

Maker Libraries: Public Libraries as Centers for Experiential Learning

*Emily Thomson**

Detroit Public Library Redford Branch, United States
Wayne State University M.L.I.S. Program, United States

Abstract

The traditional definition of a library is a place to collect and provide access to resources. In response to the 2008–2009 economic crisis, numerous state and city governments had to make hard budget choices. Some of those choices involved cutting the funding for human services departments, which include after school programs. Of those programs affected by budgetary cuts most fall into the category of experiential learning, a necessary inclusion in any child's education. What is experiential learning? "In its most simple form, experiential learning is constructing knowledge and meaning from real life experience". Maker culture, embraces all that the school budgeting issues reject with respect to experience and hands-on learning. As public libraries are already a not for profit venture, and as the majority of makerspaces are not for profit; libraries and makerspaces seem to be the perfect marriage.

Keywords: *Makerspace, Public Library, Learning Commons, Experiential Learning*

***Author for Correspondence** E-mail: ey4838@wayne.edu

INTRODUCTION

What is a library? The traditional definition of a library is a place to collect and provide access to resources. That definition has evolved somewhat in the last several decades to include digital resources; however, the standard definition is the same. If one looks at a public library now though, one will see tax assistance, computer classes, meeting rooms, voter registration events, recycling education, and numerous other far more community-oriented offerings. This more people oriented definition begins to push the understanding of what a library is into the realm of a learning commons. The difference being the hands on nature of information retrieval or experiential learning. It is a natural step then, to embrace the tenets of the maker culture. There is more than one way to retrieve information, and an increasingly important way to serve the public, especially the younger public, is to provide those hands on experiences, which they may not get anywhere else. With the marked decline in the availability of after school programs as well as art and technology classes, the library is in a unique position to marry the concept of the past with the progress of the future. The research of school organizations and educators, combined with

that of librarians, and community groups, reveals that libraries have the potential to play a large part in the advancement of not only library programming, but also community inclusion, and continuing education.

RESEARCH

School Budget Cuts

In response to the 2008–2009 economic crisis, numerous state and city governments had to make hard budget choices. Some of those choices involved cutting the funding for human services departments, which include after school programs. In response to the economic crisis, New York made drastic cuts to human services, including youth development initiatives. Among these reductions proposed by Governor David Paterson is a devastating \$11 million cut on after-school programs [1]. The example set by New York was not unique, every state faced budget deficits in 2010, and their response in 2011 was to cut spending on education, "In fiscal year 2011, 33 states and the District of Columbia cut their K-12 funding (Johnson, Oliff and Williams 2010) to help balance their budgets. The cuts were broad and deep, affecting even the most essential budget areas (Oliff and Johnson 2010, Thomasian 2010)"

[2]. Among the listed education cuts were included: laying off of teachers, extracurricular activities, courses not required for graduation, and field trips [2]. These devastating cuts of six years ago have still not been recouped in many cases. The center surveyed state budget documents for 46 states over the last three months and found that, among other things, at least 31 states provided less state funding per student in the 2013–2014

school year than in the 2007–2008 school year, before the recession took hold (Figure 1). In at least 15 states, the difference exceeded 10 percent [3]. In those states where educational funding has increased, it has not increased enough to cover the deficit of the last five years “for example, New Mexico is increasing school funding by \$72 per pupil this year. But that is too small to offset the state’s \$946 per-pupil cut over the previous five years” [4].

