

» "A library outranks any other one thing a community can do to benefit its people. It is a never failing spring in the desert."

- ANDREW CARNEGIE

# Strategic Library™



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## A Framework for Achieving Organizational Culture Change

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*Developmental work on a select portion of this framework was initially reported on at the 2016 Biennial Conference of the Australian Library and Information Association (ALIA) in Adelaide, Australia, September 1, 2016.*

### INTRODUCTION

Organizational change achieved through systemic and planned organizational strategies is something that has been occurring in many libraries worldwide. However it is not well known whether most of those organizational change strategies have resulted in transforming the organizational culture. Through the experience of a major Canadian research library, a framework for achieving organizational culture change

through engagement, leadership and innovation has emerged that serves as a blueprint for library leaders and others charged with implementing organizational change.



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The University of Saskatchewan, founded in 1907, is one of Canada's leading medical-doctoral universities and is internationally recognized for its contributions to teaching, scholarship, research, and innovation. The campus is home to two nationally and internationally renowned research facilities, the Canadian Light Source synchrotron and the Vaccine and Infectious Disease Organization. The university's signature research areas (water security, food and bioproducts, One Health, energy and mineral resources, Aboriginal peoples scholarship, and synchrotron sciences) are aimed at positioning the university among the most distinguished universities in Canada and in the world.

The University Library at the University of Saskatchewan in Canada currently serves a client base of over 22,000 students and 5,000 faculty and staff through seven physical library locations on the university campus. The library holds a number of unique and special collections relating to Saskatchewan, Western Canada, and the University of Saskatchewan. Over the last decade the library system has undergone a significant transformation of its collections, services, and physical spaces. This transformation continues today, as client expectations continue to evolve, as new technologies are introduced, and as the library and publishing industries also continue to morph.

Academic libraries throughout the world have been on similar transformation journeys over the last decade as they have endeavored to meet evolving and increasing client expectations to remain relevant in this dynamic information environment. While not alone in its journey, the University Library at the University of Saskatchewan can be considered unique in its achievement of a significant transformation of its organizational culture in the period of a few short years.

## **TRANSFORMING AN ORGANIZATIONAL CULTURE: A FRAMEWORK**

Each organization has its own unique culture, created over time through the shared attitudes, values, beliefs, perceptions, and customs of its members<sup>1</sup>. Culture evolves and solidifies over time, as members preserve and evolve the history, rules and norms of the organization. Cultures perpetuate themselves through socialization, particularly when new members are admonished for violating cultural norms or are rewarded for adherence or assimilation<sup>2</sup>.

There are times when a leader recognizes that the present organizational culture will not adequately support (or may be detrimental to) the achievement of the organization's vision. It is at this point where a cultural shift is not just desired or hoped for, but is essential for the organization to achieve its goals and desired future state.

As building an organizational culture takes years, changing that culture cannot occur overnight. It typically takes years to effect sustained culture change of a transformative nature. Creating even the smallest shift in culture requires a passionate commitment and the active engagement of senior leadership. Creating a sustained culture transformation requires the steadfast long-term commitment of organizational leaders, a strong commitment and desire by key influential champions, coupled with a significant investment in the design and implementation of targeted people strategies that are specifically aimed at shifting the culture.

This paper shares the decade-long strategic and organizational change experience at the University Library at the University of Saskatchewan, Canada. In sharing this story, a strategic framework for sustained culture change will be described. While this library's experience is based in academic librarianship in the context of the global post-secondary sector, the framework for engagement, leadership, and innovation to effect culture change is applicable for all types of libraries.

This framework for culture transformation is comprised of six essential elements, as described below.

1. Identify the catalyst for change
2. Strategically plan for successful change
3. Engage and empower organizational members
4. Cultivate leaders at all levels
5. Foster innovation, creativity, and risk-taking
6. Monitor progress, measure success, and celebrate (even the small changes) along the way

### **1. IDENTIFY THE CATALYST FOR CHANGE**

The transformation journey for the University Library at the University of Saskatchewan began in 2005 with a decision by the university's administration to recruit a dean to lead the University Library, rather than a director. This change signaled an increased importance of the library as one of seventeen campus colleges and schools, and

provided an equal seat for the dean of the library at the university's decanal table. While the library's dual service and academic mandate was recognized, there was nonetheless an imperative for librarians, as faculty, to significantly increase their research outputs and to embrace research as a core professional responsibility. This new direction for library faculty was in alignment with the overall institutional direction to increase the research intensiveness of faculty across the campus, in order to enhance the university's research profile as compared to its Canadian peer institutions.

The arrival of the library's first-ever dean in March 2006 formally launched the library's concerted effort to transform its collections, services, and facilities through the development of a new strategic plan. This strategic plan, strongly aligned with the university's strategic directions, contained a new mission, vision, and values. Employees from across the library system were involved in the creation of this new strategic plan, and the vision for the future had strong support.

To achieve this new vision for the future, it was recognized that significant changes were needed. As explained by the new Dean, "[i]ntegral to achieving this vision was a strong desire to build a workplace culture that was characterized by high levels of employee engagement, with effective communication and leadership at all layers and levels of our library."<sup>3</sup> Highly committed and engaged employees would be needed in order to reshape and refocus the library and its workforce, and new ways of thinking, behaving, and leading would be critical.

The culture at the time had been identified through a survey of librarians as fitting most closely with the definition of the Market culture within Cameron and Quinn's Competing Values

Framework, which is concerned with stability, control, and an emphasis on productivity.<sup>4</sup> The survey highlighted the desire of some librarians for a shift toward Adhocracy, a culture where innovation, risk-taking, and a creative spirit is encouraged. A smaller segment desired a shift toward the Clan culture, with a strong focus on people, relationships, and teamwork.<sup>5</sup> Some felt quite comfortable with preserving the current culture. However, there was recognition by the new dean that if transformative change to library collections, services, and physical spaces was to be realized, that an equally radical and transformative change to the

organization's culture would be essential.<sup>6</sup>

Determining the catalyst for change, and understanding the organization's readiness and receptivity for a culture shift, is important for a leader to be certain of prior to embarking on any effort to shift or radically transform culture. Surveying members about their readiness for a culture shift may work in some organizations, but may surely be a death wish in others.

Organizational members are comfortable with the culture they identified with when joining the organization, otherwise they likely would not have joined the organization in the first place. Therefore it is important to recognize and respect the natural tendency for members to protect the culture that they know and identify with, and that they are actively working to preserve. Sending up smoke signals or making declarations that culture change 'must happen' or is strongly desired by a new leader is likely to result in active efforts to thwart such a plan. Organizational members may feel offended or disrespected with any proclamation that there is something wrong with the current culture, and may feel that something is about to be 'done to them' against their will.

It is important for leaders to acknowledge that not everything from the past needs to be forgotten and indeed, some elements of success and pride from past achievements can help to set the foundation for a new culture. Being clear about those elements of the past to retain, and those which to leave behind, forms the basis for the design and selection of appropriate people strategies.

Taking a strategic approach to shifting the organizational culture is more likely to result in successful change. The leader and leadership team must deeply know, understand, and have their pulse on the mood or temperature of the organization in order to make an assessment of readiness (both at the individual and collective levels) for culture change. When progressing through the culture change framework, leaders must know how quickly to progress change -- when to accelerate and when to slow down. They must anticipate where pockets of resistance may lie, and know which strategies will work best to address any anticipated resistance.

In assessing the potential receptivity to a shift in culture, it is natural to notionally identify those who would be likely champions and supporters of the desired

future culture. It is about identifying those individuals who already demonstrate the behaviors, perspectives, and mindset that are in alignment with the desired future culture. These members should be encouraged and supported when they overtly demonstrate the desired characteristics within the workplace, as a way to reinforce the desired behaviors to both the individuals themselves and to their colleagues. Engaging these champions in conversations about the desired culture and strategies to move towards that desired future state can help to build early-adopters and active supporters of the desired culture.

For the University Library, the catalyst for change started with an institutional imperative coupled with a rapidly evolving library industry that required dramatic change for its library in order for the library to remain relevant. The university seized the opportunity to empower and support a new library dean to lead and bring to realization a new vision for the library. The dean recognized the need for a transformation to the organization's culture in order to achieve the desired future state and inspired others to share that vision, but at the same time respected the legacy, evolution, and attachment to the current culture. Together with leaders and champions, targeted workforce strategies were introduced in a staged approach to begin to turn the culture onto a new course.

## 2. STRATEGICALLY PLAN FOR SUCCESSFUL CHANGE

When planning for organizational culture change, it is essential to implement initiatives in a planned and strategic manner. Introducing initiatives in a haphazard manner, without a direct link to the larger strategic objective, will result in outcomes that don't quite hit the mark. It is like throwing jelly against a wall; some of it will stick, while most of it will run.

When planning for any larger-scale change that will significantly impact organizational members, it is best practice and makes good business sense for leaders to utilize change management principles in the planning process. Doing so will increase the likelihood that the change will be successful by helping members to understand the reasons for the change and by fostering positive organization-wide support for the change. Planning should be no different when deciding to undertake a concerted effort to shift culture. Because each or-

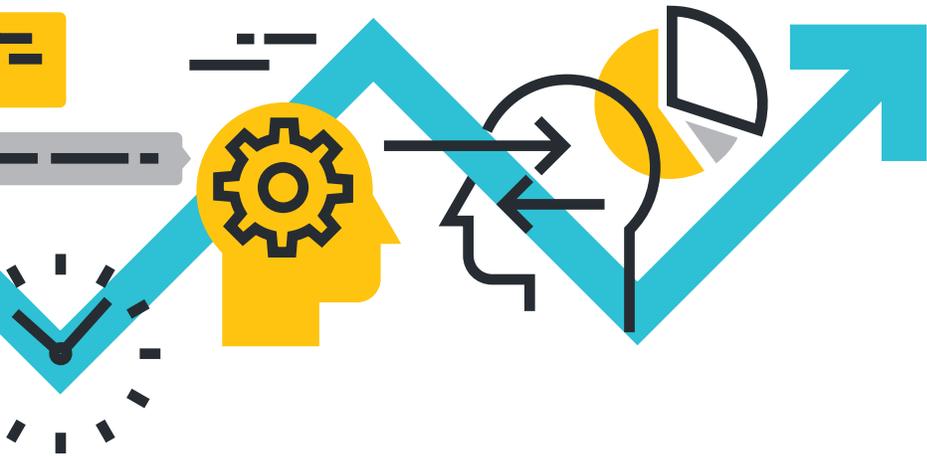
ganization's culture is steeped in years of traditions, customs, and practices and will naturally be extremely difficult to change, it is absolutely critical to apply change management principles early on in the planning process.

