs shall include: critical thinking and problem solving; communication, collaboration; and creativity and innovation.

As the 3Rs serve as an umbrella for other subjects and core content, the 4Cs are a shorthand for all the skills needed for success in college, career, and life. As Figure 1 illustrates, the rainbow framework presented the P21 student’s outcomes with a blending of specific skills, content knowledge, expertise and literacies with innovative support systems to help students master the multi-dimensional abilities required of them in the 21st century.

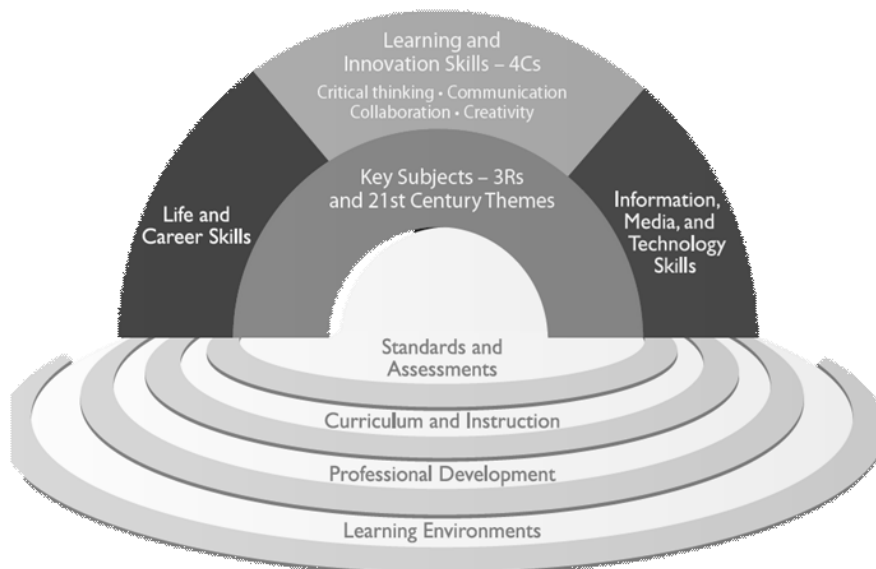


Figure 1 - 21st Skill development outcome and resources⁴

³ Framework of P21 Skills. <<http://www.p21.org/about-us/p21-framework>>

⁴ *Idem*

5.3 - Why IMLS implemented 21st century skills initiative

As a federal government agency, the Institute of Museum and Library Services (IMLS) seeks to inspire libraries and museums to advance innovation, lifelong learning, and cultural and civic engagement through grant making, research, policy development and national partnerships. “Success in today’s society requires information literacy, a spirit of self-reliance, and a strong ability to collaborate, communicate effectively, and solve problems. Combining strengths in traditional learning with robust investment in modern communication infrastructures, libraries and museums are well-equipped to build the skills Americans need in the 21st century” (IMLS, 2008).

In light of 21st century demands, libraries and museums should build on current strengths and embrace new approaches, such as the ones described in Table 2 (IMLS, 2008, p.7).

Table 2 - 21st Museum Library and Archive Transformation (IMLS, 2008, p.7)

20th Century Museum/Library	21st Century Museum/Library
Primarily content driven	Combination of audience and content driven
Mostly tangible objects	Tangible and digital objects
One-way	Multi-directional
Focus on presentation and display	Focus on audience engagement, experiences
Acts independently	Acts in highly collaborative partnerships
Located in community	Embedded in community
Learning outcomes assumed, implied	Learning outcomes purposeful

6. Lesson learned

As a Public Private Partnership (3P) program, P21 has successfully developed a 360 degree framework to build the future workforce since 2002. IMLS, the U.S. federal agency in supporting museums and libraries for education and public engagement, immediately piggybacked their guideline to lead the MLA sector to participate in the P21 program. After one decade of development, U.S. is leading the world economy through innovation. The P21 program has played a great role in the social and economic development.

Another author has written on this educational focused initiative in the U.S., which was initiated through the report “A Nation at Risk” (1983) 14⁵. *A Nation at Risk: The Imperative for Educational Reform* is the 1983 report on American President Ronald Reagan's National Commission on Excellence in Education. The report pointed out the risk that the U.S., once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. The report quoted Paul Copperman that each generation of Americans has outstripped their parents in education, literacy, and economic attainment. For the first time in U.S. history, the educational skills of one generation will not surpass, will not equal, and will not even approach those of their parents.

The people of the U.S. need to know that individuals in society who do not possess the levels of skill, literacy, and training essential to this new era will be effectively disenfranchised, not simply from the material rewards that accompany competent performance, but also from the chance to participate fully in our national life. A high level of shared education is essential to a free, democratic society and to the fostering of a common culture, especially in a country that prides itself on pluralism and individual freedom.

Knowledge, learning, information, and skilled intelligence are the new raw materials of international commerce, and are today spreading throughout the world as vigorously as miracle drugs, synthetic fertilizers, and blue jeans did earlier.

The report redefined Five New Basics in High School Curriculum: 1) English; 2) mathematics; 3) science; 4) social studies; and 5) computer science. For the college-bound, two years of foreign language in high school are strongly recommended in addition to those taken earlier.

From 1983 “Our Nation At Risk” for five basic subjects learning through 2002 “Partnership for 21st Century Skills in 3R and 4C”, the U.S. MLA sector played the important role as the informal learning ecosystem to serve the public.

In closing, the American Association of Museums’ Code of Ethics for Museums may give us a good perspective on their social mission:

Taken as a whole, museum collections and exhibition materials represent the world’s natural and cultural common wealth. As stewards of that wealth, museums are compelled to advance an understanding of all natural forms and of the human experience. It is

⁵ *A Nation at Risk*. National Commission on Excellence in Education, U.S.A., 1983. <<https://www2.ed.gov/pubs/NatAtRisk/risk.html>>

incumbent on museums to be resources for humankind and in all their activities to foster an informed appreciation of the rich and diverse world we have inherited (AAM, 2000).

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