

White Paper for:
Evaluation of the Sparks! Ignition
Grant – Youngstown Ohio Learning
Opportunities

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Submitted by:



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Table of Contents

Abstract.....	2
Introduction	2
Key Partners and their Roles.....	2
Project Goals	3
Project Activities	6
Evaluation Methodology.....	9
Evaluation Questions	10
Data Sources	10
Program Outcomes and Evaluation Findings.....	11
1. Performance Indicators	11
2. About Program Participants.....	12
3. Participant Skill/Knowledge Gain.....	13
4. LabSpace Usage Patterns	15
5. Effectiveness of Badging System.....	16
6. Partnership between PLYMC and OH WOW!	17
7. Accelerators and Barriers.....	17
Lessons and Recommendations.....	19
Staff Training and Inclusion.....	19
Online Badging System	20
Creative Ways to Collect Program Information	20
Parent/Guardian Participation.....	20
Plan for Increased Staffing Needs.....	20
Plan for Variation in Program Attendance.....	21
Encourage Attendance.....	21
Program Sustainability	21

Abstract

In collaboration, the Public Library of Youngstown & Mahoning County and OH WOW! The Roger & Gloria Jones Children's Center for Science & Technology were rewarded a grant from the Institute of Museum and Library Services. The partners used this grant to implement the Youngstown Ohio Learning Opportunities (YOLO) program intended to promote two new, complementary LabSpaces for children grades K-8 in Youngstown, OH. The purpose of this 12 month YOLO program was to encourage participants to visit both the library and the museum, and to improve participant's knowledge and skill in STEM fields through hands-on learning activities. Results of the evaluation show that only 16 percent of program participants visited both locations during the implementation of the program. However, of participants who completed any program activity, 80 percent reported being happy with the amount they learned, and 90 percent of participant's parents/guardians reported the student attaining new knowledge.

Introduction

The Public Library of Youngstown & Mahoning County (PLYMC) and OH WOW! The Roger & Gloria Jones Children's Center for Science & Technology (OH WOW!) were rewarded a SPARKS! Ignition Grant from the Institute of Museum and Library Services (IMLS) in 2015. This grant allowed the partners to implement a program that went from program design through implementation and evaluation during the 12-month period between October 1, 2015 and September 30, 2016.

As a result of this grant, PLYMC and OH WOW! implemented the Youngstown Ohio Learning Opportunities (YOLO) program. This program was intended to promote two new, complementary LabSpaces for children grades K-8 in the downtown area of Youngstown, OH in order to (1) encourage participants to visit both the library and the museum and (2) improve participant's knowledge and skill in STEM fields through hands-on learning activities.

Key Partners and their Roles

PLYMC provides interactive space for one of two complementary LabSpaces featured in the program designed for the purpose of cross germination of participants grades K-8. The Library's "**Technology Playground**" was established at the PLYMC's Main Branch in January of 2014. Originally, it was designed to offer customers the opportunity to experience new types of devices. As part of the YOLO project, the Technology Playground was re-designed as an interactive space in which students can create or make items using technology including a 3-D printer, a Mac computer with creative software installed and various STEM learning items such as a drone, a race track to measure speed. And other such items.

The role of PLYMC is as the lead applicant and manager of the YOLO program. PLYMC also provides personnel to assist participants in completing activities and issuing of badges.

OH WOW! provides interactive space for one of two complementary LabSpaces featured in the program. OH WOW!'s "**InspireWorks!**" Labspace was created to address a shortage of qualified employees in the industrial and manufacturing trades in the community. OH WOW!'s "InspireWorks!" Labspace provides an interactive experience that features Dr. W. Edward Deming's Plan, Do, Check, Act (PDCA) continuous improvement process. Each Labspace provides a unique STEM-based hands-on

learning activity designed to have students move through a systematic series of steps, allowing them to gain valuable knowledge and hands-on, interactive life skills.

The role of OH WOW! is as lead partner of the YOLO program. Together with PLYMC, OH WOW!'s role is to implement and oversee the program's proposed goals, objectives and activities, and provide the "InspireWorks!" LabSpace activities featured at both LabSpaces. Further, OH WOW! provides staff who assist participants in completing program activities.

Key Personnel

Key staff members for this project are employed by the PLYMC and OH WOW! and include:

Josephine Nolfi, Manager of Youth Services and Programs at PLYMC

YOLO Project Manager and Library Project Lead

Josephine has 35.5 years of Library experience and has overseen numerous grants and all of PLYMC's youth efforts.

Suzanne Barbati, Executive Director & President of OH WOW!

YOLO OH WOW! Project Lead

Suzanne is a past successful small business owner and has been at the helm of OH WOW! since March 2009. She has been recognized by the Regional Chamber and The Youngstown Business Journal for OH WOW!'s success to date.