The Prosci ADKAR<sup>®</sup> model for individual change is a proven method for successful change management. The model proposes that individuals make changes more successfully when they have the necessary **A**wareness [of the need to change], **D**esire [to participate and support the change], **K**nowledge [on how to change], **A**bility [to implement required skills and behaviors], and **R**einforcement [to sustain the change].<sup>7</sup> Applying a change management methodology allows for deliberate planning early on in the change process to address each of these aspects, and helps to bring members along the ADKAR change continuum. Organizations that have an increased capacity for change "...are more resilient and agile, sustaining them in times of economic uncertainty and keeping them lean and competitive in times of economic recovery and prosperity."<sup>8</sup>

At the University Library, the process to develop a new strategic plan was the first step in setting a new organizational vision and direction, and was also a first step in readying the organization for a shift in its culture. A proven methodology for strategic planning was utilized, as was external facilitation expertise. The planning process was inclusive, with consultation to allow all employees the opportunity to participate in robust discussion and provide input and feedback. This approach confirmed the mantra that people commit to, support, and engage with those things they help to create, making the engagement and empowerment of organizational members another key element of the framework.

## 3. ENGAGE AND EMPOWER ORGANIZATIONAL MEMBERS

While the arrival of a new leader is an opportune time to enact a significant change in direction, often there are times when existing library deans and directors realize that a serious change of course is necessary. It then falls to these leaders to inspire a shared vision by appealing to shared aspirations, providing awareness about why change is necessary, and involving members in the creation of a new future state. As people will support what they help to create, involving members in the creation of



a new future state increases the likelihood that members will support the new future state, enlist others to share in the vision for the future, and work hard to help the organization to achieve the shared vision.

Through a new strategic planning process, employees at the University Library had the first-ever opportunity under the leadership of a new dean to participate in the creation of a new direction and vision for the library. Employees also had opportunities to participate in the monitoring and assessment of the library's progress on achieving its new strategic direction and goals, therefore sharing accountability for the success of the plan. Employees also had opportunities to engage together in the creation of operational plans for their branch/unit, aligned with the library's strategic plan. These operational plans helped employees understand how the contributions at the branch/unit level ultimately contributed to the achievement of the library's goals.

Prior to the new dean's arrival in 2005, the library had discovered through an employee opinion survey that only 54% of library employees were engaged. This score was derived using the Q12, a highly researched method to measure employee engagement developed by Gallup from over thirty years of accumulated quantitative and qualitative research.<sup>9</sup> The library adopted a definition of engagement: those who *say* positive things about the organization, *strive* to do their best every day, and *stay* to learn and grow.<sup>10</sup> Another similar definition of engagement is "[a] heightened emotional connection that an employee feels for his/her organization that influences the application of additional discretionary effort."<sup>11</sup>

The library's senior leadership acknowl-

edged that an engagement score of 54% was not adequate to achieve the new vision. The library would need to determine how to substantially increase the level of employee engagement. One strategy was to identify employee engagement as a key performance indicator for the measurement of strategic plan success. This resulted in conversations about possible factors that could potentially drive engagement at the library, and about the level or percentage of employee engagement that was desired. By increasing understanding and awareness about employee engagement through engaging employees in discussion, it painted a picture and created desire amongst members to become a more engaged workforce.

The employee survey also provided valuable information about how well employees were living the organization's values through decision-making and interactions with others, as the survey contained questions that directly mapped to the library's values. Another key performance indicator for measuring the success of the strategic plan was employee satisfaction. Employee opinion survey data allowed the library to assess employee satisfaction in eleven key areas including strategic planning/change readiness, communication, and leadership.

Having baseline data for employee engagement, employee satisfaction, and how well the values were being demonstrated provided the library with an ability to measure progress from year to year in these areas. This data provided great insight for library senior leaders about areas requiring further focus, and validated that the various strategic people initiatives were indeed shifting the culture towards the desired future state.

The development of a library People Plan<sup>12</sup> in 2009 overtly signaled the pivotal importance of the workforce in the achievement of the library's new vision and strategic directions. Much like the development of the strategic plan, the People Plan was developed through the active involvement and engagement of library employees from throughout the library system. While the planning team was comprised of a smaller group of around fifteen employee representatives from various areas of the library, there were many opportunities throughout the planning process for the planning team to gather feedback and ideas from all employees.

The People Plan highlighted four core people strategies, focused around the four most critical areas of emphasis for the workforce. These areas of emphasis centered around learning and development, relationships and teamwork, appreciation and celebration, and conversation and communication. A future-looking 'people vision' for the workforce was developed through consultation, as were various key actions to advance the workforce towards the achievement of both its people vision and in turn, the organization's vision. Key actions identified within the People Plan included a focus on leadership development, skill development to work with an increasingly electronic library collection, team building, appreciation and recognition activities, and enhanced communications.

Building upon the success of the first People Plan, a second People Plan was developed in 2012. While the four core people strategies remained constant, a new vision for the workforce was developed that spoke about pursuing excellence through discovery and inquiry; about being exceptional practitioners and scholars; about embracing creativity, innovation, and risk taking; and demonstrating outstanding leadership.<sup>12</sup> Key people strategies to implement over the duration of the Plan included a continuing emphasis on leadership development, a skill development program for managers and supervisors, opportunities for employees to create a personalized development plan, and mentoring and research support for faculty. A third four-year People Plan will outline areas of focus for 2017 to 2020.

Providing many and varied opportunities for employees to engage with the development of the People Plan and the implementation of the various strategic people activities has resulted in support and buy-in

for the People Plan, its key strategic actions, as well as for the overall library vision and strategic direction. Investing resources in designing and implementing strategies to advance the workforce towards its vision for the future has reaped dividends in terms of significantly increased employee engagement and satisfaction, the demonstration of leaderly behavior from employees at all levels of the organization, and most importantly has contributed to a shift in the culture.

Finding ways to engage and empower members is a critical step in attempting to shift an organization's culture. Engagement cannot be mandated, therefore it is up to leaders to determine how to ignite engagement. This starts with understanding what matters most to employees, through listening and then taking steps to implement changes. Organizations that conduct employee opinion surveys more out of curiosity with no intention of taking action to address employee concerns, should prepare to see a decrease in overall employee satisfaction and engagement. When employees see that their opinions count and that their concerns have been heard, they will have greater trust in their leaders and in turn be more engaged.

Engaging employees in determining what the workforce could look like in the future creates significant buy-in, energy, excitement, and commitment for that future vision. It can challenge members to envision themselves as part of that future state, who then in turn inspire others to share in that vision. Those employees who cannot, for whatever reason, identify with the direction that the organization has set may feel compelled to find another organization they can better identify with.

It is unrealistic to expect that all members will share the future vision for the organization. Every organization has employees who are not engaged as well as some who are actively disengaged. Those who are characterized as not engaged are not necessarily negative or positive about their organization; they are ambivalent. They hang back and don't commit themselves.

Actively disengaged employees can be described as cave dwellers – they're “Consistently Against Virtually Everything”<sup>13</sup>. These types of employees act out their unhappiness; every day they tear down what their engaged colleagues are building. They operate from the mindset that they are right, and everyone else is wrong. The negativity they spread is like a blood clot; actively dis-



engaged employees clot together in groups that support and reinforce their beliefs...[t]hey close themselves off from anyone who invites them to become part of the solution; they thrive on being part of the problem.<sup>14</sup>

Each organization has cave dwellers, and managing the attempts at destruction can be exhausting for leaders and frustrating for engaged employees who feel attacked or criticized for their good work and optimistic mindset. When a cave dweller is part of the senior leadership team and/or has responsibility for managing people, it is crucial for the leader to find a way to remove the cave dweller. Failing to do so will surely hinder the organization's progress and will most certainly damage employee morale, commitment, and engagement along the way.

It is important for leaders to not be distracted by the ruckus caused by the cave dwellers, but instead focus their energy on the actively engaged who are committed to moving the organization forward.

“Engaged employees produce more, they make more money for the company, they create emotional engagement with the customers they serve, and they create environments where people are productive and accountable.... they stay with the organization longer and are much more committed to quality and growth than the employees who are not engaged or actively disengaged.”<sup>15</sup>

By remaining steadfast on the path towards progress and receiving energy and optimism from the engaged majority, leaders and engaged employees can together propel the organization forward towards its ideal future vision.

#### 4. CULTIVATE LEADERS AT ALL LEVELS

As stated, the work required to shift an organization's culture requires the passion and steadfast commitment of senior leaders. “Effective leaders are willing to jolt an entrenched culture when necessary.”<sup>16</sup> However, senior leaders cannot change culture by themselves. They must rely on leaders elsewhere throughout the organization to demonstrate and embody behaviors that are aligned with and support the achievement of the desired culture.

Sustained leadership through the provision of customized in-house learning and development to grow a sustainable culture of “leadership from where you stand” is a critical component of this case study. The Library Leadership Development Program (LLDP) at the University Library has been well documented.<sup>17,18</sup>

The strategic decision in early 2008 to invest in leadership development for all employees was one of the most impactful decisions that has directly contributed to the library's culture shift. Utilizing both internal and external organization development expertise, the LLDP was designed for the library through feedback from employee focus groups. This feedback helped to identify and understand some of the key issues, and the LLDP curriculum was designed to address and build organizational capacity to address these issues. Core to the program is the philosophy that anyone can be a leader; one does not need to be in a formal managerial position in order to be a leader. Employees can lead from where they stand.

The LLDP is comprised of six two-day modules, offered over a span of eight to twelve months. The first program offering was comprised of a cohort of eighteen par-

ticipants including all librarians and deans with formal managerial responsibility, the library's director of human resources, and librarians aspiring to formal leadership roles (high potentials). The second program offering was comprised of line managers and supervisors, and future program offerings have been open to all employees regardless of whether or not they are in a formal supervisory role.

The LLDP curriculum incorporates learning from the self, team, and organizational perspectives. Topics include relationship building, team building, leading change, planning and accountability, organizational culture, organizational effectiveness, and personal mastery. Behavioral science instruments provide participants with greater insight into how their own personal leadership style intersects with their innate personality preferences and the preferences of others. Trios are used for peer coaching, and action-learning elements of the program provide opportunities for teams to apply their leadership learning to real-life work situations<sup>19</sup>.

Many graduates of the LLDP as well as non-graduates have engaged with various in-house leadership development activities including the leadership reading club, a leadership community of practice, and engagement with half and full day sessions offered as part of the sustaining leadership learning workshop series. New library employees attend an orientation workshop aimed at introducing the 'lead from where you stand' philosophy and employees are encouraged to develop leadership skills from the commencement of employment.

The 'lead from where you stand' philosophy has resonated deeply with the majority of library employees. Many have embraced this philosophy and in turn have deeply engaged with developing their own leadership skills, and feel empowered to exercise leadership. As a result, a culture of leadership has emerged where employees are empowered to exercise leadership in their work

units, in project teams, and throughout the library and the institution.