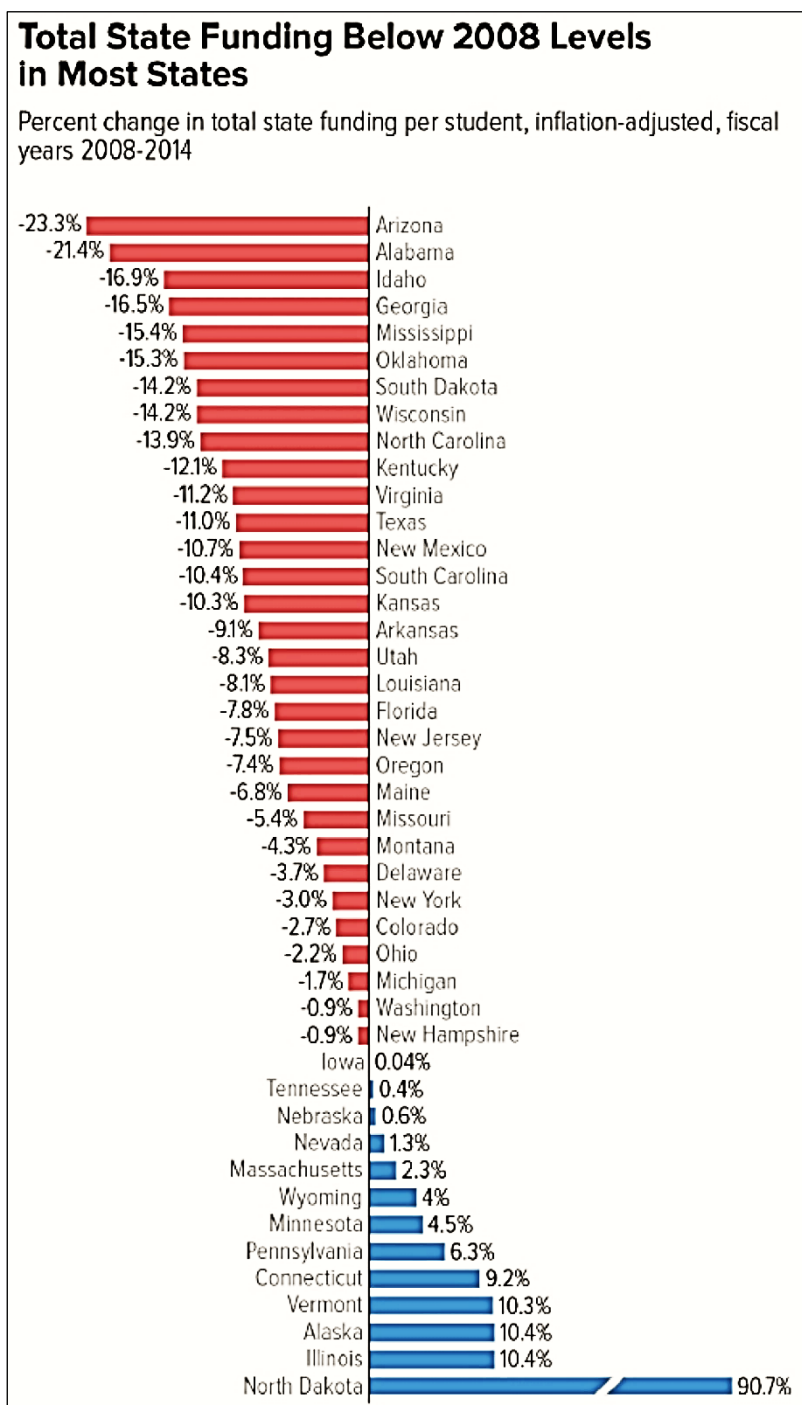


Fig. 1: Total State Funding below 2008 Levels in Most States [3].

For those lucky organizations that are able to retain their after school programming and non-required courses, “more than half of programs (57 percent) report that their budget is inadequate to meet community needs, an increase of nearly 10 points since 2009”, and “nearly 1 in 4 programs (24 percent) say they would need to at least double their capacity to meet the demand for services” [5].

Importance of after School Programming

Budget cuts like the ones begun in 2010 have a particularly devastating effect on already low-income districts. The removal of afterschool programs and classes which do not fill graduation requirements, i.e., art, music, physical education, theatre, advanced placement, robotics, etc. is keenly felt in low-income neighbourhoods. This lack of after school care and activities has direct results in the punitive rate in young adults. “Students who spend no time in after-school programs are 49% more likely to use drugs and 37% more likely to become teen parents than are those who spend 1 to 4 days per week in such activities” [1]. Not only do afterschool activities prevent crime, “higher levels of participation demonstrated higher levels of achievement in areas such as school attendance, reading, and as teachers reported, an increase in their motivation to learn” [1]. The children served by these programs are primarily low income, and without access to these experiences families do not have recourse to provide similar opportunities. “On average, 68 percent of youth participating in afterschool programs qualify for free or reduced price lunch, 16 percent have special needs or a learning difference, and 14 percent are Limited English Proficient (LEP)” [5]. This further limits the access these marginalized children have to achieve success in later life, including scholarship opportunities, and college access. This budgetary hamstringing creates a cyclical path for those who most need opportunities to explore.

Experiential Learning

Of those programs affected by budgetary cuts most fall into the category of experiential learning, a necessary inclusion in any child’s education. What is experiential learning? “In

its most simple form, experiential learning is constructing knowledge and meaning from real life experience” [6]. The theory of experiential learning proposes that learning is an individualistic action and relies on the individual response and conclusions from situations and experiences. It highlights interpersonal relationships “combined with the importance of the contexts in which learning episodes are situated” [6]. Learning of this type is further related to social learning theory, which conceptualizes learning as a social occurrence, incapable of happening in an individual bubble, “learning results from collaborative engagement with ‘communities of practice’ which learners enter as ‘legitimate peripheral participants’ (Lave and Wagner, 1991)” [6]. This is important because studies have shown that the best way to encourage interest in a subject is not to use a textbook, but rather to generate a hands-on learning experience. “In every area we tested, the students who were involved in a hands-on project learned more and demonstrated a deeper understanding of the issues than the traditional group” [7]. The study reported that all of the students in the hands-on learning group gained; it was particularly notable in those students who spoke limited English [7]. This is notable because those students involved in the Purdue University study here referenced, are those same students who are most affected by budgetary cuts affecting after school programs, “nearly 30 percent of the middle school’s population is ethnically diverse, and 57 percent of the total student population receives free or reduced-price lunches” [7]. The increased success of these students demonstrates the value of experiential learning in the context of academic success, but there is a further necessity. In a study done in an elementary school, a gardening project yielded less tangible results observed by the teacher as well as in a report from the National Foundation for Educational Research including: a resilient, responsible and confident approach to life, vital job skills such as presentation, team work, and individuality, a healthier more active lifestyle, the ability to communicate with people of all backgrounds, thinking independently, and adapting skills and knowledge to numerous situations [8].