Advisory Group

The YOLO project instituted a project Advisory Group in order to garner support for program activities from local community organizations and attain feedback on program activities. The Advisory Group for the YOLO project included members from the following community organizations:

- Public Library of Youngstown and Mahoning County
- OH WOW! The Roger and Gloria Jones Children's Center for Science and Technology
- The City of Youngstown
- Youngstown City Schools
- Youngstown State University
- United Way of Youngstown and Mahoning Valley
- YMCA of Youngstown
- Boys and Girls Club of Youngstown

Project Goals

The YOLO project was developed in response to a series of studies and interviews with local youth, funders, employers, faculty, staff, and education administrators, indicating a need for a community-wide coordination of youth programming. Additionally, there is a nationwide interest in partnerships and coordinated learning spaces between libraries and museums. This project is intended to use national practices such as make spaces, badge programs, and program partnerships, in order to address some of the following issues found specifically in Youngstown, OH. The sections below provide an overview of the specific findings from local and national research, and how that information helped shape the YOLO project's goals and implementation strategies.

The YOLO Project was created to Address Community Needs in the Following Ways:

Increase Community Involvement

Cross Pollinate between Library and Museum Patrons

Alleviate Problems Caused by Constant Transition in Schools

Help Adults to be Present in the Lives of Children

Revitalize Downtown Youngstown, OH

Improve the Perception of Youngstown Children

Decrease the Underrepresentation of At-Risk and Female Populations in STEM Fields

Increase Community Involvement

Community conversations with partners, school district administrators, and other key stakeholders highlighted the benefits that occur when community organizations, parents, and schools coming together in partnership to set higher expectations and strengthen student achievement.

The YOLO program intended to build on this theme of community involvement by forming a partnership between community agencies that supported and encouraged parent and teacher involvement in new and exciting learning opportunities for students.

Cross Pollinate between Library and Museum Patrons

The PLYMC and OH WOW! currently serve a high volume of visitors from the community. PLYMC's main branch served 173,968 visitors and OH WOW! Served more than 50,000 in 2014. However, the two institutions do not know how many individuals guests visit both sites, but believe that participant learning and knowledge would be increased by attending both sites.

In order to increase the number of individuals visiting both sites, the YOLO program requires participants to visit both locations in order to earn a badge and also provides a free annual pass to OH WOW! for participants who sign up at the library.

Alleviate Problems Caused by Constant Transition in Schools

Parents, students, and teachers describe Youngstown schools as "in a state of constant transition." Teachers, in particular, described jumping from one program or model to the next as a result of district and school leadership changes. Students echoed these concerns, as one explained, "There is too much flux... too much change. [We] need to know the routine will be the same the next day." Teachers and students said without a greater degree of consistency and certainty, it will be hard for either of them to develop real and durable relationships and basic routines – which disrupts and undermines teaching and learning.

In order to address the state of flux, the YOLO program was created to encourage involvement throughout the full year rather than just the summer. Locally, shared learning spaces and experiences have the potential for community-wide coordination. Nationally, YOLO will benefit other libraries and museums who wish to measure the impact of learning in complimentary spaces on shared audiences, as well as the effectiveness of badges as part of multi-organization learning.

Help Adults to be Present in the Lives of Children

Community engagement conversations underscored the challenges that many parents face in adequately supporting their children while living day-to-day in “survival mode.” While parental responsibility is seen as essential for moving the community forward, participants in these conversations also expressed a desire for other adults and organizations in the community to be mobilized to support parents and fill gaps.

The YOLO project provides support for adult/child interaction in two ways; providing staff members to help guide children and families through activities, and encouraging guardians to be involved with the students as they complete activities.

Downtown Revitalization

In community conversations, residents spoke of many challenges facing Youngstown and its citizens. However, residents saw changes in downtown Youngstown as a positive sign of the community moving forward. People pointed to new restaurants, more nightlife, and the fact that more residents were moving into condos and lofts.

The YOLO project intended to capitalize on and strengthen that forward progress by establishing its programming at Main Library and OH WOW!, facilities, which are situated in the city center of Youngstown. This allows a central location where which families situated around the entire community can easily access.

Improve the Perception of Youngstown Children

In community engagement conversations, participants talked about Youngstown kids as being “disrespectful” and “dangerous.” Moreover, kids themselves were well aware of these stereotypes and labels, and some told us they felt like they’re all grouped together – seen as criminals or trouble makers. Such perceptions send signals to children that they are not worthy and have little potential, which undermines their own confidence and desire to achieve. One teacher said, when kids think of themselves as “bad,” it “dismantles the child’s will to learn and they give up.”

Some Youngstown residents told stories of kids spitting on cars, starting fights, and littering. However, many more people in these community conversations were frustrated by the negative terms they heard used to describe local kids. Residents stated that in order to raise expectations for Youngstown children, the community must shift how they see kids and start to believe in their potential to achieve.

In order to address this issue, the YOLO program located the library LabSpace on the main floor of the building in public eyeshot of adults and community members. This location provides a public display of adults and students working together to achieve positive learning objectives. In addition, YOLO’s downtown location helps change the negative narratives about kids in the area. As families from different areas around the county begin to intermingle, they will become more familiar and knowledgeable of downtown and individuals and families living in other areas of the county. This

provides an opportunity for families to learn of one another, which can lead to changes in perceptions and the establishment of new narratives.