Through engaging in leadership development activities, employees have expanded their mindsets and perspectives and more easily embrace change. By becoming more aware of their own innate preferences and how those preferences surface within their personal leadership style, they have a greater awareness of the impact of their behavior on others. The development of a deeper understanding and appreciation for the styles and preferences of others helps employees work more effectively together, resulting in more positive outcomes and work experiences. A 2014 employee survey highlighted that 68% of employees who had participated in leadership development activities reported an increase in their overall job satisfaction since their participation in the activities... survey participants also reported dramatic improvements in workplace communication and relationship skills as a result of the investment in leadership development.<sup>20</sup>

The competencies and behaviors that were developed through this library's leadership development initiatives "...have changed the organization's culture to be more collaborative, flexible, open and accepting of change and challenge, supportive of learning, able to create and use knowledge, and focused on achieving the organization's vision and values. These are the characteristics commonly associated with a learning organization."<sup>21</sup>

A recent demonstration of the deep desire to cement a culture of leadership into the fabric of the culture is showcased by the commitment of some librarians to facilitate and lead sessions as part of the library's sustaining leadership learning workshop series. Putting their leadership learning into practice by sharing their knowledge and experience as a leader to inspire and teach their colleagues about leadership is testament to the power of the 'lead from where you stand' philosophy.

The process of building leadership capacity at all levels of the organization was a pivotal factor in transforming this library's culture. The cultural transformation was largely accomplished in just four years, from the point in 2008 where the decision was made to invest in leadership development to 2012 when it was recognized that the culture was profoundly different.<sup>22</sup> The investment in leadership development continues strong today, and the culture continues to strengthen with leadership at its core.

A strong investment in leadership development, if introduced in a way that engages members, can be a gateway to create a movement towards real sustained culture change. Investing in the development of leaders is one of the most powerful and impactful strategies that an organization can make. Research indicates that organizations with the highest quality of leadership are thirteen times more likely to outperform their competitors in areas of financial performance, quality of products and services, and employee retention and engagement.<sup>23</sup> In this world characterized by uncertainty and complexity, organizations now more than ever require strong leaders all throughout their organizations. Therefore instituting and/or continuing a strong investment in leaders, particularly during challenging economic times, is imperative.

## 5. FOSTER INNOVATION, CREATIVITY AND RISK-TAKING

Creativity is defined as the ability to make something new, and innovation is defined as the act of taking creativity and making it concrete.<sup>24</sup> Innovation is, at its essence, the creation of something that is [perceived] to be new and different and that adds value.<sup>25</sup> Creativity is imaginative and often spontaneous, and requires the ability to take risks.

With the evolution of technology and changing client demands over the past decade, libraries have been challenged to offer new and different spaces, services, and collections in order to remain relevant to cli-



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ents. “Organizational cultures that promote innovation and collaboration, minimize functional silos, and focus on the customer are more likely to thrive in a digital world.”<sup>26</sup>

As academic libraries re-imagine themselves and determine their role in post-secondary education and research, they will need to go further than just being creative – they will need to be innovative. “Libraries will need to not simply meet client demands, but instead anticipate and deliver services and resources that clients didn’t even know were possible from an academic library.”<sup>27</sup> It is by providing unique spaces, services, environments, and technologies that delight and captivate clients that libraries will be sought-after places to collaborate, create, and innovate.

Research has shown a strong positive correlation between effective leadership behavior, innovation, and the capacity for change in organizations.<sup>28</sup> The presence of a culture of engagement and leadership provides the foundation to foster a climate that embraces innovation, creativity and risk-taking. This is why the framework for organizational culture change first requires a high level of engaged employees, followed by a large number of employees who feel empowered to exercise leadership where they stand. Without engaged employees providing leadership all throughout the organization, it will be difficult to foster and nurture a climate of innovation.

A foundational step in building a culture of creativity and innovation is to create a climate that is accepting of failure. “If failure is a stigma, employees and leaders will not be willing to take the personal or professional risks required for innovation.”<sup>29</sup> Due to the historical nature of the work, libraries have for decades demanded perfection and order in all aspects of library work. Books must be shelved in precise order; spine labels must be affixed just so; policies must be followed to the tee. Therefore, embedded in the fabric of the industry is a resistance

to error, failure, and change. Changing this mindset is necessary in order for a library to be innovative, creative, and comfortable with taking risks.

The University Library had been historically fairly risk-averse and resistant to change; however, a new vision for the library in 2006 envisaged employees as ‘leaders and innovators in a dynamic information environment.’ This new strategic imperative that employees would be both leaders and innovators caused different sorts of conversations to occur within the organization.

Conversations centered around what would be needed in order for employees to embrace creativity, and to learn from failure. There was a commitment made to becoming a learning organization, which Senge describes as a place “...where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.”<sup>30</sup> A learning organization is one that tries something new, learns from what works and what doesn’t, and continually readjusts and regroups.

Employees identified the need to be discovery learners, described as acquiring knowledge and skills using methods of inquiry. “Being a discovery learner is an attitude or an approach ... a way of being, and includes an ability and a comfort level to experiment with new software, investigate new innovations, be self-taught (rather than waiting to be taught), take risks, research, and try new things.”<sup>31</sup>

For innovation to occur in a workplace, the five fundamental values of questioning, risk-taking, openness, patience, and trust must be present; only when these five values are working in tandem can innovation succeed.<sup>32</sup> Without risk-taking, there can be no innovation.<sup>33</sup> Conversations within the organization centered around the notion of risk-taking; questions included ‘how risky is

too risky?’, ‘should risks be educated risks,’ and ‘what will happen if a risk doesn’t work out?’ There were discussions about trust; assessing why trust was low in some areas of the organization and what could be done to improve trust.

LLDP and related leadership activities empowered employees to exercise leadership and to be creative and innovative in their work. Employees began to contribute new ideas in new ways. The motivation and process to establish a university approved research centre (the Centre for Evidence-Based Library and Information Practice: C-EBLIP) within the University Library is one example of employees contributing new ideas in new ways. With the idea of the centre (a first in Canada) coming initially from a single librarian, leadership and creativity was applied and the concept gained credibility and support within the library, leading to the eventual approval one year later of a formally recognized university research centre. C-EBLIP itself has evolved and is recognized now as an established part of the library, and there are a growing number of librarians who are actively engaged members of the centre.

Fostering innovation, creativity, and risk-taking requires engaged employees who are empowered to exercise leadership, and who are not afraid to try something new – even if there is the chance it may not work out. It is therefore incumbent on an organization to ensure that any attempts at change and innovation are celebrated, which takes us to the final step of the framework.

## **6. MONITOR PROGRESS, MEASURE SUCCESS AND CELEBRATE (EVEN THE SMALL CHANGES) ALONG THE WAY**

All too often, strategic plans embodying new directions become just words on paper and the work of the library continues unchanged. Change in such circumstances takes a back seat. Effecting change requires constant monitoring, including a continual



realignment of resources with priorities. Getting the balance right between writing the plan, implementing strategic initiatives, and monitoring and reporting progress can at times be a bit tricky. Too much time spent planning means implementation never quite happens, and moving to implementation before adequate planning has completed also has its drawbacks. That's where timely and regular monitoring of progress becomes important. Flexibility to make adjustments to timelines and projects should always be accommodated, but so too should a focus on implementing change be at the top of the list.

The establishment of some formal measures of success, or key performance indicators, can aid in the monitoring of the progress of the plan. At the University Library, a formal process for review of progress by the planning team and reporting out to library employees at regular intervals was developed alongside a publicly available Achievement Record.<sup>34</sup> Over time this record has become for the University Library a central element in a broader program of assessment activities.

Taking time along the way to celebrate even the small changes helps to further motivate project leaders, teams, and employees generally. Gestures of thanks and recogni-

tion do not always have to be on a grand scale. Often a heart-felt personalized thank you from a leader, identifying the specifics of an individual's contribution, is what is most appreciated. The University Library has learned over time that employees prefer recognition differently, and it is incumbent upon organizational members to identify the personal preferences of each other and to then tailor recognition accordingly.

At the University Library we have used small informal gestures (such as hand written thank you notes) and formal activities (such as the Dean's Award for Excellence) to help celebrate progress along the way. Preparing a record of achievement is important and over time can be a timely reminder of all of the actions taken organization-wide to effect and sustain the culture change. Finally monitoring progress, measuring success, and celebrating outcomes along the way helps to tie together all of the six stages within the organizational change framework, thus showing the integrated nature of the framework and emphasizing that work across all elements of the framework are critical to success.

#### CONCLUSION

Mossop<sup>35</sup> describes transformative change within organizations as a state that may be

visualized from the outset, but is realized only in hindsight; there comes a point in time when comparing an organization's former state to its current state that you realize that the current state is profoundly different. The culture at the University Library is profoundly different than it was a decade ago. It has taken a substantial amount of vision, planning, commitment, engagement, leadership, financial investment, and perseverance to transform the culture. It has also taken courage on the part of leaders to make tough decisions, to ensure that the right people are in the right positions to effect the desired change. This has meant ensuring that those in formal managerial and supervisory roles demonstrate strong leadership and ethical behavior. It has also required the need to demonstrate courage and personal resilience to remove those who are ineffective, disengaged, or demonstrate unethical behaviors – all which erodes trust and hampers the achievement of a healthy organizational culture.

The focus, commitment, and determination to shift the culture by developing leaders throughout the library has greatly contributed to the creation of a new progressive culture at the University Library. This new culture is characterized by: high levels of engaged employees (measured

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at 76% in 2015); employees are guided by and consistently demonstrate the organization's values in their decision making and interactions with others (71% of employees in 2015 state that members are living the library's values); employees feel empowered to exercise leadership where they stand and make decisions that support their work; there is greater appreciation for and focus on ensuring effective team functioning; employees routinely look to identify efficiencies to processes and solutions to problems; and change is embraced.

Employees demonstrate courage, resilience, and optimism on a daily basis. There is increased accountability within the library; employees demonstrate personal accountability for their work outcomes and their personal behavior, and conversely also hold one another accountable – particularly when organizational values are not adhered to. Communication and relationships are much stronger.

There are many challenges confronting libraries today. The ten-year change experience of one Canadian research library has provided the working context for this framework for organizational culture change. The framework is intended to be helpful to other library leaders in their efforts to successfully implement organizational change and evolve a culture that can sustain the library well into the future. ■

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# Says who?

