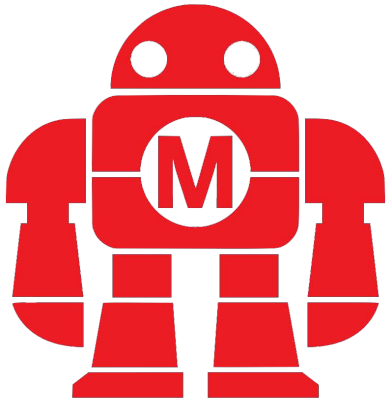
Making It At Lafayette

Engaging Members of the Lafayette Community with the Maker Movement



Lafayette College Technology Clinic Spring 2016 Final Report
Sponsored by The Skillman Library

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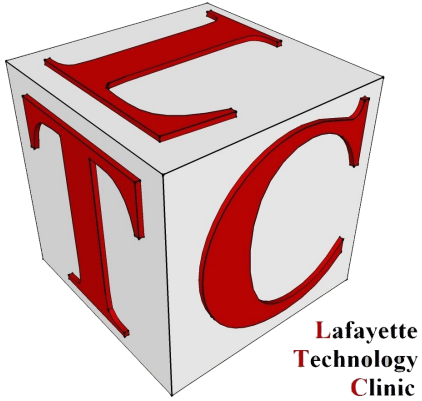
Our Objective

Skillman Library approached the Technology Clinic to help engage members of the Lafayette College community with the Maker Movement.

The team's main objective is to discover ways to incorporate the Maker Movement as an integral aspect of the learning experience at Lafayette College.

What is Technology Clinic?



Founded in 1986, the Technology Clinic is a program that gathers an interdisciplinary group of students who work with real-world clients to develop solutions to unique challenges. Each team consists of students who are nominated by professors from departments in the natural sciences, social sciences, engineering, and humanities. Drawing from a vast array of unique disciplines, each Technology Clinic team utilizes its multifaceted skills to approach tasks in a collaborative, dynamic manner. To date, the Technology Clinic has completed over 75 projects for a wide variety of clients in industry, government, healthcare, and the nonprofit sector.

Technology Clinic 2016: The Team

Technology Clinic 2016: The Team

Aleeza Ajmal (‘18) is a sophomore from Islamabad, Pakistan. She is pursuing a major in Chemical Engineering along with a minor in Economics. On campus, Aleeza is the President of Minority Scientists and Engineers. After graduation, Aleeza plans to attend graduate school to pursue a Master’s degree in Engineering Management.

Nick Gates (‘17) is a junior from Andover, MA. He is a double major in Economics and Environmental Studies, pursuing a Certificate of Financial Policy and Analysis. On campus, Nick writes for the student newspaper, competes on the ski team, and serves as a representative for Delta Kappa Epsilon on the Inter Fraternity Council. Upon graduating, Nick is considering a career in the financial services industry, where he hopes to explore sustainable investing.

Emily Lubas (‘16) is a senior from Linden, NJ. She is a B.S. Biology major. Emily is a Team Leader and Program Coordinator with the Landis Community Outreach Center and plans events on campus aimed to raise awareness and support for hunger and homelessness in America. She served as Assistant Executive Director of the Pre-Orientation Service Program and is a facilitator in Alpha Gamma Delta. Emily plans to attend medical school following her undergraduate career in hopes of becoming a physician.

Technology Clinic 2016: The Team

Rachel Rubino (‘17) is a junior from Newtown Square, PA. She is a double major in French and English with a concentration in Writing. On campus, Rachel serves as a Writing Associate and the Editor of the Marquis Literary Magazine. She is particularly interested in the role writing has played throughout history, and plans to pursue an English Honors Thesis on Cleopatra. Rachel is considering a job in the field of either teaching or publication upon graduation.

Flavia Umulisa (‘17) is a junior from Kigali, Rwanda. She is pursuing a major in International Affairs with an Economics minor. On campus, Flavia serves on the board of the Lafayette African and Caribbean Student Association and is part of the Lafayette Initiative for Malagasy Education program. Upon graduating, she hopes to attend graduate school to receive a Master’s Degree in International Affairs with a focus in Human Rights education.

Katim Woldemariam (‘17) is a junior from Addis Ababa, Ethiopia. She is a double major in Government & Law and Economics, with a concentration in Financial Policy and Analysis. On campus, Katim serves as a Resident Advisor and a board member of the International Students Association. In the 2016-2017 academic year, she plans to serve as a Head Resident for Sullivan Lane. After Lafayette College, she plans to earn an Advanced Degree in Development Economics.

Faculty Facilitators

Contact Information:
bauerdan@lafayette.edu
schettil@lafayette.edu

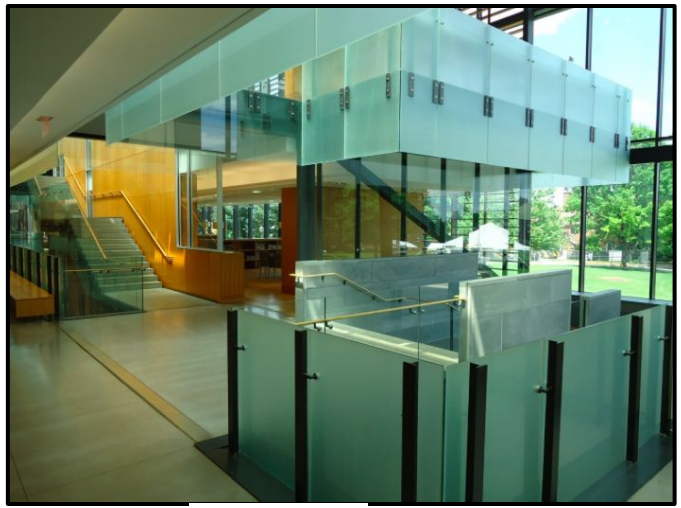
Dr. Dan Bauer is a Professor Emeritus of Anthropology at Lafayette College, as well as the Director Emeritus and Founder of Technology Clinic. His interests range from engineering and technology to journalism and photography. Throughout his career as an anthropologist, he has completed researched in how communities within Ethiopia and Mexico can utilize local technology to solve problems.