Address the Underrepresentation of At-Risk and Female Populations in STEM Fields

Historically women and “at risk” populations are underrepresented in STEM fields. For example, though women fill close to half of all jobs in the US economy, they hold less than 25 percent of STEM jobs.¹ Additionally, while the proportion of Black and Hispanic individuals in STEM fields has been increasing since 1970, they still only make up 6 and 7 percent of the STEM workforce, respectively.²

In order to address this issue, the YOLO project targeted participation from *all* K-8 students, and placed a special emphasis on attracting at risk populations and females. Additionally, the YOLO project intends to address this underrepresentation by offering the YOLO program in the downtown area of Youngstown because it is an easier commute for the “at risk youth” population and their families.

Project Activities

The YOLO project is comprised of a variety of activities both those visible to the community including creating LabSpaces as well as those in the background such as developing an Advisory Group. Below is an overview of the major project activities under the YOLO grant program, and where applicable, a description of how those activities changed throughout the year.

Create Learning Opportunities

At the onset of the YOLO program, members of the Advisory Group, led by PLYMC and OH WOW!, met to determine YOLO project activities. They discussed how exhibits and learning activities could be coordinated across the two spaces. Once created, they also met regularly to discuss how the learning activities worked in practice when used by students. The learning spaces included hands-on activities that are rooted in Science, Technology, Engineering, and Mathematics (STEM): Music; Aerodynamics; Engineering; Water; Speed; Animation; Earthquakes; Weather; and Magnets. Each activity included three levels of difficulty designed to improve independent thinking, develop learning skills, and increase knowledge.

Implementing Program Activities

October through December 2015 served as a planning phase for the YOLO program. During this time, program leaders planned for and built out the systems and structures needed to start running the program at the start of the new calendar year. January through May saw low individual program participation due to school being in session, but allowed for both school group participation in the activities and for additional time for marketing and building awareness for the YOLO program to the general public before the beginning of summer. Once school dismissed for the summer, the YOLO program saw increased individual program participation among families, but decreased rates of school groups using the facilities.

¹ U.S. Department of Commerce

² U.S. Census Bureau

Badging System

Original program design included the use of Mozilla Badges to track participant progress. Participants earned badges by completing YOLO activities at both the PLYMC and OH WOW! LabSpaces, and then entering those activities into the online badging system.

Each activity a participant completed during participation in the YOLO program was called a “step,” and each badge required completion of a step from each of the two program locations. Badges were available in 10 subject matters or themes, and each theme had three levels of difficulty - beginning, intermediate and advanced levels. Thirty (30) two-step badges were available through the YOLO program. Themes included: Welcome (two-steps), Music, Aerodynamics, Engineering, Water, Measuring Speed, Animation, Earthquakes, Weather, and Magnets.

This badging system allowed participants to track their own progress as well as allowing YOLO program leadership and evaluators to understand which themes participants were interested in and how participants moved between the two LabSpaces during the program. The badging system was developed as of November 15, 2016.

Changes to the Badging System

During the badge system building process, PLYMC staff found that the Mozilla badging system is not ideal for individuals younger than 18 because parental permission is required for minors to share their information online. The YOLO team decided to change to another badging system through Wordpress that did not allow direct sharing of badges on social media. This allayed the requirement for YOLO participants to have parental permission to access the system, but also still allowed for badge sharing as a separate action from within the system. The YOLO program launched using the non-Mozilla badging system.

Incentives

In the development of the YOLO project, the Advisory Group decided to use incentives to participants in order to garner feedback on the program through surveys and to encourage cross-participation at the two locations. The following incentive structure was created:

- A family pass for a one-time visit to OH WOW! was given when kids registered in the library.
- A free pass for one child and one adult for unlimited access to OH WOW! through September 30, 2016 was given when the family pass was redeemed.
- A \$5.00 coupon that was to be used toward a purchase at Touch the Moon was given following the completion of 5 badges.
- A \$5.00 coupon for One Hot Cookie was given when parents provided feedback to the evaluators.

Changes to Incentives

In April 2016, staff and leadership from the YOLO project discussed changing the incentive structure to include additional incentives to encourage participants to log badges. While evidence was not attained that would determine whether the incentives offered increased usage of the badging system, the feedback provided by participants suggests the incentives were valued. The following incentives were added to the original incentive structure:

- A sticker or badge was given each time a child logged his/her badge online.
- A prize was given from the YOLO Treasures Box when a child logged 4, 6, 8, and 10 badges.

Staff Training

Library and OH WOW! staff were trained in leading students and families in their activities in the LabSpaces, registering new YOLO members, and helping participants log online badges by November 2015. At OH WOW! three key staff members were involved in the selection of exhibits and activities included in the program. Because museum staff had been previously trained on all exhibits, only minor additional training for staff was necessary.