## » Librarians tackle fake news

BY SHELLIE JEFFRIES, JOHN KROONDYK,  
FRANCINE PAOLINI, AND CHRISTINA  
RADISAUSKAS

**L**ike many, the librarians at Aquinas College were concerned about the impact that fake—and just plain inaccurate—news had on the political discourse surrounding the 2016 election. Our concerns intensified when, on the heels of the election, the Stanford History Education Group (SHEG) released a study (Evaluating Information: The Cornerstone of Civic Online Reasoning) that revealed the difficulties many students have in distinguishing between real facts and erroneous information.

Librarians everywhere grappled with how to best address these concerns and combat the spread of fake/inaccurate news. But we are fortunate to teach a required one-credit, eight-week information literacy course that is offered in a computer classroom during our fall and spring semesters, so we had the means to discuss the issue and reach a significant number of students. We all made a commitment to talk about problematic news in our spring semester classes and spent last December developing our lesson plans, each of us taking a very different approach. This article describes what we did, what we hoped to accomplish, what worked well, and what we might do better in the future.

### SHELLIE JEFFRIES

I wanted my students to learn more about fake news, but also to be aware of misinformation in general, the biases of media outlets, and their own confirmation bias; understand that professional journalists in the “mainstream media” have a code of ethics, which means their reporting is factual and sourced; and develop strategies for evaluating the information that comes their way on social media and elsewhere. During the 75-minute class session, I followed this lesson plan:

- After a brief discussion of confirmation bias, I initiated a Think-Pair-Share activity,



- asking students to answer and discuss these questions: Where do you go for news? What news sources do you consider reliable? What makes them reliable?
- I displayed the Society of Professional Journalists code of ethics to the class and briefly went over its main points.
- I gave students a blank copy of Vanessa Otero’s infographic of bias in news outlets, along with a list of news companies, and asked them to write in where they thought each company belonged on the spectrum. After a discussion about their choices, I revealed Otero’s version (emphasizing it was one person’s opinion). I recommended that students at least be aware of the biases of news companies and, perhaps more importantly, identify and read those publications that provide

accurate and reliable news.

- I showed (with permission) an image from the SHEG study and asked students the same questions about it that were asked in the study.
- For homework, I gave students two assignments, one asking them to thoroughly investigate a news story they found via social media (or they could use a pre-selected one) by completing a worksheet. The other directed them to read an article specifically covering fake news and answer questions about it, including listing two things they would do to combat the spread of fake news.

The responses on the assignments were very thoughtful and indicated students were developing an awareness of “bad”

» **My goal for the whole course is simple, yet not easily achievable: get students to slow down and scrutinize information before absorbing it into their knowledge base. The goal of this lesson was the same: question political (or any other kind of) news before believing and/or disseminating it.**

news, how to think critically about it, and how to avoid it. Further, in a reflection later in the course, students made these comments about the lesson:

“I found the fake news articles project to be helpful because now I can prove to my parents that the stuff they read online is false.”

“I think a big part of this course was learning that one can’t always trust what is passed down as information, be critical and analyze everything you see through a clear lens.”

“The fake article assignment was great and funny at the same time, it was hard to believe that there are really websites that supply fake news like that . . . and I would never in a million years use sites like those to use in a paper, it was very helpful in that sense.”

Given the discussion comments and results of the assignments, I feel the various parts of the lesson working together achieved the goals I had and don’t anticipate significantly modifying this lesson plan for future classes.

#### **CHRISTINA RADISKAUSKAS**

My goal for the whole course is simple, yet not easily achievable: get students to slow down and scrutinize information before absorbing it into their knowledge base. The goal of this lesson was the same: question political (or any other kind of) news before believing and/or disseminating it.

I decided to break students into five small groups and assign two-to-four readings on different aspects of the topic to each group. Students individually read all the assigned articles as homework and also submitted a written reflection on their readings. The issues discussed in the articles were:

- how/why fake news spreads so easily,
- the history of fake news/yellow journalism,
- students’ inability to detect misinformation,

- social media’s influence, and
- actual fake news articles with their rebuttals.

The following week, students were grouped according to assigned readings. I gave each group 20 minutes to discuss their impressions of the readings, and to address questions I had posed to the class. Each group then presented the content of their readings and their impressions to the class.

Reflections, conversations with others in their group, and their presentations indicated students were engaged with the content. In fact, they presented with more gusto than I normally see. Their written responses showed that overall, there was a lack of awareness about the phenomenon of fake news, and that their eyes had been opened to what’s going on. Dedicating most of one class to student presentations was time well spent, as students seemed genuinely interested in what others had to say.

Because the presentations were rough (as expected), I believe that more detailed instruction and more time to plan the presentations would have resulted in a better learning experience.

#### **JOHN KROONDYK**

I chose a very different path than my colleagues for my lesson. My goal was to unpack the term *fake news* and connect it to the use of evaluation criteria. I presented the topic informally with the aim of opening in-class discussion and placing the term in a broader context.

I began the class by displaying a phony syllabus written in the style of a webpage with ad space and clickbait. After presenting it as if it were real, I asked the students what they thought. Several students commented on how the syllabus was similar to what they see online, and I connected this to the need for evaluation criteria.

Later I asked the students what fake news means to them and whether it is a

useful term. Students defined the term as including complete falsehoods as well as stories with a grain of truth that are misrepresented.

I then explained the importance of differentiating between these four potential categories where the term might be used: Misinformation/disinformation, propaganda/bias, inflammatory misrepresentations, and advertising/clickbait. I closed by stressing the importance of specificity when evaluating sources online.

I feel that adding humor by using the fake syllabus worked well with the students, and presenting fake news within a larger context helped them make their own connections. I plan on reusing the phony syllabus and discussing it in class. That said, in the future, I may place less emphasis on fake news and simply return to the perennial need for critical evaluation. I am concerned that the term is polarizing and overused. However, if it continues to be used in popular media, I will attempt to unpack it with students in future semesters.

#### **FRANCINE PAOLINI**

My goal in teaching about fake news was similar to Christina’s: encourage students to think critically about the information they read. I began my fake news lecture by polling students to determine their awareness of the burgeoning phenomenon. For the most part, they were newly cognizant of the topic.

I then shared the International Federation of Library Association’s (IFLA) handout, “How to Spot Fake News,” and urged them to use the IFLA criteria as a set of best practices when engaging in research or even when simply scrolling through social media.

I then showed two popular election memes featuring Donald Trump and Hillary Clinton and challenged the entire class to authenticate them using their best web skills. Once they determined both memes were false, I advised them that memes often

» **Fake news, misinformation, and yellow journalism have been around for decades. As tools to combat actual fake news improve and people become more aware of it, truly made up stories may decrease and the phrase *fake news* may fade from social discourse. (Or it may become unhelpfully polarizing.)**

engage strong emotions and cautioned students to be aware that such states of mind can create a barrier to critical thinking. I emphasized that using sites like Snopes.com and FactCheck.org should be common practice when suspicions arise regarding both recurring memes and questionable news.

Following the lecture, I assigned a reading about fake news and a short related assignment, which asked students to summarize the content of the article, identify the author's claims and determine if they were credible, and comment on the value of the author's solutions to the problem of fake news.

The next week, I opened my lecture with a wrap-up discussion of the assignment.

A lively conversation ensued with many students describing an evolution in the way they had viewed their social media feeds during the previous week. Many of them admitted they had taken at face value sto-

ries viewed in their social media feeds and vowed to parse them more critically moving forward. One young man expressed he no longer trusted anything he saw online.

Overall, I found the lecture, discussion, and assignment to be valuable exercises in raising the consciousness of students about the veracity of web sources and plan to continue using them in the future.

#### CONCLUSION

Fake news, misinformation, and yellow journalism have been around for decades. As tools to combat actual fake news improve and people become more aware of it, truly made up stories may decrease and the phrase *fake news* may fade from social discourse. (Or it may become unhelpfully polarizing.)

Beyond fake news, though, with the ever-shorter news cycle, the expanding dominance of social media, and the current political environment, there is increased concern about the facile, widespread dissemination of biased, inaccurate news stories in general. It is likely that our students—and everyone else—will continue to be bombarded by them.

Thus, academic librarians, with our emphasis on information literacy and with the guidance of the Framework (particularly "Authority Is Constructed and Contextual"), have a role to play in raising awareness about specious news and in promoting strategies for thinking critically about information.

As our varied lesson plans show, there is no single approach to talking about fake news to effectively help students develop critical thinking and source evaluation skills. But our experiences discussing the issue in our course and the responses of our students indicate that it is worthwhile to address the challenges of identifying misleading, inaccurate, biased news, no matter what you end up calling it. ■

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**FAKE NEWS**

# Academic Libraries on Social Media:

» Finding the Students and the Information They Want

BY HEATHER HOWARD, SARAH HUBER, LISA CARTER, AND ELIZABETH MOORE

## INTRODUCTION

In his book *Tell Everyone: Why We Share and Why It Matters*, Alfred Hermida states, “People are not hooked on YouTube, Twitter or Facebook but on each other. Tools and services come and go; what is constant is our human urge to share.”<sup>1</sup> Libraries are places of connection, where people connect with information, technologies, ideas, and each other. As such, libraries look for ways to increase this connection through communication. Social media is a key component of how students communicate with classmates, families, friends, and other external entities. It is essential for libraries to communicate with students regarding services, collections, events, library logistics, and more.

Purdue University is a large, land-grant university located in West Lafayette, Indiana, with an enrollment of more than forty thousand. The Purdue Libraries consist of nine libraries, presented collectively on the social media platforms Facebook and Twitter since 2009 and YouTube since 2012. Going forward, the Purdue Libraries want to ensure it establishes a cohesive message and brand that is communicated to students on platforms they use and on which they will engage with it. The purpose of this study was to determine which social media platforms the students are currently using, which platforms they would like the library to use, and what content they would like to see from the libraries on each of these platforms.