lafayette.edu

Dr. Luis Schettino is Assistant Professor of Psychology and Neuroscience at Lafayette College. His interests include the neural bases of motor control, motor cognition and the interface between the Arts, Creativity, and Cognition. His research uses a number of custom-built hardware and software to test human behavior.

lafayette.edu

Our Client: The Skillman Library



library.lafayette.edu

The Lafayette College Skillman Library is a hub of research and informational sources for faculty and students, as well as for the general public of Easton, Pennsylvania.

As an academic institution, Lafayette College offers both Liberal Arts and Engineering curriculums. The Skillman Library serves as an open forum where various disciplines interact.

The Library and Tech Clinic will focus on how the Maker Movement can be integrated into the Lafayette Community.

Our Client Liaisons

upload.wikimedia.org

Neil McElroy - *Dean of Libraries*

Terese Heidenwolf - *Director of Research and Instructional Services*

Kylie Bailin - *Director of Outreach and Access Services*

Jonathan Macasevich - *Library Technology Specialist*

The Maker Movement

The Maker Movement comprises the forefront of technological innovation. Combining technology with the act of “Making,” the Movement encourages individuals to turn imaginative ideas into a tangible reality.

The goal of the Maker Movement is to introduce cutting edge technology to the technologically challenged. Backed by a substantial “Maker community,” the Movement focuses on both people power and computer power to develop countless physical products.

"As the world grows increasingly complex and fast-paced, with global issues impacting us all, making, materials, and meaning are critical… Artists and designers hone the capacity to generate something from deep inside ourselves to live outside of ourselves. By residing in the experiential and the physical, and by developing the 'hands-on' as portal of intelligent learning, we confirm the mind as Maker and Making as a state of mindfulness"

- RISD President Rosanne Somerson, Excerpt from *The Art of Critical Making*

A Change of Focus

The Maker Movement comprises a multifaceted array of disciplines. The movement reinforces a range of projects, from 3D printing and electronic prototyping, to repurposing, cooking, art, metalwork, and woodwork.

Since last semester, the team has recognized that our previous understanding of Making was too narrow to engage many members of the Lafayette community. We confined our previous definition of Making to technologies mainly involving electronics and 3D printing. Therefore, our **new goal** recognizes the diversity of Making and Maker opportunities on Lafayette's campus. We aim to encourage the campus community to utilize their skill sets to engage in opportunities involving all types of Making.

The team's **main strategy** this semester engaged existing interest groups on campus. Our team tapped into types of Making that students were interested in and passionate about. We arranged projects that incorporated technologies beyond that of 3D printing and arduino boards. Our main projects came to fruition during Maker's Weekend, in which we hosted a cooking invitation and a catapult-building competition. We also networked with the campus environmental club to construct an obelisk of water bottles during Earth Week.

Recap of Fall 2016 Semester

In the following recapitulation, we will highlight the headway Tech Clinic made last semester.

- Team Visits to Maker Spaces
- The Maker Showcase
- Interim Projects

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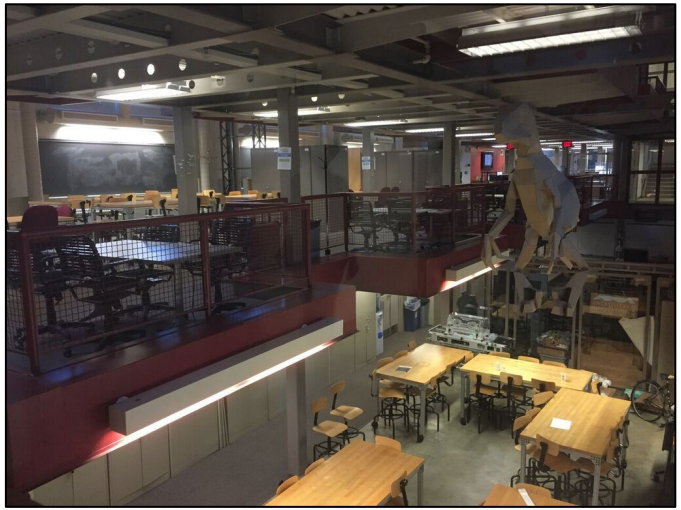
Successful Makerspaces in the Lehigh Valley

Site visit: The Wilbur Powerhouse at Lehigh University



This makerspace is composed of meeting spots, computer labs and classrooms. A metal and woodworking shop as well as an additive manufacturing lab for 3D printing are included in this spacious area.

Advantage (+) : The makerspace is run by a full time faculty that administers its extensive hours of operation. This permits easy access to every campus member.

Limitation (-) : Due to the high traffic the space receives from Engineering students, there is a lack of incentive to extend its scope in a more interdisciplinary fashion.

Successful Makerspaces in the Lehigh Valley

Site Visit: The Fabrication Laboratory ("The Fab Lab") at Northampton Community College

This makerspace is notable for its accessibility to all members of the Lehigh Valley community, as opposed to only Northampton Community College students. The space is subdivided into unique departments, which feature a guitar-making and repair studio, a metal and woodshop, and a computer and sound lab.

Advantage (+) : The makerspace strikes an even balance between technological and non-technological projects.