At the Library, each staff member completed a training checklist which consisted of an overview of the grant and training on the tasks below. In addition to the initial training, additional training was provided to staff members when necessary.

iPad	Laptop	Piano Mat
Music Mixer	Button Bass	Drones
Airplane Designs	Lego Building	Screen Shot & Printer
Seattle Space Needle	Aurasma Application	Makey Makey Controllers
Dam Simulation	KidsGeo.com	MakerSpace Ramp
Conversion Chart	Google Maps	Storyboard
Stop Motion Application	Experience Earthquake in a Can and various other earthquake related activities	Discover Kids Extreme Weather Tornado and various other weather related activities
Magmatic Building Blocks	Play Magnets and Springs	Magic Penny Magnet Kit

Build an Advisory Group of Stakeholders

At the onset of the project, YOLO leaders formed an Advisory Group in order to build support for program activities from local community organizations. These meetings included input from youth and local stakeholders about the badging system and program marketing efforts and events. Below is a list of organizations represented on the Advisory Group:

- Public Library of Youngstown and Mahoning County
- OH WOW! The Roger and Gloria Jones Children’s Center for Science and Technology
- The City of Youngstown
- Youngstown City Schools
- Youngstown State University
- United Way of Youngstown and Mahoning Valley
- YMCA of Youngstown
- Boys and Girls Club of Youngstown

A schedule of activities and Advisory Group meetings were jointly developed by PLYMC and OH WOW!. As of December 2015, the start of program activities were implemented and the Advisory Group met monthly.

Changes in Advisory Group Participation

Over the life of the YOLO grant program, participation in the Advisory Group waned due in large part to scheduling difficulties and changes in work duties for the individuals involved. Program leaders suspect that partner organizations often did not prioritize Advisory Group meetings because they did not have a financial stake in the success of the YOLO program. However, even though participation was not consistent over time, PLYMC and OH WOW! did continue Advisory Group meetings throughout program implementation.

Marketing the Program

YOLO program leaders spread the word about the program in a variety of different ways. The program marketing plan included using Facebook; Instagram; Twitter; Happenings (print and email newsletter) distributed to 47,000 email addresses; Book Sizzle newsletter; signs at all locations; notations on OH WOW! and library websites; direct advertising to participants via email, local TV and radio show exposure; local TV (NBC and CBS affiliates) interviews; press coverage through local newspapers; six weeks of radio ads on a local radio station. Specific marketing efforts included:

- The Advisory Group officially named the YOLO program "See it! Try it! Learn it!" in order to better embody the process that participants engage in when completing program activities.
- An announcement of the grant award was communicated through traditional and social media outlets including a press release, and all library and OH WOW! social media pages.
- Participant engagement and program accomplishments were promoted and encouraged through traditional and non-traditional outlets, i.e., social media, newspapers, radio, fliers, Facebook, websites, community presentations, emails and listservs.
- A series of events/celebrations were held during the year: a kickoff party at the library, an event to help evaluators collect parent/guardian feedback, and a finale celebration at Silly Science (an OH WOW! event).

Data Collection Process

Details of the complete data collection process are available in the [evaluation section](#) of this report. However, it is important to make mention here that creating and setting in place the policies and procedures for data collection happened in the fall of 2015, and that data collection activities continued throughout the life of the program.

Changes to the Data Collection Process

Among the decisions made in the planning phase of program implementation are the decision to have participants complete a paper copy of the survey rather than an online version and to designate that intake procedures for the badging process were to take place at the library because it was responsible for maintaining the database.

Evaluation Methodology

PLYMC and OHWOW! contracted with TPMA, an independent, third-party evaluator, to conduct an implementation and outcomes analysis for the YOLO program. TPMA gathered information throughout

the project using surveys, interviews, and observations. This white paper, produced by TPMA, provides an overview of the evaluation findings for the YOLO project.

The evaluation of the YOLO project was created in order to answer a specific set of research questions using both quantitative and qualitative data. Specific questions and their answers are detailed in the Evaluation Questions section below.

Evaluation Questions

The evaluation of the YOLO project was created in order to answer the following research questions using both quantitative and qualitative data.

1. Did the YOLO program meet its goals on stated performance indicators?
2. Who participated in the YOLO program?
3. Did participants increase their skills or knowledge by participating in the program?
4. Did the YOLO program change participant patterns of visiting the two LabSpaces?
5. Was the badging system effective?
6. Was the partnership between PLYMC and OH WOW! successful?
7. What were the program's accelerators and barriers?

Data Sources

The evaluation of the YOLO project incorporates analysis from the following data sources:

Regular Communication with Program Team

Quarterly Calls with Key Program Staff and Partners - Held quarterly throughout grant implementation, conference calls provided information from program leaders about progress toward stated outcomes and barriers and challenges towards those outcomes.

Program Data

Program Intake Forms - When students first enroll in the program, participants and/or their guardians were asked to sign up on the online badging system and complete a one-page survey including information about their typical library and museum visitation patterns.

OH WOW! Attendance Records – These records show how often and on what dates specific participants visited the OH WOW! museum.

The Online Badging System - At the completion of each session of activity at the LabSpaces, participants were encouraged to go online and log the steps to badges that they completed.

Evaluator Site Visit

Staff and Stakeholder Interviews – TPMA conducted in person interviews with key staff at PLYMC and OH WOW! during the site visit in the spring of 2016. These interviews provided insight into program implementation.

Participant and Guardian Interviews - During the site visit, TPMA staff spoke with program participants and their families during a YOLO event at the Library. Individuals in attendance were provided a free cookie coupon from a local bakery for speaking with the evaluators.