## LITERATURE REVIEW

### *Academic Libraries and Social Media*

Academic libraries have been slow to accept social media as a venue for either promoting their services or academic purposes. A 2007 study of 126 academic librarians found that only 12 percent of those sur-



veyed “identified academic potential or possible benefits” of Facebook while 54 percent saw absolutely no value in social media.<sup>2</sup> However, the mission of academic libraries has shifted in the last decade from being a repository of knowledge to being a conduit for information literacy; new roles include being a catalyst for on-campus collaboration and a facilitator for scholarly publication within contemporary academic librarianship.<sup>3</sup> Academic librarians have responded to this change, with many now believing that “social media, which empowers libraries to connect with and engage its diverse stakeholder groups, has a vital role to play in moving academic libraries beyond their traditional borders and helping them engage new stakeholder groups.”<sup>4</sup>

### *Student Perceptions about Academic Libraries on Social Media*

As the use of social media has grown with college-aged students, so has an increasing acceptance of academic libraries using social media to communicate. A Pew Research Center report from 2005 showed just 7 percent of eighteen to twenty-nine year olds using social media. By 2016, 86 percent were using social media.<sup>5</sup> In 2007 the OCLC asked 511 college students from six different countries to share their thoughts on libraries using social networking sites. This

survey revealed that “most college students would be unlikely to participate in social networking services offered by a library,” with just 13 percent of students believing libraries have a place on social media.<sup>6</sup>

However, just two years later (in 2009), a shift was seen: students were open to connecting with academic libraries, as observed in a survey of 366 freshmen at Valparaiso University. When asked their thoughts on the library sending announcements and communications to them via Facebook or MySpace (a social media powerhouse at the time), 42.6 percent answered they would be “more receptive to information received in this way than any other response.” A smaller group, 12.3 percent, responded more negatively to this approach. Students showed concern for their privacy and the level of professionalism, as a quote from a student illustrates: “Facebook is to stay in touch with friends or teachers from the past. Email is for announcements. Stick with that!!!”<sup>7</sup>

As students report becoming more open to academic libraries on social media, the question of whether they will engage through social media emerges. A recent study from Western Oregon University’s Hammersley Library asked this question with promising results. Forty percent of students said they were either “very likely” or “somewhat likely” to follow the library on Instagram and Twitter, as opposed to wanting communications being sent to them directly through social media (for example, a Facebook message). Pinterest followed, with 33 percent of students saying they were either “very likely” or “somewhat likely” to follow the library using this platform.<sup>8</sup> Throughout the literature, students have shown an interest in information about the libraries that is useful to them. In another survey given to undergraduate students from three information technology classes at Florida State University, one question examined the perceived importance of different library social media postings to students. The report

showed students considered postings related to operations updates, study support, and events as the most important.<sup>9</sup> In the Hammersly study noted above, 78 percent and 87 percent of respondents said they were either “very interested” or “somewhat interested,” respectively, in every category relating to library resources presented in the survey, but “interesting/fun websites and memes” received the least interest from participants.<sup>10</sup>

The literature shows an increase in students being receptive to academic libraries on social media. Results vary campus to campus and students are leery of libraries reaching out to them via social media, but they have an increasingly positive view about content posted that will help them with the library.

### RESEARCH QUESTIONS

The aim of this project was to investigate the social media behaviors of Purdue University students as they relate to the libraries, and to develop evidence-based practices for managing the library’s social media accounts. The project focused on three research questions:

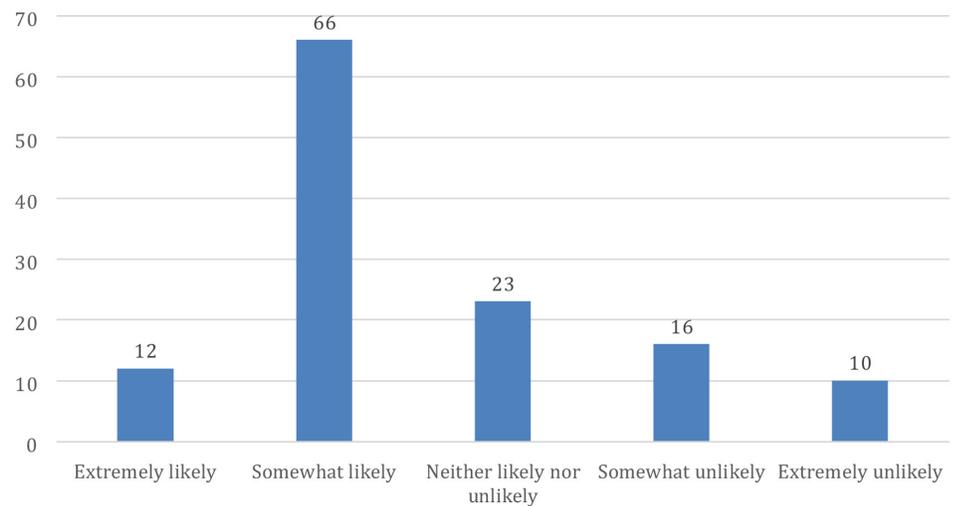
1. What social media platforms are students using?
2. What social media platforms do students want the library to use?
3. What kind of content do students want from the library on each of these platforms?

### METHODS

We created the survey using the web-based Qualtrics survey software. It was distributed in electronic form only, and it was promoted to potential respondents via table tents in the libraries, bookmarks at the library desk, Facebook posts, and in-classroom promotion. Potential respondents were advised that the survey was anonymous and voluntary.

The survey consisted of closed questions, though many questions contained an open-ended field for answers that did not fall into the provided choices. Inspiration for some of the options in our survey questions came from the Hammersly Library study, as we felt they did a good job capturing information about the social media usage of their patrons.<sup>11</sup> Our survey asked what social media platforms students use, what they use them for, how often they visit the library, how likely they are to follow the library on social media,

**Figure 1. Library social media follows.**



which platforms they want the library to have, and what content they would like from the library on each of those platforms. The social media platforms included were Facebook, Flickr, G+, Instagram, LinkedIn, Pinterest, Qzone, Renren, Snapchat, Tumblr, Twitter, YouTube, and Yik Yak.<sup>12</sup> There were also open-ended spaces where participants could write in additional platforms. The survey originally ran for three weeks in only the business library early in the spring 2017 semester, as its intended purpose was to inform how the business library would manage social media. After that survey was completed, we decided to replicate the survey in three additional libraries (humanities, social science, and education; engineering; and the main undergraduate libraries). This was done to expand the dataset and reach additional students in a variety of disciplines. These libraries were chosen because they were the libraries in which the authors work, with the hope to expand to additional libraries in the future. The second survey also lasted for three weeks starting in mid-April of the spring 2017 semester. As a participation incentive, students who completed the initial survey and the second survey had an opportunity to enter a drawing for a \$25 Visa gift card.

The survey was advertised across four different campus libraries and promoted in several ways to reach different populations. Though the results are not from a random sample of the student population, the results are broad enough that we intend to apply them to our entire student population.

### RESULTS

#### Survey

The survey was completed by 128 students. An additional 13 students began the survey but did not complete it; we removed their results from the analysis. The breakdown of respondents was 10 percent freshmen ( $n = 13$ ), 22 percent sophomore ( $n = 28$ ), 27 percent junior ( $n = 35$ ), 20 percent senior ( $n = 25$ ), and 21 percent graduate or professional ( $n = 27$ ).

#### Library Usage

The students were asked how frequently they visit the library to determine if the survey was reaching a population of regular or infrequent library visitors. The results showed that the students who completed the survey were primarily frequent library users, with 93 percent ( $n = 119$ ) visiting once a week or more.

#### Social Media Platforms

The students were asked to identify which social media platforms they used and how frequently they used them. The most popular social media platforms were determined by combining the number of students who said they used them daily or weekly. The top five were Facebook ( $n = 114$ , 88 percent), YouTube ( $n = 102$ , 79 percent), Snapchat ( $n = 90$ , 70 percent), Instagram ( $n = 85$ , 66 percent), and Twitter ( $n = 41$ , 32 percent). Full results are in **table 1**.

#### Social Media Activity

Next, students were asked how much time they spend on social media doing the following activities: watching videos, keep-

# Table 1. Usage frequency by platform

Social Media Platform	Daily	Weekly	Monthly	< Once per Month	Never
Facebook	94 (72.87%)	20 (15.50%)	5 (3.88%)	5 (3.88%)	4 (3.10%)
Flickr	0 (0.00%)	1 (0.78%)	2 (1.55%)	8 (6.20%)	117 (90.70%)
G+	3 (2.33%)	6 (4.65%)	4 (3.10%)	16 (12.40%)	99 (76.74%)
Instagram	68 (52.71%)	17 (13.18%)	5 (3.88%)	11 (8.53%)	27 (20.93%)
LinkedIn	9 (6.98%)	29 (22.48)	22 (17.05%)	22 (17.05%)	46 (35.66%)
Pinterest	12 (9.30%)	12 (9.30%)	16 (12.40%)	19 (14.73%)	69 (53.49%)
Qzone	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (3.10%)	124 (96.12%)
Renren	0 (0.00%)	0 (0.00%)	1 (0.78%)	3 (2.33%)	124 (96.12%)
Snapchat	84 (65.12%)	6 (4.65%)	6 (4.65%)	7 (5.43%)	25 (19.38%)
Tumblr	7 (5.43%)	2 (1.55%)	7 (5.43%)	11 (8.53%)	101 (78.29%)
Social Media Platform	Daily	Weekly	Monthly	< Once per Month	Never
Twitter	28 (21.71%)	13 (10.08%)	12 (9.30%)	9 (6.98%)	66 (51.16%)
YouTube	58 (44.96%)	44 (34.11%)	15 (11.63%)	4 (3.10%)	7 (5.43%)
Yik Yak	0 (0.00%)	0 (0.00%)	0 (0.00%)	11 (8.53%)	117 (90.70%)
Other: Email	1 (0.78%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Other: Groupme	3 (2.33%)	1 (0.78%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Other: Reddit	2 (1.55%)	2 (1.55%)	0 (0.00%)	0 (0%)	0 (0.00%)
Other: Skype	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.78%)	0 (0.00%)
Other: Vine	0 (0.00%)	1 (0.78%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Other: Wechat	3 (2.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Other: Weibo	1 (0.78%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Other: Whatsapp	1 (0.78%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

ing in touch with friends/family, sharing photos, keeping in touch with classmates/professors, learning about campus events, doing research, getting news, or following public figures. **Table 2** shows that students overwhelmingly use social media daily or weekly to watch videos (94 percent,  $n = 120$ ), keep in touch with family/friends (93 percent,  $n = 119$ ), and to get news (81 percent,  $n = 104$ ). The least popular activities, those that students do less than once per month or never, were research (47 percent,  $n = 60$ ) and to following public figures (34 percent,  $n = 45$ ).