Limitation (-) : The makerspace is contained to only a portion of the college's community center. The limited amount of space hinders Makers from tackling larger-scale projects.

northampton.edu

Successful Local Makerspaces

Site Visit: Ed Kerns' Art Studio

Ed Kerns is a Professor of Art at Lafayette. He specializes in painting, drawing and two dimensional design. Kerns aims to reiterate the interdisciplinary connection between Making and art within his work, which embodies a "DIY" mentality.

Visiting Kerns allowed the team to witness a specialized form of Making on the Lafayette campus. His studio environment inspired ideas about certain aspects that could be incorporated into a Makerspace at Lafayette.

Our case study focused on Making within the discipline of art, a field where Making is already well represented.

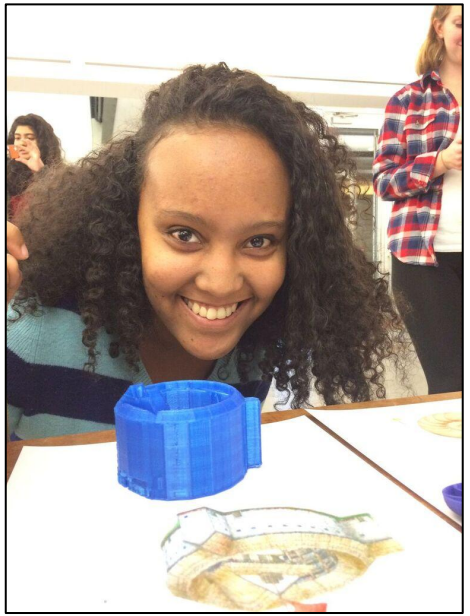
The Maker Showcase: Putting It Together

The Tech Clinic team hosted its first Maker Showcase in November 2015. The *goal* of the Showcase was to demonstrate the Maker Movement to the Lafayette community. The *strategy* we implemented to achieve this goal was composed of three main parts.

(1) We sought to better understand the Maker Movement. In order to do this, we visited Makerspaces and networked with Makers.

(2) We applied our findings and became Makers ourselves. We built various projects throughout the semester. We designed and printed 3D objects encompassing a range of academic fields. We also built Arduino-controlled robots.

(3) We extended an informal invitation for students and faculty to learn about the Maker Movement. Our showcase in the Skillman Library displayed the creations we made throughout the semester. Beyond educating the campus about the Maker Movement, the aim of the showcase was to demonstrate how Making applies to every field of study, and how any student can be a Maker.



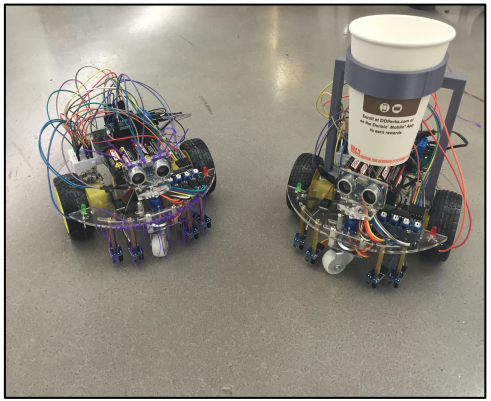
The Maker Showcase: Final Results

We hosted the event during the late afternoon in the library in order to draw traffic.

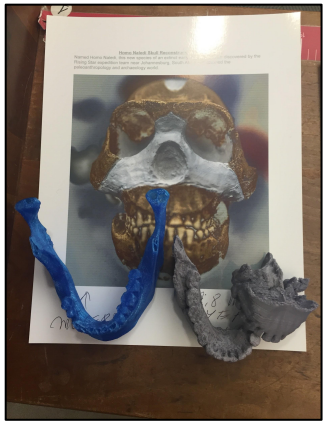
Interested students were especially drawn to the interdisciplinary aspects of the Maker Movement, as well as the possibility of Lafayette's own space to work on projects.

The showcase had something for everyone. Students were drawn to the interdisciplinary aspect of the projects.

Our arduino-controlled robots



A Study of Evolution: 3D Printed Ancient & Modern Jaw Models

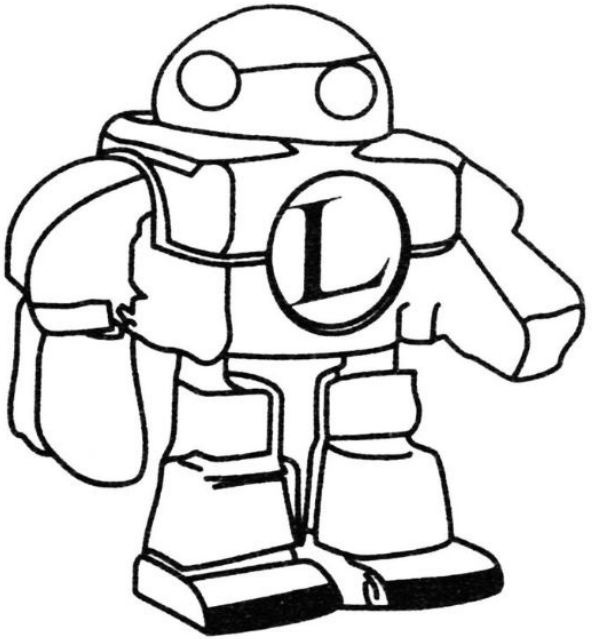


Interim Projects

Making It Away From Lafayette: Our Winter Break Projects

Our team applied the Maker mindset to various projects over the course of the winter break.

We completed independent projects in order to practice the skills we learned over the course of the previous semester, as well as keep our minds in the zone of an upcoming semester of projects.



Interim Projects

Aleeza's Hand-Crafted Cheese Press

During her 2016 Interim trip to Italy, Aleeza was fascinated by the process of engineering wine, olive oil, and mozzarella cheese. She decided to apply what she learned about food manufacturing and hand-craft a cheese press. The finished product can be used to make various types of homemade cheeses.