Participant Observation - TPMA conducted an on-site participant observation visiting both the PLYMC and OHWOW! LabSpaces. During the visit, the evaluator toured the LabSpaces and observed activities while in use.

Surveys

Student Surveys – Upon completion of program activities, students were asked to rate their experience using a Likert-type survey that was modified to appeal to younger students.

Parent/Guardian surveys - Parents/guardians of program participants completed post-participation surveys to measure their perceptions of engagement, knowledge, and attitude changes among participants.

Staff Surveys - In the final month of program implementation, program staff completed a survey to measure staff perceptions of program success and engagement, as well as capacity building efforts of the partnership between PLYMC and OHWOW!.

Program Outcomes and Evaluation Findings

The following sections provide answers to the evaluation questions listed above using one or more of the data sources outlined in the evaluation methodology section.

1. Performance Indicators

Indicator # 1	Indicator #2	Indicator #3
<ul style="list-style-type: none">• 70% of participants will earn at least two badges	<ul style="list-style-type: none">• 70% of participants will complete pre- and post-participation surveys	<ul style="list-style-type: none">• 100% of involved staff will report an increased perception of program success

The following performance indicators were established by program leaders at the onset of the YOLO project to measure whether the program encouraged cross pollination of participants across sites, increased their knowledge in STEM fields, and strengthened the relationship between the two participating institutions.

Indicator #1

70% of participants will earn at least two badges during their visits to the LabSpaces for completing selected activities designed to build skills and interest in follow-up activities at the other location. This design paired with traditional tracking of program attendance will allow PLYMC and OHWOW! to share data on repeat usage of the shared spaces, participant engagement in the program, and track which specific skills participants continued to pursue.

Outcome: Fifty-seven (57) or 16% of the 355 YOLO participants earned at least 2 badges. However, only ninety-seven (97) individuals utilized the badging system to log any step at all. Of those ninety-seven (97) individuals, 58.8% completed two or more badges.

70% of participants will complete pre- and post-participation surveys and indicate an increase in knowledge before and after use of the LabSpace. Questions will also measure how participation between the two LabSpaces have changed for the participants.

Once the program began, The Evaluators realized that pre- post-survey methodology was not possible due to the young age of children using the spaces. In order to attain data for this indicator, data was collected in two ways: (1) parents/guardians were surveyed post program participation to measure their perception of knowledge gained by participants, and (2) data from badges earned was examined with the assumption that finishing the curriculum-based activity meant that students gained knowledge in that subject area.

Outcome: 90% of parents/guardians surveyed reported that program participants increased in knowledge through completion of the program’s activities. Participants completed a total of 1,599 steps, or activities, in STEM fields as a part of the YOLO program.

Indicator #3

100% of involved staff at both intuitions and Advisory Group members will report an **increased perception**, based on observations, **of success** of events held in the LabSpaces, strength of partnership between institutions, increased engagement of participants in learning at both spaces, as well as capacity building efforts of the partnership between PLYMC and OHWOW!.

Outcome: Half of YOLO staff members surveyed reported that the YOLO program increased their level of communication with staff members from YOLO partner organizations. Additionally, 75% of staff reported the quality of the relationship between OH WOW! and the Public Library of Youngstown and Mahoning Valley as high quality or very high quality.

2. About Program Participants

A total of 355 students participated in the YOLO program. However, data from only 346 students was able to be collected for analysis. Students were enrolled in Kindergarten through 8th grade, and a majority of participants were in grades Kindergarten-3. This large proportion of young children using the space caused The Evaluators to change the pre- post- survey methodology to include additional information from parents/guardians. Additionally, it affected which activities participants participated in, how much parent/guardian guidance was needed to complete the activities, and participant’s ability to log their own badges in the system.

Grade	Number of Participants
8	9
7	10
6	33
5	37
4	44
3	53

2	60
1	54
K	46

Program participants originated from forty-one (41) different ZIP Codes. The table below provides a list of the top ten cities where the program’s participants reside.

Top Ten Cities by ZIP Code	Number of Participants
Youngstown	137
Boardman	61
Canfield	29
Struthers	27
Poland	24
Austintown	21
Warren	7
Girard	6
Campbell	5
Hubbard	5
TOTAL	322

3. Participant Skill/Knowledge Gain

Data about participant skill or knowledge gain was collected in three ways: (1) students were surveyed about their experiences with the YOLO project, (2) parents/guardians were surveyed post program participation to measure their perception of knowledge gained by participants, and (3) data from badges earned was examined with the assumption that finishing the curriculum-based activity meant that students gained knowledge in that subject area. This assumption is supported with findings from the YOLO/OH WOW! Parent/Guardian Survey which suggest participants gained knowledge by participating in the YOLO program.

Participant Enjoyment

Students who participated in the YOLO program were asked to complete a See it! Try it! Learn it! Survey after participating in program activities. Of the students who completed the survey, 100% reported being either “Very Happy” or “Happy” with the activities they completed. Additionally, 100% of the students reported they would like to return and participate in more activities.