### Social Media and the Library

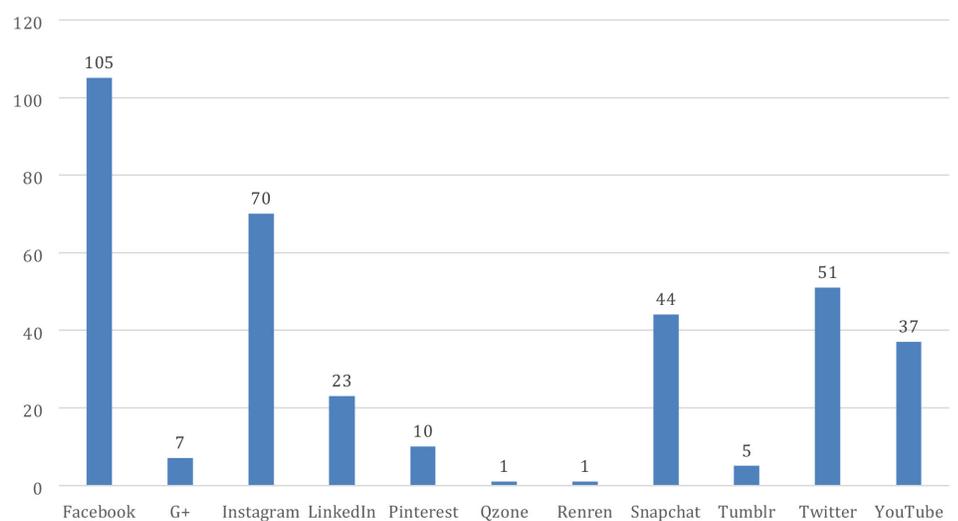
The students were asked how likely they are to follow the libraries on social media. The response to this was primarily positive, with 57 percent of respondents saying they are either extremely likely or somewhat likely to follow the library. One response for this question was inexplicably null, so for this question  $n = 127$ . **Figure 1** contains the full results.

The students were asked which social media platforms they thought the library

should be on. Five rose to the top of the results: Facebook (82 percent,  $n = 105$ ), Instagram (55 percent,  $n = 70$ ), Twitter (40 percent,  $n = 51$ ), Snapchat (34 percent,  $n = 44$ ), and YouTube (29 percent,  $n = 37$ ). Full results can be seen in **figure 2**. After a student

selected a platform they wanted the library to be on, logic built into the survey then directed them to an additional question that asked what content they would like to see from the library on that platform. Content included library logistics (hours, events, etc.),

## Figure 2. Library social media presence



## Table 2. Social media activity

Social Media Activity	Daily	Weekly	Monthly	< Once per Month	Never
Watch videos	85 (66.41%)	35 (27.34%)	1 (0.78%)	4 (3.13%)	3 (2.34%)
Keep in touch with friends/family	89 (69.53%)	30 (23.44%)	6 (4.69%)	2 (1.56%)	1 (0.78%)
Share photos	32 (25%)	33 (25.78%)	38 (29.69%)	20 (15.63%)	5 (3.91%)
Keep in touch with classmates/professors	34 (26.56%)	47 (36.72%)	21 (16.41%)	19 (14.84%)	7 (5.47%)
Learn about campus events	24 (18.75%)	53 (41.41%)	29 (22.66%)	18 (14.06%)	4 (3.13%)
Do research	24 (18.75%)	26 (20.31%)	18 (14.06%)	23 (17.97%)	37 (28.91%)
Get news	66 (51.56%)	38 (29.69%)	7 (5.47%)	9 (7.03%)	8 (6.25%)
Follow public figures	34 (26.56%)	30 (23.44%)	20 (15.63%)	19 (14.84%)	24 (18.75%)
Other	2 (1.56%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

research techniques and tips, how to use library resources and services, library resource info (database instruction/tips, journal availability, etc.), business news, library news (e.g., if the library wins an award), campus-wide info/events, and interesting/fun websites and memes. For Facebook, students widely selected all types of content, with the most selections made for library logistics ( $n = 73$ ) and the fewest made for business news ( $n = 33$ ). For Instagram, students wanted all content except business news ( $n = 18$ ). Snapchat was similar, except along with business news ( $n = 8$ ), students also were not interested in receiving content related to library resource information ( $n = 9$ ). Twitter was similar to Facebook in that all content was widely selected. YouTube had a focus on library services, with the three most-selected content options being research techniques and tips ( $n = 20$ ), how to use library resources and services ( $n = 19$ ), and library resource info ( $n = 16$ ). **Table 3** contains the full results.

### DISCUSSION

Historically, libraries have used social media as a marketing tool.<sup>13</sup> With social media's everincreasing popularity with young adults, academic libraries have actively established a presence on several platforms.<sup>14</sup> Our survey shows that our students follow this trend, using social media regularly and for a variety of activities. We were surprised that Facebook turned out to be the most widely used by our students, as much has been written in the last few years about teens and young adults leaving the platform.<sup>15</sup> A November 2016 survey, however, found that 65 percent of teens said they used Facebook daily, a large increase from 59 percent in November 2014. Though Snapchat and Instagram preferred, teens continue to use

Facebook for its utility in scheduling events or keeping in touch regarding homework.<sup>16</sup> Students do seem receptive to following the library on different platforms and report wanting primarily library-related content from us, including more in-depth content such as research techniques and database instruction.

### LIMITATIONS AND FUTURE WORK

Findings from this study give insight into opportunities for libraries to reach university students through social media. We acknowledge that only limited generalizations can be made because of the way the survey was conducted. Our internal recruitment methods led to a selection bias in our surveyed population, as advertisement of the survey took place either in the chosen libraries or on the Purdue Libraries' existing Facebook page. Because of this, our sample consists primarily of students who visit the library or already follow the library on Facebook. We hope to alter this in future surveys by expanding our recruitment to other physical spaces across campus. In addition, we plan to add questions that first establish a better understanding of students' opinions of libraries being on social media before asking what social media they would like to see libraries use. This would potentially avoid leading students to an answer. Further, we are concerned we took for granted students' understanding of library resources; that is, we may have made distinctions librarians understand, but students may not. In future studies, we plan to rephrase, and possibly combine, questions in a way that will be clear to people less familiar with library resources and services. We believe confusion with these questions created contradictory responses. For example, "research help through social media" received a low response rate,

but "information on research techniques and tips" received a much higher response rate. Additionally, a limitation of using a survey to collect behavior information is that respondents do not always report how they actually behave. Using methods such as focus groups, interviews, text mining, or usability studies could provide a more holistic view of student behavior. Duplication of this study on a yearly or semi-yearly basis across all libraries could help us see how social media preferences change over time and across a larger sample of our population. This study aimed to provide a broad view of a large university's student body by surveying across different subject libraries. With the changes discussed, we think a revised survey could give us the detailed information we need to build a more effective social media strategy that reaches both library users and non-users.

### CONCLUSION

This study improved our understanding of the social media usage and preferences of Purdue students. From these results, we intend to develop better communication channels, a clear social media presence, and a more cohesive message across the Purdue libraries. Under the direction of our new director of strategic communication, a social media committee was formed with representatives from each of the libraries to contribute content for social media. The committee will consider expanding the Purdue Libraries' social media presence to communication channels where students have said they are and would like us to be. As social media usage is ever-changing, we recommend repeated surveys such as this to better understand where on social media students want to see their libraries and what information they want to receive from them. ■

### Table 3. Library social media content by platform

What type of content would you like to see from the library?									
Content Type	Facebook (n=105)	G+ (n=7)	Insta- gram (n=70)	LinkedIn (n=23)	Pinterest (n=10)	Snapchat (n=44)	Tumblr (n=5)	Twitter (n=51)	YouTube (n=37)
Library logistics (hours, events, etc.)	73 (69.52%)	2 (28.57%)	34 (48.57%)	7 (30.43%)	4 (40%)	23 (52.27%)	2 (40%)	32 (62.75%)	8 (21.62%)
Research techniques & tips	52 (49.52%)	3 (42.85%)	28 (40%)	13 (56.53%)	7 (70%)	19 (43.18%)	3 (60%)	27 (52.94%)	20 (54.05%)
How to use library re- sources & services	53 (50.48%)	3 (42.85%)	26 (37.14%)	8 (34.78%)	7 (70%)	16 (36.36%)	3 (60%)	25 (49.02%)	19 (51.35%)
Library resource info (database instruction/tips, journal availability, etc.)	53 (50.48%)	3 (42.85%)	22 (31.42%)	8 (34.78%)	6 (60%)	9 (20.45%)	2 (40%)	23 (45.10%)	16 (43.24%)
Business news	33 (31.43%)	2 (28.57%)	18 (25.71%)	13 (56.52%)	3 (30%)	8 (18.18%)	2 (40%)	17 (33.33%)	7 (18.92%)
Library news (e.g., if the library wins an award)	49 (46.67%)	3 (42.85%)	37 (52.86%)	12 (52.17%)	5 (50%)	19 (43.18%)	3 (60%)	24 (47.06%)	7 (18.92%)
Campus-wide info/events	73 (69.52%)	3 (42.85%)	42 (60%)	5 (21.74%)	5 (50%)	26 (59.09%)	2 (40%)	35 (68.63%)	13 (35.14%)
Interesting/fun websites & memes	48 (45.71%)	0	41 (58.57%)	2 (8.70%)	10 (100%)	30 (68.18%)	3 (60%)	26 (50.98%)	12 (32.43%)
Other	1 (0.95%)	0	2 (2.86%)	0	1 (10%)	2 (4.55%)	0	2 (3.92%)	1 (2.70%)

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# Utilizing Student Workers at the Digital Library of Georgia

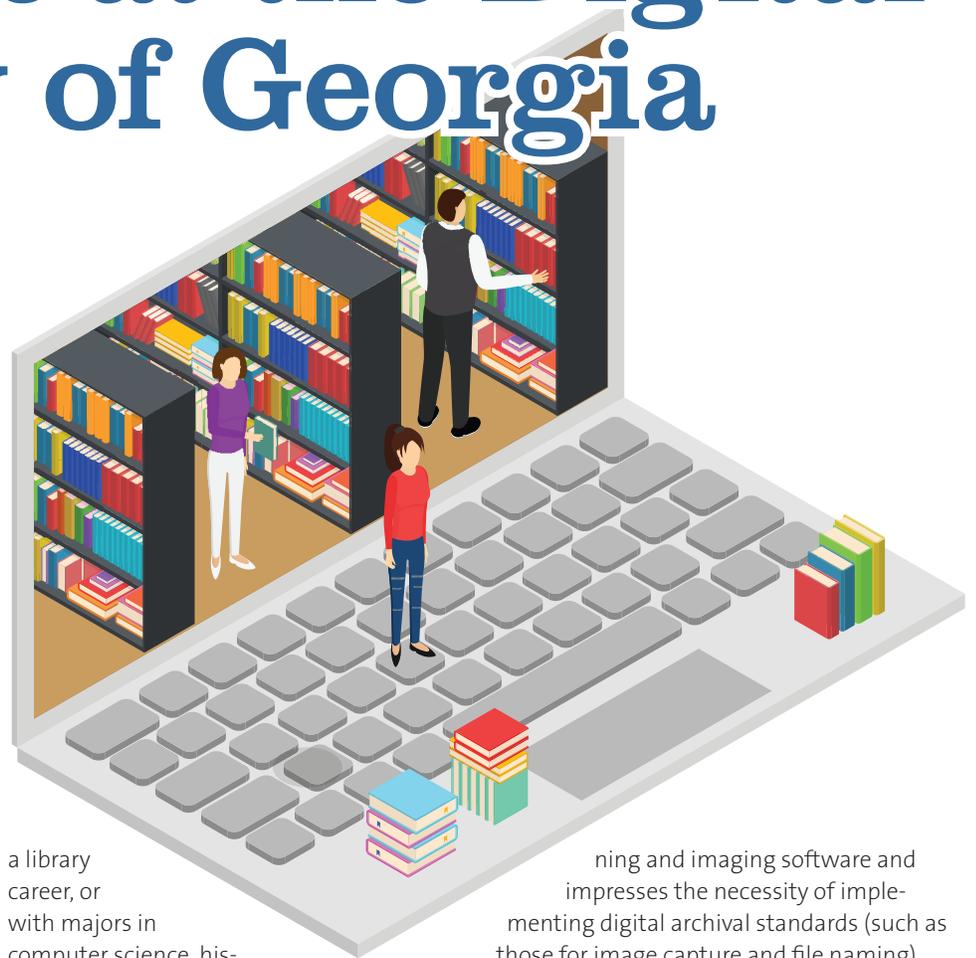
BY MANDY L. MASTROVITA AND DONNIE SUMMERLIN