After utilizing her creation, Aleeza reported that the hardest part of the process was producing the proper consistency of cheese. As a finite amount of pressure is needed to draw a particular cheese consistency, the mechanics of press production must therefore be exact.

Interim Projects

From Trash to Treasure: Rachel's Homemade Hanging Jewelry Case

Rachel trash-picked an old type case and refurbished it into a hanging jewelry display case. She coated the case with a fresh layer of paint that she created using the milk-paint method. This method is derived from all-natural ingredients such as milk and lime.

After creating this piece, Rachel reported that her favorite aspect of the project was using her Making skills in order to transform a discarded thing into a special art piece.

BEFORE → **AFTER**

Interim Projects

Flavia's Delicious Dish

Almost every member of the team worked to cook a new dish over the winter break.

Flavia made "Chapati," which is an unleavened flatbread. This is a common staple food in South Asia that was introduced to other parts of the world by South Asian immigrants.

The main ingredients she used to prepare the dish were flour, salt and water. Flavia reported that the preparation process was essential to this dish, as it determined the final results of the dish itself.

Interim Projects

Skiing at Home

A long-time skier, Nick started finding ways to incorporate Making into freestyle skiing. In his free time, Gates took up the practice of building his own “rails,” a popular component of freestyle skiing that involves sliding across a handrail feature. The rails imitate features that you might find in a terrain park at a local resort and were a great way to practice his skills.

To build the rail, Nick uses wood and PVC piping. The process involves as much creativity as it does skills as many different styles of rail can be created.

www.northface.com

Springing into the New Semester

The following list highlights the main projects that Tech Clinic accomplished over the course of the semester.

- Maker's Weekend: Invitations
  - We extended an invitation to cultural organizations and first-year communities with the purpose of institutionalizing Making within the work that existing groups do.
- Maker's Weekend Reflection: Student Life Outreach
  - We reached out to specialized living groups on campus as a form of research into the sustainability of future Maker events.
- Team Cook-Off
  - We cooked a multi-course Mediterranean feast at Professor Bauer's house to get into the spirit of alternative forms of Making.
- LEAP Challenge
  - We collaborated with LEAP to build an obelisk made out of recycled water bottles collected around campus.
- Shell Project
  - We worked with the Geology Department to help develop an exhibit to be placed among the Geology exhibits.
- Additional Maker Projects
  - Luis worked with Dan to incorporate aspects of the Maker Movement into his academic research.
- The CBLR Expo
  - We promoted the Maker Movement at the campus-wide Community-Based Learning & Research Exhibition.
- Web Development
  - We created a blog and social media outlet ("Maker Spot") in order to track Makers around campus, and both promote as well as maintain the relevance of the Maker Movement.

Maker's Weekend

In order to increase the presence of the Maker Movement on campus, we decided to host "Maker's Weekend." The original date was in March. A norovirus outbreak required us to change the date to April.

The weekend was comprised of two invitation events: a Catapult Contest for First-Years from the Commons, and a Cooking Challenge for cultural clubs.

Our *goal* was to host challenges that reflected various facets of the Maker Movement. We aimed to appeal to the interest of particular groups on campus, and encouraged alternative ways of Making as a tool to engage with learning.

Our *strategy* involved creating events that would appeal to a range of students, drawing from an array of academic interests.

Maker Invitation: Catapult Contest

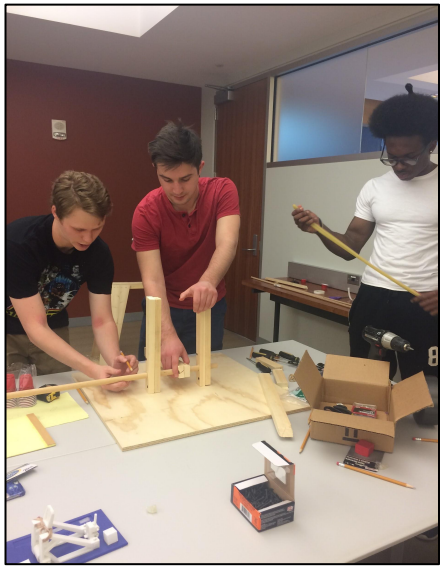
The main *purpose* of this contest was to bring together Makers from different academic backgrounds, and give them an opportunity to apply their design skills.

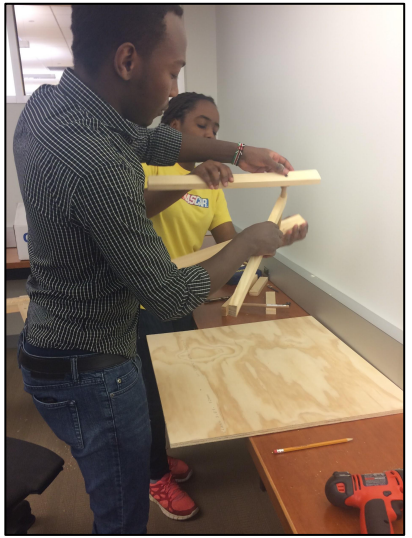
The participants included first-year students, separated into teams representing their respective commons.

The students were allotted 3 hours to design and create wooden catapults in the Skillman Library Basement. The final products launched clay structures off the library steps on to the quad.

Two skilled Makers and one beginner Maker judged the catapult results on four criteria: Distance, Accuracy, Creativity and Robustness.

A monetary prize was awarded to the winning team, and other prizes including 3D-printed trophies and Maker Movement T-shirts.