Participant Knowledge Gain

Four in five, or 80%, of the students who completed the See it! Try it! Learn it! Survey reported being happy with the amount learned from the activities they completed. Additionally, 90% of parents/guardians surveyed reported the student attained new knowledge by competing the program’s activities. More than three quarters of parents/guardians surveyed (76%) reported that the quality of the learning experiences provided by the YOLO activities were of high quality.

Participant Content Knowledge Attained

Students who completed the See it! Try it! Learn it! Survey reported the activities they enjoyed most included the drone, 3-D printer, animation, and the Legos. One student reported that the activities helped her/him learn that she/he can “do different things.” Another student reported that she/he liked the “interactiveness” of the activities. Further, another student reported that she/he found the 3-D puzzle a “great challenge.”

Altogether, participants in the YOLO program completed a total of 1,599 steps or activities during the program term. A total of 578 badges, a combination of one step from each program location on a particular subject area, were completed during the program term.

Of the 10 subject areas of STEM knowledge covered by program activities, the most oft-completed steps from both locations were Aerodynamics and Music. The table below shows the top ten steps earned during the program.

Steps	Number of Steps Earned
Aerodynamics - Easy	130
Music - Easy	123
Music - Medium	110
Music - Hard	92
Aerodynamics - Medium	91
Aerodynamics - Hard	91
Engineering - Easy	75
Engineering - Medium	74
Engineering - Hard	71
Water - Easy	71

Of the ten subject areas, or themes, covered in the YOLO project, the content area with the most badges earned was Music, followed by Aerodynamics and Speed. The table below shows number of badges earned by theme.

Theme	Number of Badges Earned
Music - Easy	54
Aerodynamics - Easy	53
Speed - Easy	46
Aerodynamics - Medium	39
Water - Easy	31
Weather - Easy	30
Magnets - Easy	28
Engineering - Easy	27
Earthquakes - Easy	27
Animation - Easy	25

Earning two or more badges was one of the three key indicators of success for the YOLO project. Fifty-nine (57) participants, or 16% of the participants earned 2 or more badges. The table below shows how many participants earning each number of badges throughout their experience with the YOLO program.

Number of Badges Earned	Number of Participants	Percentage of Participants
2+	57	16%
4+	51	14%
5+	47	13%
6+	43	12%
8+	33	9%
10+	28	8%

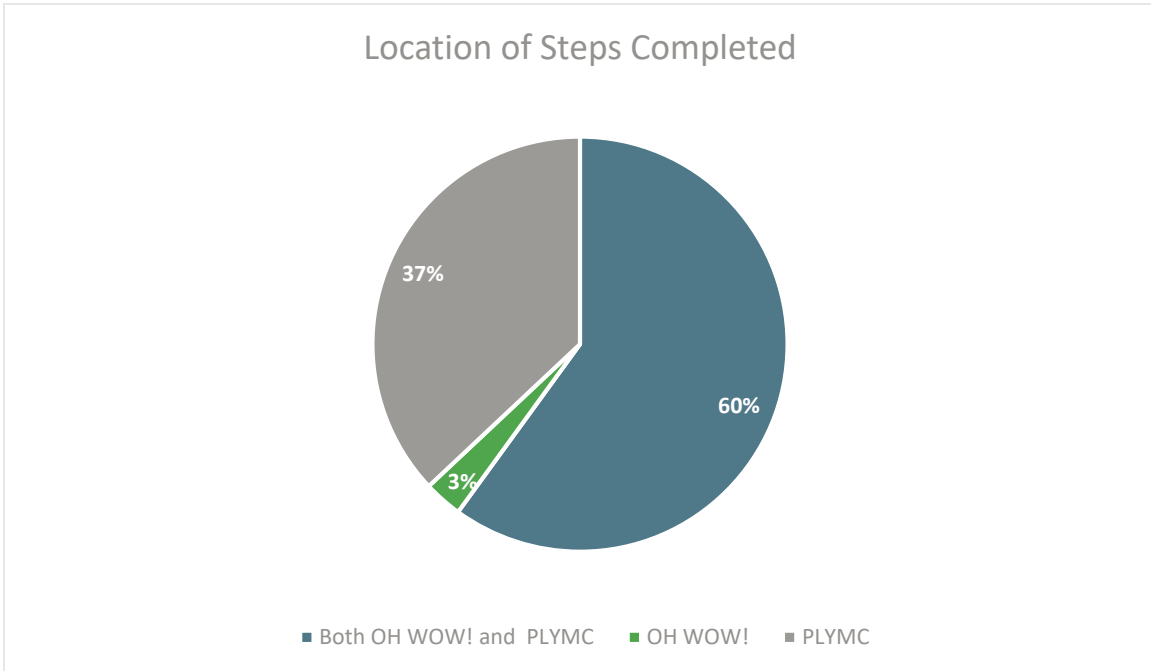
4. LabSpace Usage Patterns

Of the 346 participants whose information was collected, a total of 817 steps or activities were completed at OW WOW! and 782 steps or activities were completed at PLYMC. The usage pattern of participant’s progression through the program’s activities was determined by analyzing the date and time students were awarded badges on the aerodynamics activity. The analysis revealed that the majority of participants moved between the easy and medium steps of the activity during a single visit. Participants who moved to the final step of the activity did so either on the same day or during a subsequent visit.