Makerspaces

Maker culture, embraces all that the school budgeting issues reject with respect to experience and hands-on learning. To understand the role that makerspaces have the potential to play, one must first understand the philosophy behind maker culture, MAD director Glenn Adamson underscored the changing concept of *craft* and the museum's own evolving mission. "We use the term 'making' — as opposed to other such closely related terms as craft, workmanship, and artistry — because it emphasizes the active and open nature of our subject. To capture this fascinating range of production", he wrote, "only a very broad term like 'making' will do" [9]. The underlying philosophy is that everyone makes something, whether that thing is macaroni and cheese from a box, or metal sculpture. Makerspaces provide people with the tools and space to create. Although the concept of makerspaces originally evolved around S.T.E.M. subjects, they have continued to move beyond that limitation Jeff Sturges of Detroit's Mt. Elliott Makerspace said in ALA Tech Source's December 3 makerspace webinar, "beyond engineering and STEM, this is about creating creative people" [10]. Important for this discussion is that "barely more than ten percent of makerspaces are for-profit businesses" [9], making this a viable alternative for those families with limited means to replace the removed after school activities with. Makerspaces frequently make use of knowledgeable instructors, so that the spaces remain safe and productive.

Learning Commons versus Libraries

The current movement of libraries from the traditional stereotype of shushing librarians and untouchable dusty volumes, into what is referred to as a Learning Commons, "The growth of the internet and more recently, the rise of e-readers, have forced libraries to actively reinvent how the public perceives them" [11]. Libraries are in a position to take a step forward in relevancy and in service to their patrons. "The Learning Commons model provides a framework that emphasizes flexibility of space, resources, and instruction and addresses the new literacies, including traditional, digital, media, and global", a transformation which is integral to remaining relevant within the community [12]. These

new literacies include civic literacies and community involvement, (i.e., voter registration, block club meetings, recycling information), cultural literacies, (i.e., ethnic celebrations, historical speakers), technological literacies, (i.e., computer classes), and health literacy, (i.e., exercise classes, and nutrition education). New buildings are being designed based around people rather than collections and including space requirements that fulfill needs for collection space, reader sitting space, staff work space, meeting space, and special use space, furthermore buildings are increasingly used as multiuse spaces and including social services offices and testing centers.

Case Studies

Case study 1: Newark Memorial High school

In a case study of the makerspace at Newark Memorial High School, a space conceived and organized by the librarian. Albeit in a school rather than public library setting, the results of this project are undeniable, within a few months, the once-barren library earned the new label of 'thriving learning metropolis', proving the project to be not only beneficial to the students engaged by it, but also for the library itself [13]. The project was approached with a laissez-faire attitude which resulted in student ownership of work, "the librarian now confesses students often know more than she does", which is of course the purpose of education, to expand the knowledge of the student until they do not need the teacher [13].

Case Study 2

A study done at the University of Oklahoma, discovered similar findings. This example of a makerspace was student driven, allowing the participants to discover and learn in their own most effective ways. It was revealed that three major learning styles were present in participants from Norman Public School system, "(1) learning by doing, (2) learning by seeking information on their own, and (3) learning through and with others" [14]. Through student self-reports, teacher debriefing, and observation it was concluded that the participating students achieved learning within the partnership for 21st Century Skills framework, including, "(1) Life and Career Skills, (2) Learning and Innovation Skills, (3) Information, Media, and

Technology Skills, and (4) Key Subjects (P21, 2015)” [14].

CONCLUSIONS

As public libraries are already a not for profit venture, and as stated above, the majority of makerspaces are not for profit; libraries and makerspaces seem to be the perfect marriage. With technology instruction heavy grants available for organizations, and with the use of private donations of not only money, but also time, and equipment a library makerspace is a more than achievable goal. Standard library programs already include crafts, why not take that one-step further and have a tech teardown? (A tech teardown is a simple technology based discovery activity requiring only basic tools and broken or outdated equipment). The beginnings of a makerspace in a library can be simple, with use of A.L.A. themes such as Teen Tech Week, or monthly crafts. Not every makerspace has a 3-D printer, and gaming systems and laser cutters, but they do share an important similarity; a similarity of philosophy that libraries have long held. Access to information should be free and available to all. But as information changes libraries need to change too, and inclusion of experiential information access is a natural, if daunting, step forward. The steps can be small to start, and only require one person to begin.

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