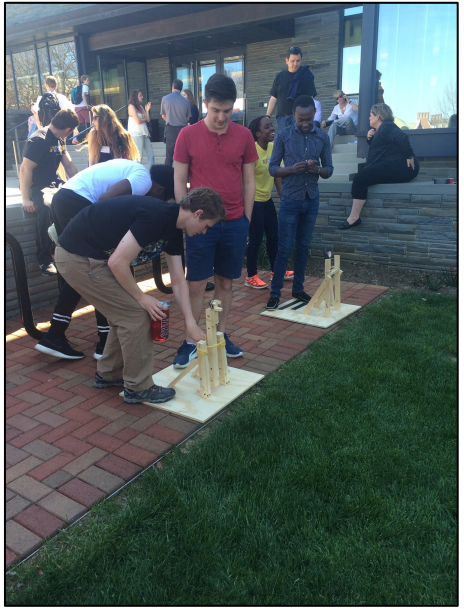




Catapult Contest Reflection

The results of the Catapult Contest were:

- Grand Prize - The Brandywine Common
- Second place - Hermione Common



Outcomes

The contest participants displayed incredible teamwork and a Maker mindset throughout the planning, building, and testing stages of their work. Our team nurtured their interest in Making by hosting this event and providing them with the materials and guidance needed in order to create successful catapults. Many nearby students were drawn to the final launch and learned about both the invitation and Making. Overall, the event encouraged the Maker Movement on campus.

Since the outreach was targeted to a limited amount of first-years, the impact of this event was not large-scale. The positive impact of this challenge was nevertheless strong for all Makers involved. Once the Commons are more strongly institutionalized, the organization will better serve as a locus of Maker competitions.

Maker Invitation: Cooking Challenge

The main purpose of this contest was to provide an alternative form of Making to students representing a variance of campus clubs. The participants included the French Club, the German Club, and the International Women Chefs (IWC).

The contestants were allotted 2.5 hours to prepare a meal using fully stocked kitchens in South College residence hall. The club members prepared a menu of dishes representing the culture of their perspective organization. Their final edible creations were shared amongst the challenge attendees.

Three accomplished foodies and chefs judged the dishes based on four criteria: taste, presentation, authenticity to the culture represented, and complexity. Each criteria was ranked on a scale from one to five and these scores were added together to compose the team's final score. The teams were then pronounced first, second, and third place based on their final scores.

Cooking Challenge Reflection

The results of the Cooking Challenge were:

- First Place: The German Club (Chicken schnitzel and spaetzle)
- Second Place: The French Club (Quiche and profiteroles)
- Third Place: International Women Chefs (Pumpkin pancakes)

Outcomes:

Overall, the Cooking Challenge was a success. Participants channeled the spirit of Making through their innovative cooking and valued the opportunity to create something that tasted delicious. They learned that the Maker Movement encompasses the act of creating dishes, which they might not have perceived otherwise.

Ultimately, we would aim to host the event in a venue that garners greater public access.

Maker's Weekend: An Overall Reflection

A Proposition of Event Sustainability via Student Life Outreach

We targeted particular demographics of campus (ie: The Commons and Cultural Clubs) in order to form particular Making events that suited their interests.

In order to sustain the Maker Movement as a whole, we believe that it would be beneficial to continue holding specialized events.

When it comes to the future implementation of such events, one proposable source of outreach is that of specialized living groups on campus. The Maker House and Science & Technology House serve as two exemplary sources. Maker's Weekend could evolve into an annual tradition if students living in these Houses network and formulate Event plans with other specialized living groups (e.g.: The Film & Media Studies House, The Creative Writing House, etc.) or campus clubs.

Click for more info!

LINK: *A Video Interview with Benjamin Ritter '17 (pictured above) and Spencer LaValle '17 of the Lafayette Maker House*

https://www.youtube.com/watch?v=zXXv9cReWFY

Tech Clinic Team Cook-Off

As we prepared the Cooking Challenge for Maker's Weekend, our team decided to personally explore cooking as a form of Making.

Our team split into 4 groups, each of which cooked a Mediterranean dish. The dishes were served together as a multi-course meal.

The courses included an appetizer, main course, and dessert. The appetizer consisted of chorizo, manchego cheese, and peperonata (roasted red peppers with olive oil and garlic). The main course was lemon chicken, prepared alongside potato & pepper salad. The dessert featured a delicious tiramisu.

This *goal* of this challenge was to push ourselves out of our comfort zone and create dishes we never previously made. This challenge encouraged us to think innovatively, and recognize distinct ways that cooking embodies the spirit of the Maker Movement. It magnified the relevance of cooking as a (delicious) form of Making.

Our cook-off offered us a reference point of a Maker experience as we planned the Cooking Challenge for the Maker Invitation.

The LEAP Challenge

Making LEAPs and Bounds: Collaborating with the Lafayette Environmental Awareness & Protection (LEAP) Club to Create a Monumental Plastic Bottle Structure for Earth Week

Tech Clinic partnered with a branch of LEAP, called “Take Back The Tap” (TBTT) in order to create a monumental plastic bottle structure. This project aligned with the particular mission of TBTT, which is to decrease the amount of plastic bottle consumption.

Following is a creator statement, which eludes to the mission of the Water Bottle Project:

“Throughout history, humans have built monuments as a way to preserve their legacy. Considering the permanence of a consumerist nation such as the US, we are left to wonder: what is the American legacy? Did you know the US consumes over 1,500 plastic bottles per second?”

“Take Back the Tap” Coordinator Shawn Hogan ‘17 & Lead Architect Connor Pirruccello-McClellan ‘17

The LEAP Challenge

Our structure mimicked the obelisk structure of the Washington Monument and was cabled-tied on the quad for Earth Week. The artistic piece aimed to instill a campus-wide sense of reflection and call students to take ownership over the environmental impact of their plastic waste.

The 20-foot monument, nicknamed “The Legacy” was made of PVC piping, wire, and over 2,500 non-biodegradable plastic bottles collected around campus.