	Steps Available	Steps Awarded	Total Visits	Participants
OH WOW!	28	817	340	180
PLYMC	28	782	n/a	n/a

The parent/guardian survey was sent to all individuals who signed up to participate in the YOLO program. Of those who responded, 71% reported visiting both LabSpaces, and 29% reported visiting only the library. However, according to badging system records only 16% of participants earned steps at both LabSpaces.

Of the ninety-seven (97) individuals who logged steps in the badging system, fifty-eight (58) did so at both locations, thirty-six (36) did so only at the Library, and three (3) did so only at OH WOW!.



Analyzing participant's movements between the two LabSpaces using the aerodynamics "easy" activity revealed that 61% of participants who traveled between the two LabSpaces started at Main Library and then traveled to OH WOW! at a later date to complete the additional steps. The remaining 39% of participants started at OH WOW! and then traveled to the Library at a later date.

Increased Institution Usage

More than half (71%) of parents/guardians surveyed reported that participants visited the library more than usual as a result of the program, and 67% reported visiting the museum more than before the YOLO project. The following table shows the participants by the number of repeat visits reported at OH WOW!.

Number of Repeat Visits	Number of Participants
3	29
4	5
5	5
6	2
9	1

5. Effectiveness of Badging System

The online badging system for the YOLO project was intended to serve dual purposes, to both encourage participants to complete multiple activities at the two different sites and to collect data about program usage patterns among participants. Onsite conversations with parents/guardians revealed that most program participants or their guardians knew of the online badging system and stated that they had no difficulty with using it. However, survey findings suggest the badging system was underutilized.

The majority of participant parents/guardians surveyed (62%) reported that the student did not participate in the online badging system, though only 14% reported that the student's experience with the system was difficult. Additionally, 43% of parents/guardians reported participants were "interested" in the badging system and 38% reported that participants were "not interested."

- 57% of participant parents/guardians surveyed reported that they did not help the student use the online badging system.
- 63% of YOLO involved staff members surveyed reported the number of students receiving badges as "successful" or "highly successful."
- YOLO program leadership described the badging system as ineffective because program participants did not seem to care whether they entered the steps they earned into the badging system.

However, using the badging system to attain data about how participants progressed throughout the program and between partner organizations was instrumental to the evaluation of the YOLO project. The badging system collected information about which students completed steps and badges at each location and on which dates those steps were entered into the system. The system did provide valuable information for the 97 program participants who logged steps using the badging system.

6. Partnership between PLYMC and OH WOW!

According to monthly calls with YOLO Advisory Group, the YOLO program helped strengthen an already strong relationship between the PLYMC and OH WOW!. Similarly, when YOLO program-involved staff were surveyed, 80% reported that the quality of the partnership between PLYMC and OH WOW! was of high or very high quality. The remaining 20% reported that they had no direct knowledge of the relationship between the two institutions. At the close of the program, YOLO leaders indicated that, while they do not have any immediate plans for a partnership in the future, both institutions are actively seeking future opportunities to work together.

7. Accelerators and Barriers

Throughout the process of program implementation, different situations and circumstances create accelerators or serve as barriers to a program's success. Accelerators are conditions that help a program move forward at a faster than normal rate and barriers are conditions that cause progress to slow or experience unanticipated changes. The following sections outline accelerators and barriers during the implementation of the YOLO program.

Accelerators

Already Existing Relationship

Both organizations capitalized on their leaders' pre-existing relationship to forge a partnership between the overlapping missions of the two organizations. Beginning a new organizational relationship can be difficult when bringing together a program that requires great interaction, cross training and shared audiences. The YOLO program benefited from PLYMC and OH WOW! having a pre-existing working relationship so that leaders could use this grant opportunity to work towards goals that are shared between the two institutions.

Used Each Other's Strengths

For this project, both partners in the grant brought their unique skills and resources to the table to create a unique and successful program plan. The PLYMC has a large audience of current library patrons across the county, experience working with youth and adults, and the staff capacity to manage the program. OH WOW! had experience creating hand-on learning modules and with STEM-based content creation for school age children. Both used their federal grant writing experience, staff time, locations in downtown Youngstown, and marketing outreach pathways to bring the project from conception through implementation.

Common Content Creation and Learning Objectives

Having staff from OHWOW and YPLMC, especially those with backgrounds in education, work together to develop program activities for the library space was beneficial to implementing a program that both worked for the space and was complementary in content to the museum. Creating complementary learning spaces helped lend continuity between the two locations and aided in participant understanding of the reason behind having to attend both locations to earn a badge. While some participant guardians mentioned wanting their child to earn a badge from activities solely at one location, most understood that each location had a different approach to teaching or demonstrating a single concept and that it was beneficial to experience both ways.

Staff Flexibility

Staff at both YPLMC and OH WOW! demonstrated flexibility throughout the implementation of the grant. Two examples of this flexibility include: When it became clear that the incentive program in place for the YOLO program was not as beneficial as intended, staff worked to tweak their initial plan to encourage optimum participation. Additionally, shortly after program implementation, YPL staff identified a need for a bigger net for the drone activity. The library's facilities team was able to fashion a larger cage for use of YOLO participants.