## INTRODUCTION

Like many other library departments in higher education, digital libraries depend upon student workers to accomplish tasks that in previous days would have been assigned to professional staff members. This paper describes how the Digital Library of Georgia (DLG) hires, trains, manages, and mentors student workers. Student employees at the DLG have included undergraduate students and graduate students in MLIS programs; we have addressed these varying levels of skill and experience in incorporating the students into different project workflows. We discuss hiring procedures and instruction in the following digital library areas: handling archival materials, digital imaging, basic metadata entry, more advanced metadata remediation, subject analysis, and social media/promotion. We examine how cross training students in different task areas has improved efficiency, and provide examples of how we have encouraged student workers to pursue fulfilling library careers.

## HIRING PROCEDURES

When hiring student employees, the DLG's job description emphasizes a need for students with technological skills and great attention to detail. We send a questionnaire to every applicant requesting information about their major, schedule, work experience, and grade point average. Manley and Holley (2014, 80) argue in their article "Hiring and Training Work-Study Students: A Case Study," that it is "more likely for students who are serious about their studies to be serious about their jobs." The DLG has certainly found this to be true and heavily emphasizes a student's grade point average when selecting applicants to interview. Ideally, we search for students interested in



a library career, or with majors in computer science, history, journalism, and English, but are willing to hire students with various interests if they are exceptional candidates. During the interview process, we ask more in-depth questions and administer an editing test to assess their attention to detail. Our hiring process has proven extremely successful and has resulted in high quality employees and excellent retention rates.

## IMAGING

The DLG often asks students to scan government documents, crop newspaper page and archival document images, and rename digital image files. Imaging is perhaps the most integral step in producing and delivering online digital materials and requires a great level of attention to detail. If digital images are improperly captured or delivered, it can be more expensive and troublesome to fix the problem once a project is complete. Imaging work introduces students to scan-

ning and imaging software and impresses the necessity of implementing digital archival standards (such as those for image capture and file naming), all important to learn before students are assigned more complex tasks in the overall digitization workflow.

## HANDLING ARCHIVAL MATERIALS

Since students are working with sensitive materials the same way a professional archivist would, the DLG trains them in many of the principles of archival work. Students are required to sign an expectations and responsibilities form that emphasizes the security and safeguarding of archival materials. They are also required to read through a set of workflow instructions that require them to handle items with clean, dry hands, or, when encountering materials sensitive to direct handling, to wear cotton gloves, and to turn pages gently. Additionally, the students learn not to rearrange the order of items in the folders and boxes that materials arrive in. Staff members also teach the students how to operate

## » To meet the growing needs of the DLG, it has become necessary to train students in multiple technical duties, including imaging, metadata, quality control, and the scanning of archival materials.

the scanners and set file structures for the resulting digital files.

In addition to the added responsibility of handling archival materials, it can also be rewarding and educational for the students involved. As Miller and Morton (2012) suggest in their article “Hidden Learning: Undergraduates at Work in the Archives,” hiring students to work in an archival setting provides “an exceptional opportunity for applied learning under the guidance of professional archivists who can provide for the growth of intellectual and practical skills.” In a digital library, the opportunity includes the added dimension of connecting their understanding of history with the expanding digital world that they were born into.

### **METADATA**

Emily Gainer and Michelle Mascaro’s 2014 case study “Faster Digital Output: Using Student Workers to Create Metadata for a Grant-Funded Project” closes a gap in library and archival literature on determining what kind of metadata work can successfully be delegated to student workers; their grant project involved simpler tasks, such as creating inventories, and more complex work, such as the assignment of subject headings.

The DLG assigns numerous descriptive metadata tasks to undergraduate students that are simple, such as transcriptions and editing XML elements that cannot be adjusted with regular expressions. Some tasks require more judgement and training. We also work with MLIS graduate students who have been introduced to digital library and cataloging work, assigning them advanced tasks that apply cataloging and metadata best practices. Their work includes analyzing and remediating harvested XML records for inclusion in the DLG’s portal. Upgrading these records involves editing Dublin Core fields to ensure that the data complies with the DLG’s metadata guidelines and applying Library of Congress subject headings. Training the graduate student involved showing her how to harvest records, to use tools to quickly make changes to multiple records, to familiarize her with our metadata guidelines, and to enhance Georgia-specific data

in our subject headings. Shan Lorraine Martinez (2014, 557) notes in her article “Training Tech Services’ Student Employees Well: Evidence-based Training Techniques in

Conjunction with Coaching and Mentoring Strategies” that “Along with direct, face-to-face instruction or blended training methods, the supervisor should provide a written training manual. Easy accessibility in the form of a blog or LibGuide may encourage use at the point of need.”

Our metadata guidelines are made available in our departmental wiki. We also provided our graduate student with examples of records to refer to as she grasped concepts moving forward. We showed her how to use ClassificationWeb for subject analysis and taught her how basic text editing programs could be used for running regular expressions and editing the XML records. Martinez (2014, 557) also recommends “...when initiating the employee training process, supervisors should remember the challenges they themselves met while acquiring all the information they needed to know in order to perform their jobs competently..Overloading new employees with too much detailed information in training sessions will result in mistakes and frustration.” With this in mind, we worked together with the student on several smaller groups of records, so that she could incrementally build her confidence and feel comfortable asking questions as she referred to her written training materials.

Conversion project for veteran students

As students demonstrate increased proficiency in their work, the DLG often assigns them more complex and diversified tasks. A recent example of this is one student’s work on a digital newspaper conversion project. The DLG has been working to reformat our newspaper archive sites to make them more user-friendly, which involved training an experienced student to learn and execute a conversion workflow, a responsibility previously reserved for staff members. This workflow included the use of optical character recognition software to create full text XML records for user searching. She also learned to use imaging software to produce newspaper page derivatives (PDF, JPEG, and

JPEG 2000 files). Additionally, the student was responsible for adding image dimension fields to our pre-existing metadata and altering other fields to meet changing technical requirements. This student’s work led to a significant increase in the rate of conversion and the completion of several projects ahead of schedule, and resulted in her winning a University of Georgia Top 100 Student Employee Award.

### **CROSS TRAINING**

To meet the growing needs of the DLG, it has become necessary to train students in multiple technical duties, including imaging, metadata, quality control, and the scanning of archival materials. Cross-training has improved efficiency and has given us the ability to assign students to different projects as funding shifts and deadlines approach. Draper, Hall, Oswald, and Renfro (2008), in their article “Student Workers: Cross Training in the Academic Environment,” discuss the benefits training students in the various service points at Stephen F. Austin State University’s Steen Library. They conclude that cross training students and assigning them to different departments (in the DLG’s case, different projects) improves flexibility and keeps students interested in their work. This has certainly been the case at the DLG, where cross training students has been beneficial both to the efficiency of the department and the employment experience of our students.

### **SOCIAL MEDIA**

We give some students the opportunity and time to research the many collections that the DLG makes available online and construct their own Facebook posts from items they have found to be intriguing. We give them basic parameters (to write professionally and to convey the breadth of our collections). Social media assignments provide students with the opportunity to develop a more global view of DLG projects and project partners. Students have had the most direct input with our “Throwback Thursday” project, which has allowed students to compose posts on their own and to develop a professional social media voice.



We have utilized a Google spreadsheet so that students can “bank” future posts and staff can still perform quality control. As Hagman and Carleton (2014, 243) note in their article “Better Together: Collaborating with Students on Library Social Media,” it is important to appreciate “that sometimes their voice or approach to developing content may not always be the same as your own.” We try to recognize that a student’s approach to a Facebook post may be more casual than that of a librarian or archivist, but it may also convey a liveliness that appeals to our readers.

#### IMPACT ON STUDENTS’ CAREERS

Research suggests that one of the most significant factors influencing a library student worker’s decision to join the library profession is a positive workplace environment (Maxey-Harris, Cross, McFarland 2010). The DLG has embraced this approach toward attracting students to the profession. We have incorporated a successful supervision strategy over the past decade that emphasizes positive reinforcement, constructive criticism, and diversification of the work experiences of the students through cross training. A majority of students hired during the past decade have remained with the DLG until their graduation. The high retention rate not only reduces the inefficiency of training new employees, but also exposes the students to a positive library environ-

ment for a longer time. As a result, several of the organization’s student employees have gone on to careers in the library field.

Digital libraries can also play a unique role in broadening the definition of librarianship to student employees and potential future librarians. Reference and circulation librarians are most commonly associated with the profession due largely to the public nature of their work. As a result, students frequently identify librarianship with those roles. One former student employee who became a private school librarian remembered, “The DLG was my first experience working around the field, and it was surprising to see how many different definitions a librarian could have. I liked the idea of having a career that could be so multifaceted, and the field has definitely been shifting and changing as technology becomes more integral in our lives.” This diversification of the identity of librarianship is a valuable tool for attracting students who might find interest in lesser known aspects of the profession.

#### CONCLUSION

Thanks to the efforts of our student workers, the DLG manages to consistently work towards satisfying the demand for online cultural heritage resources. Our success has come from recruiting students who have performed well academically, providing them with basic training in archival

principles and digitization standards, and gradually building upon those skills by training them to perform more complex tasks, such as conversion projects or metadata remediation. Through cross training, these students become familiar with different projects and further engage themselves with our department. We then solicit the input of deeply immersed students to promote our resources through social media. All the while, we mentor them as colleagues and encourage them to further their professional interests in libraries and archives.