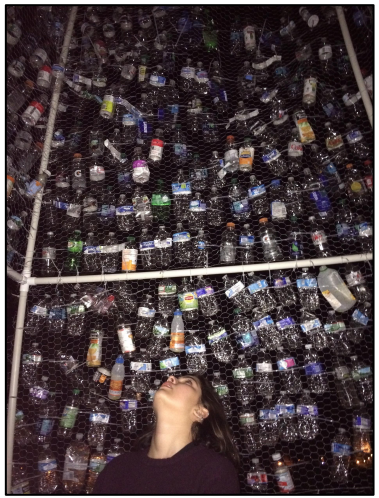
Signs comprised of facts about plastic waste as well as poetic statements about the team mission surrounded the structure. An entryway allowed students to walk into the structure and sign a pledge to “Take Back the Tap,” or agree to refrain from using plastic water bottles.

The LEAP Challenge Reflection

Outcomes:

The LEAP Challenge was an overall success. The Makers of TBTT drew from a wide variety of academic fields throughout campus. Collaboration with art major & project designer Connor Pirruccello-McClellan ‘17 helped infuse an additional element of artistry into the project’s pre-existing interdisciplinary appeal.

The project not only incorporated elements of engineering into its design and construction, but also environmental science into its written literature. Lastly, the project was noted by a large scope of people. It made a statement about ecological preservation and drew attention to the Maker Movement. Tech Clinic’s involvement and support for this Challenge ignited conversations and sparked student curiosity for Making.



The LEAP Challenge Reflection

Outcomes

This project contained several logistical errors, primarily due to the colossal stature of the structure. “The Legend” took longer than anticipated to complete due to its grand size. Thus, the monument was erected the weekend after Earth Week, as opposed to the Week itself.

In addition, a bout of rain destroyed the accompanying signs, and the PVC pipe support system eventually weakened to a point that the structural entryway became impenetrable.

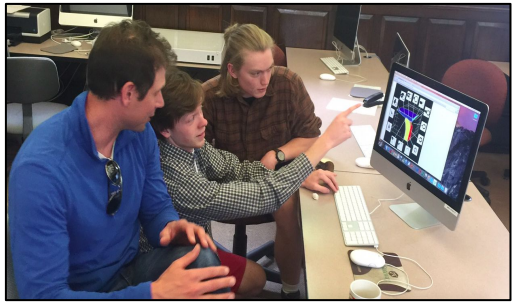
Overall, the project limitations ultimately served as take-away points for all Makers involved in the planning and creation of this piece. The “mess-ups” offered Makers a chance to theorize alternative methods for future products.

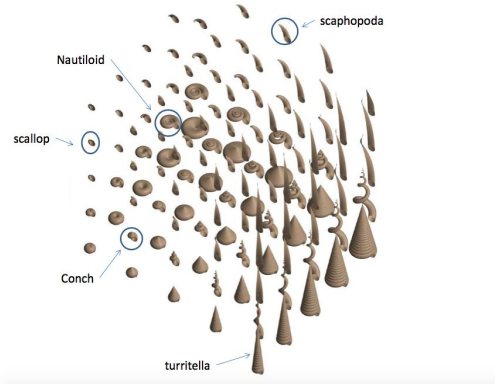
Art Through The Ages: Combining Printing & Arduino

In collaboration with the Geology Department, Tech Clinic developed 3D printed pieces for an exhibition at Van Winkle Hall.

The project aims to illustrate the relationship between mathematical logic and evolutionary variations. The final exhibit will include a large array of 3D printed shells that has important features illuminated with LED lights.

The project was developed by geology students Jack Shaw & Cullen Scheland, Professor Dave Sunderland, and 3D Printing Expert Jon Macasevich of Skillman Library IT Staff. Luis refined the math, while Dan tested the formulas through 3D printing.

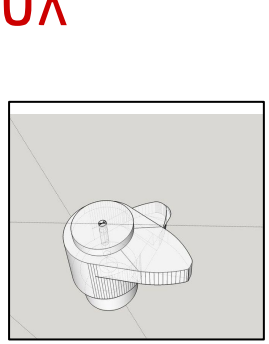


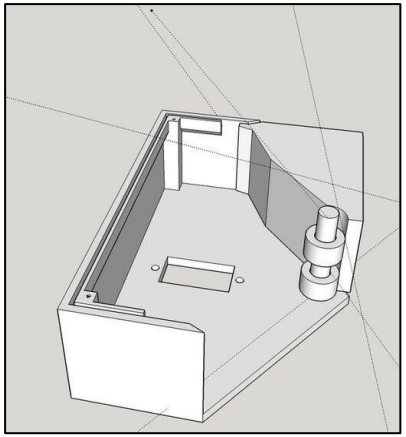


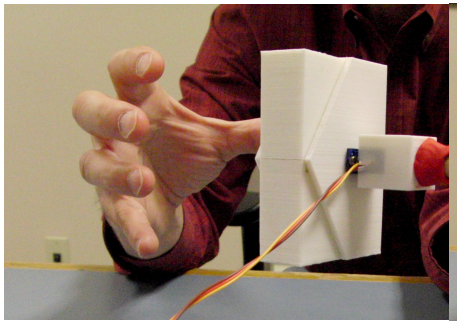
Luis Schettino's Shape-Changing Box

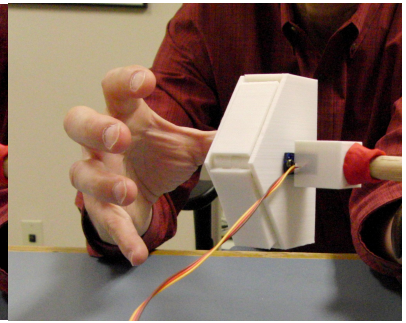
The *shape-changing box* that Luis Schettino (Psych) and Dan Bauer (Tech Clinic and A&S retired) developed during this Tech Clinic project uses 3d printing, an Arduino board, and a small servo motor to create a precisely timed device to be used in research on the neuroscience of grasping.

The box was designed for neuroscientific and psychological research. The finished product will help the researchers understand the neural substrates of the human ability to grasp an object. This will be the first experimental paradigm involving shape perturbation during the grasping movement.









3D Printed Parts:

- Box
- 2 wings
- Double Cam
- Lid

Other parts:

- Arduino
- Mini servo
- Switch
- Potentiometer

Community-Based Learning & Research Exhibition

In April, the Technology Clinic was invited to present at Lafayette's annual CBLR poster convention. The CBLR convention showcases different student projects that connect with a communities and organizations in the Lehigh Valley and beyond.

The team engaged in conversation with dozens of community members, faculty, and other students to spread the idea of the Maker Movement.

Audience members included Easton Mayor Sal Panto and Lafayette Provost Abu Rizvi. The team gave members an interactive presentation that included a functioning 3D printer and various printed objects.

Making It At Lafayette

Drawing from a Lafayette Tradition

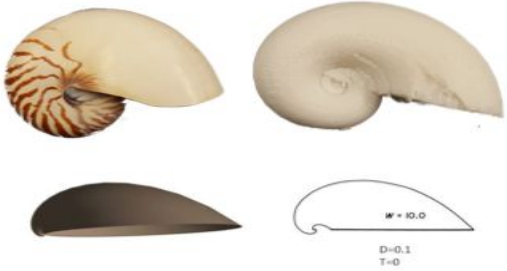
The Lafayette Technology Clinic

The Maker Movement

- Hands on learning
- Interdisciplinary collaboration
- Technological literacy

Engaging Lafayette's Mission

- Reinforce the interdisciplinary connection between academic departments at Lafayette
- Introduce students and faculty to the benefits of making things
- Establish a community of Makers at Lafayette to strengthen the Movement as a whole



Our Research

- Visited established maker spaces in the Lehigh Valley
- Collaborated with makers and made things of out own
- Engaged with the Lafayette community through our Maker Showcase

Maker Invitations

- This spring, we will host maker invitations for students
- Interdisciplinary work
- Expressing different types of making

A Maker Space At Lafayette

The Maker Spot Website

One of the deliverables that our team is providing is the Maker Spot website and Facebook page. These sites are particularly important in the light of sustaining the Maker Movement on campus after the completion of our Tech Clinic project.

The social media presence keeps the campus community updated about Maker Projects and Events taking place over the year. The MakerSpot features ongoing Maker-related works completed by members of the Lafayette College Community.

Given that advertising and marketing are a few of the most important ways we hope to sustain the Maker Movement on campus, we look toward the Maker Spot website and Facebook page to help us achieve our goals.

CHECK IT OUT!

Our MakerSpot Blog: https://lafayettemakerspot.wordpress.com

Our Facebook Page: https://www.facebook.com/Lafayette-College-MakerSpot-1675578619358046/

maker.com

Reflection

The following list highlights the team's reflections about what we have accomplished over the course of the semester, as well as our input in terms of sustaining the Maker Movement.

- In Retrospect
- Sustaining the Movement
- Future Directions
    - Makerspace
    - Student & Faculty Support
    - Marketing

http://www.notonthehighstreet.com/

In Retrospect

Our process of developing a Maker Movement at Lafayette produced numerous benefits, but faced some challenges.

While the Movement begins to take shape at Lafayette, there is still more work that needs to be completed in order to effectively integrate Making into part of the campus culture.

apps.rochesterpubliclibrary.org

In Retrospect: Plusses

http://www.hectorpreneur.com

http://www.teenvgn.com/

- The Maker Invitations functioned effectively and produced positive outcomes, though attendance was lower than we would have liked.
- We learned that there are many different niches of Makers on campus.
- Lafayette students are interested in a wide variety of Making.
- Many faculty members are excited about Making and incorporating the idea of Making into class projects.
- Less technical Maker challenges draw more student interest.
- The Lafayette campus has a Maker House, which is an ideal space for individuals to pursue passion for Making.

In Retrospect: Challenges

- Some forms of Making are more popular than others, and sometimes students shy away from the complexity of technical processes despite the of learning opportunities they offer.
- Greater cooperation among existing organizations would make easier to develop the movement.
- Engaging the Commons proved to be more difficult than we had expected.
- Through our work this year, we realized the desirability of a physical campus-wide Makerspace in order to sustain a Maker Movement.

http://wck-grc.com/the-cyber-challenge/

Sustaining the Movement

The following section highlights the ideas that we believe are important in order to sustain the Maker Movement on campus.

- The Lafayette MakerSpot can be managed by the Library faculty and serve as a web platform that enhances community outreach and continues to improve the presence of the Maker Movement on campus.
- Cooperation with existing institutions such as IDEAL and the Art Department can help benefit the campus.
- Collaboration with existing Special Interest Living Groups (eg: The Maker House) and established groups on campus (eg: LEAP) can serve as an outlet to develop future Maker Invitations.
- Diversifying the campus perspective of the Maker Movement and considering projects apart from that of 3D printing and Arduino-operated systems can draw interest from non-engineers.
- A visible, physical space for Making in a neutral spot such as the Library is an important consideration.
- A permanent display area on the first floor of the library displaying creations from campus Makers would help encourage the Maker Movement.
- In networking with professors, it is beneficial to consider implementing an FYS curriculum for passionate first-year Makers.
- It is important to consider creating connections among Maker professors. These faculty members serve as resources that will help the Library continually develop ideas on how to incorporate Making into the Lafayette curriculum.