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# 3D Printing in Makerspaces: Health and Safety Concerns

BY NEELAM BHARTI

## INTRODUCTION

As technological horizons have expanded, libraries have embraced changing responsibilities. Shifting information paradigms have inspired libraries to be more engaged and creative. Makerspaces are a great way to engage library users to help the community learn about emerging technologies. Since the inception of the first official makerspace in a New York public library, makerspaces have become popular at media centers, public libraries, and academic libraries (A Librarian's Guide to Makerspaces). Makerspaces are known by a variety of names including fab labs and hack labs and contain a variety of creative resources and technologies. 3D printers are often an important part of makerspaces because they support increased user interaction with technology, community collaboration, and individual entrepreneurship. 3D printing in libraries and makerspaces enables patrons to learn new technology and reinforces learning with hands-on projects. This experience could inspire future engineers, designers, or entrepreneurs while giving them a head start in highly specialized fields.

## HISTORY OF 3D PRINTING

3D printing has been around since the early 1980s when Hideo Kodama studied and reported the manufacturing of a printed solid model with additive manufacturing (Kodama 1981). Charles Hull in the 1980s used rapid prototyping technology for creating prototypes at a faster rate for industries (Chuck Hull 2013). Modern 3D technique came into existence in 1986 when the .stl (STereoLithography or Standard Tessellation Language) file format of a model was created using CAD software. The first commercial 3D printer, SLA 250, became available to the public in 1988. In 1990, Scott Crump

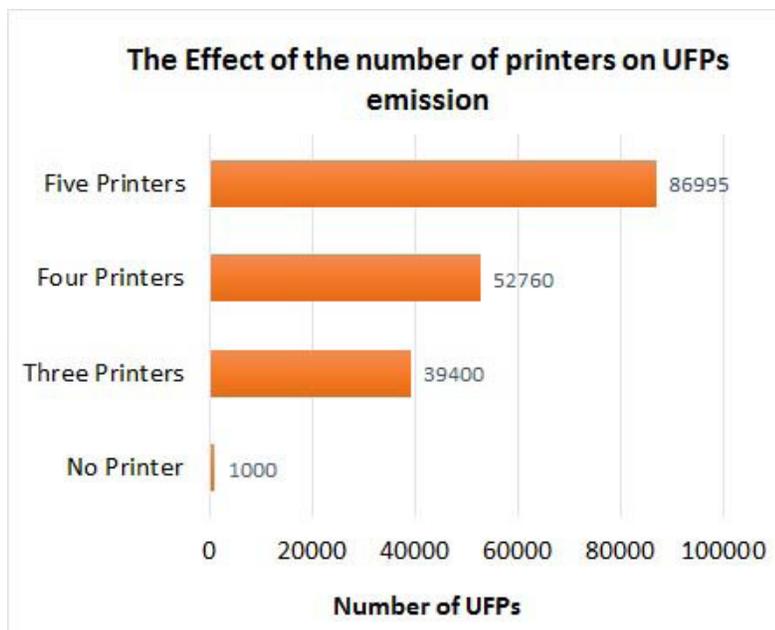


Figure 1: The effect of the number of printers in operation on UFPs emission

invented Fused Deposition Modelling (FDM) technology and founded Stratasys (3D Systems 2013). The name "3D printer" was coined by MIT professor Michael Cima in 1993 and was used to describe a printer which could use plastic, metal, or ceramics to print a 3D object (Bharti & Singh 2017). In recent years, 3D printers have become tremendously popular and affordable. Various 3D printing instruments are available using several types of technology and with different material options (Types of 3D Printers). Low-cost desktop versions have made 3D printing technology widely available at home and in the office.

## 3D PRINTING TECHNOLOGY, MATERIAL, AND APPLICATIONS

The 3D printing process involves using a virtual model of an object created in computer-aided design (CAD) software as a digital file. The printer software slices the file into hundreds of layers. The printer follows the

sliced model and prints the object by adding successive layers of printing material on top of others until the model is completed. Printing materials used for 3D printing are influenced by printer design and machine capability. Material used for printing includes resin, powder, and live cells. 3D printing is used across disciplines in education and research (Bharti & Singh 2017).

## HEALTH AND SAFETY CONCERNS

Most makerspaces use fused deposition modeling (FDM)-3D printers and thermoplastic filaments as printing material. The FDM technique employs melted thermoplastic extruded through a nozzle to build the model. Thermoplastic melting at a high temperature causes the emission of organic fumes containing several harmful byproducts, including phenol and styrene. If the binding agent is polycarbonate based, phenol would be a thermal degradation by-product, which is corrosive and carcinogenic

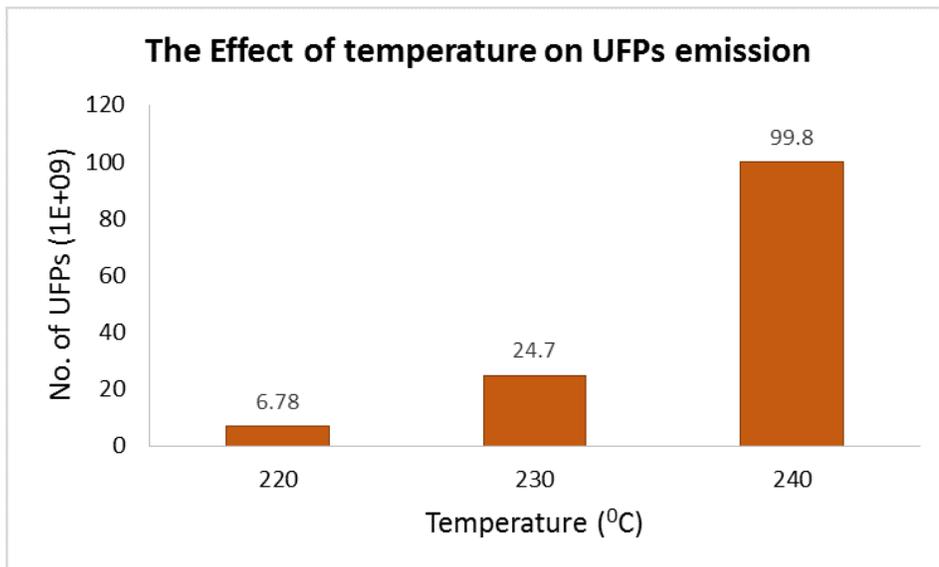


Figure 2: The effect of temperature on UFPs emission (Stephen et al 2013)

in nature (Davis & Golden 1967). When PLA and ABS are heated above 220°C to extrude through the nozzle, a large amount of ultrafine particles (UFPs) and volatile organic compounds (VOCs) are generated (Bharti & Singh 2017; Azimi et al. 2016). The number of UFPs is directly related to the number of printers in use. Bharti et al. studied the trend and impact of the number of printers on UFP emission in libraries. The average number of UFPs rose from 1,000 (no printer) to 86,995 when five printers were in use (Figure 1) (Bharti & Singh 2017).

Temperature plays an important part in UFP emission. Stabile et al. compared the particle emission using PLA heated at different temperatures (Stabile et al. 2016). A 200°C increase in printing temperature, from 220°C to 240°C, increased the UFP emission 16-fold (Figure 2). Other studies also support the observed trend (Stephens et al. 2013). There is a good chance that ABS may be more harmful than PLA, due to higher emissions and likely higher toxicity. It is too early to conclude, but emission from 3D printers could potentially be compared to second-hand smoking (Horn 2013).

Since most makerspaces use ABS and PLA

as printing material, UFPs emitted from 3D printers are a big health concern. When inhaled, these UFPs can end up in body organs and may cause inflammation in the respiratory system and lungs and may possibly reach the bloodstream (Delfino et al. 2005; Anderson et al. 2010; Shead 2013). Elevated UFP concentration is linked to adverse health effects including cardio-respiratory mortality, hospital admissions, stroke, and asthma symptoms. In addition to UFP emission, ABS produces a distinctive smell when heated, causing headaches and respiratory and eye irritation in sensitive people. Some studies show that ABS fumes are toxic to rats and mice (Oberdörster et al. 1995).

Initial studies stated that PLA might be safer than ABS, but a recent study by Steinle showed that PLA emits a higher number of ultrafine aerosol (UFA) particles than ABS (Steinle 2016). UFA emission doubled from PLA and quadrupled from ABS from the same printer once it was used for a few months. Although there is no confirmed evidence, elevated UFP emission could be due to the age of the printer, but more studies are needed to confirm this relationship.

There is a dire need for targeted research

on the environmental impact of 3D printing technology in libraries and makerspaces. Many research reports are available on UFP emission from desktop 3D printers, but there are not many studies undertaken in libraries. The availability of such research could help address the potential harmful impact of 3D printing on the user's health and library environment. There are no evidence-based guidelines for makerspace design and implementation. Designing a working makerspace depends on the coordinator's knowledge, which is generally based on scattered information. There should be standard guidelines for makerspaces in libraries and media centers. Implementation of 3D printing services is exciting and scary at the same time. Libraries need to understand that 3D printing will need policies beyond regular material checkout and circulation procedures to deal with real issues of health and safety. Most manufacturers say that 3D printing material is safe and quote the Safety Data Sheet for the safety analysis. The Safety Data Sheet contains material data analysis at the ambient temperature; when PLA or ABS are subjected to printing temperature (220-240°C), the safety analysis changes.

#### RISK ASSESSMENT AND RECOMMENDATIONS

3D printing services in libraries are a health and safety concern because of the various hazards associated with 3D printers and the number of people working in the space. In makerspaces, establishing proper policies should be the first step to ensure the safe use of 3D printing in libraries. To control any hazards, good user training and following proper operating procedures is very important to develop a culture of safety. All users should be well aware of the hazards associated with the 3D printers and printing materials, and procedures to be used. Due to the emission of UFPs and VOCs, the 3D printers should be used in a well-ventilated area. Most desktop 3D printers do not have

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» **FDM-based 3D printers in makerspaces are becoming a health and safety concern due to the emission of UFPs and VOCs. Before including 3D printers in makerspaces, a proper risk assessment should be performed, the manufacturer guidelines should be followed, and only the recommended materials should be used for printing.**

exhaust ventilation accessories though there are commercial enclosures with filtration systems that can be used. PLA seems to be the material of choice for now but fumes from the dye used in color filaments might have their own hazard element.

Besides the emission hazards, other potential risks such as burn hazards (the use of ABS requires a hot plate) and fire risks (like any other electrical gadget with a heating component) are also involved. There is evidence that 3D printers can catch fire (Watkin 2015), therefore flammable materials, as well as papers, should be stored away from 3D printers.

## CONCLUSION

FDM-based 3D printers in makerspaces are becoming a health and safety concern due to the emission of UFPs and VOCs. Before including 3D printers in makerspaces, a proper risk assessment should be performed, the manufacturer guidelines should be followed, and only the recommended materials should be used for printing. Standard operating procedures and Safety Data Sheets should be available for all printing materials and any other chemical products used in the printing process. Most importantly, printers should be operated in a well-ventilated area. ■

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