Future Directions

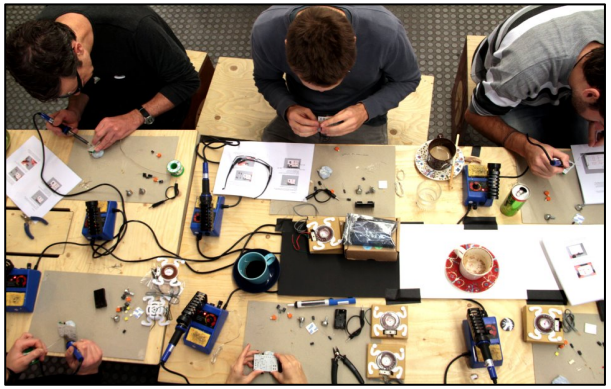
Based on our research and experiences during the past two semesters, we have various recommendations for the Lafayette College Library as on how to sustain the Maker Movement.

Our suggestions fall into three main categories:

- Establishment of a Makerspace
- Collaboration with students and faculty of all disciplines
- Tapping into social media to amplify the Movement

Future Directions: Makerspace

We suggest that the Lafayette College Library set aside space on the first floor of the library (the most noisy and social floor) to erect a Maker's Space.



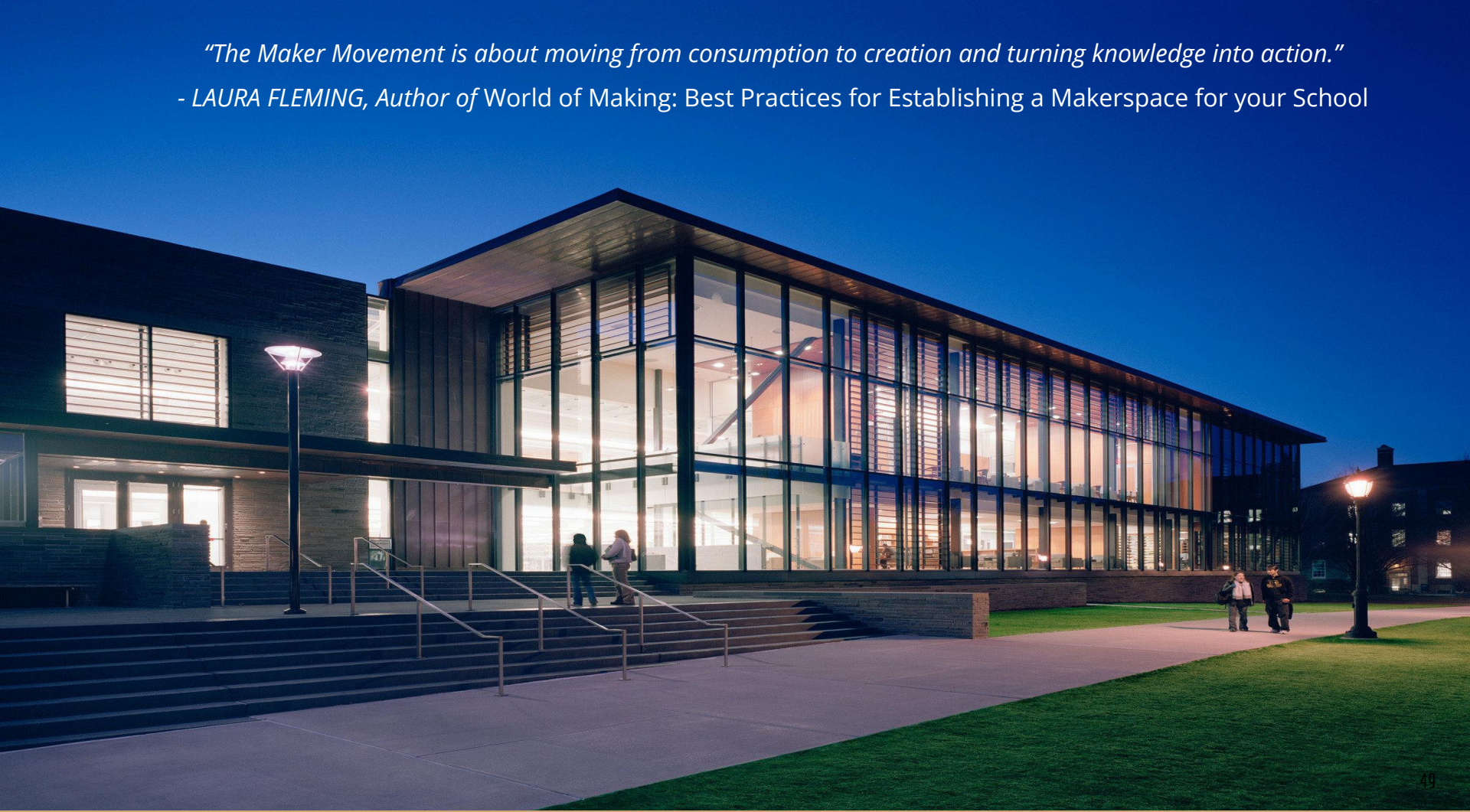
iq.intel.com

sites.middlebury.edu

This space could include various tools necessary to support active making, such as 3D printing, arduino and woodworking supplies. The space could also feature materials for less technological making, such avant-garde cooking tools. The Makerspace could be advertised as a comfortable and accessible area for all students.

"The Maker Movement is about moving from consumption to creation and turning knowledge into action."

- *LAURA FLEMING, Author of* World of Making: Best Practices for Establishing a Makerspace for your School



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- Dean Paul McGloughlin
- LEAP
- Brandywine & L’ Hermoine Commons
- German Club
- L’Alliance Francais
- International Women Chefs (IWC)
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