Program Marketing

Marketing the YOLO program in a variety of ways helped ensure program participation by students and families. Staff at both YPL and OH WOW! utilized existing marketing channels including their newsletters, emails to teachers that have worked with the organizations before, and partnerships with other community organizations such as the United Way, to spread the word about the program. In addition, tying aspects of the grant to existing programs with a built-in audience, such as the library's Summer Reading Program, aided in an increased awareness and participation in the grant program.

Barriers/Challenges

Activity Guidance

The YOLO program benefits from both program staff direction for new participants as well as parent/guardian engagement, especially for younger participants. At busy times, having staff available and able to walk families through the program process was a barrier for participants' understanding of what activities to complete. Additionally, because some program staff and many participant guardians did not have STEM-specific expertise in all badge theme areas, some staff and guardians reported difficulty in knowing how to best explain concepts when participants had questions. However, the "See it! Try it! Learn it!" pedagogy, when explained, helped staff and guardians move forward in the activities.

Attendance Patterns

Participation in the YOLO grant program tended to follow the same patterns as regular library patronage, which resulted in high activity during the summer, but relatively low activity in the spring. While the YOLO program was able to meet its participation expectations, most program activity happened during summer months. Low participation rates during months when school was in session was a barrier to program progress at that time.

Badging System

Once program leaders found the appropriate badging system to use for individuals younger than 18, a few additional aspects of badging in general proved to be barriers to the YOLO program. Badges have to be logged online and OH WOW! did not have computers available for public use. PLYMC loaned the museum some iPads so that participants could log their badges on site.

Additionally, some program participants forgot to log their badges because the badging system is online and most often was completed at home after a trip to one of the program locations. Other program participants did not find value in the badging system because it was so separate from the actual program activities, so they did not log their badges at all after the initial sign up even though they completed multiple activities. These barriers to using the badging system make it difficult for YOLO staff to collect complete data about program participation.

Staff Capacity to Oversee Program Spaces

Library staff mentioned that at certain times when the library was particularly busy, they were not able to serve both regular patrons and families looking to participate in the YOLO activities. Similarly, as the program began to roll out, the LabSpaces created at OH WOW! was only open for certain hours when staffing was robust enough to provide appropriate supervision of the program space. At times, staff capacity was a barrier to participants and families being introduced to the LabSpaces or concepts therein.

Lessons and Recommendations

As they undertook the YOLO project, the staff at PLYMC and OH WOW! learned valuable lessons about how to best implement this program and what could be done differently if a similar program were created at either of their locations, or at another location. The following section details these overarching lessons and recommendations for staff of similar projects to consider in the future.

Staff Training and Inclusion

PLYMC and OH WOW! had a strong working partnership from the onset of the grant process for the YOLO program. Library and museum leaders worked together to create a program plan and implement it. That solid partnership was important to the success of the project, especially since both sides were able to have input into their unique roles and contributions in the earliest steps of program creation.

Even though program leadership worked well together and collaborated with program staff early in the process, some library staff members expressed a desire to have a greater understanding of the activities in the LabSpaces and why those specific activities had been chosen to be included. Staff also mentioned not having specific expertise in the constructivist teaching pedagogy or in specific STEM subject matters covered in the program activities. These staff members mentioned that additional understanding of

these things could have been accomplished through more involvement in the initial design and creation of the space or through additional training for library staff members.

Recommendation: Ensure proper levels of inclusion and collaboration in the creation of LabSpaces activities and provide adequate levels of training and/or additional training when necessary.

Online Badging System

Most online badging systems are established for individuals older than 18. These systems include the ability to share information with their friends on social media. Badging programs available for younger users do not have this sharing ability.

Recommendation: Choose a badging system that does not require users to be adults. Consider alternate ways for participants and their guardians to share progress with friends such as providing a designated backdrop for photos that can be posted at guardian's discretion.

Creative Ways to Collect Program Information

The YOLO program entailed a great deal of autonomous activity for participants and their families and participation in the badging system was voluntary and outside the physical area in which the program activities took place. These two circumstances, paired with the variety of age ranges and abilities of participants, can make consistent data collection for evaluation difficult.

Recommendation: Explore ways to collect outcome data such as distributing surveys to guardians or teachers when large groups visit or embedding a survey in the badging system software.

Parent/Guardian Participation

Many program participants are young and require supervision and guidance during program activities. Having a parent or guardian participate with the student throughout program activities is integral to the program's success.

Recommendation: Ensure parental or teacher involvement is required or highly encouraged throughout program marketing materials. Create signage and program materials that contain all of information needed for guardian/teacher to guide or direct participants in a way that adheres to program goals and pedagogies.

Plan for Increased Staffing Needs

For the YOLO project, staff were often serving double-duty fulfilling both their regular library or museum duties as well as covering the YOLO-specific LabSpaces. At times of low program usage, this model worked well. However, sometimes – especially when program usage was high, the program would have benefitted from additional or dedicated staff members to help families navigate the program.

Recommendation: Plan for additional staffing needs in the program grant budget and when possible plan for a dedicated staff member to supervise program activity area during high volume times. In organizations where using volunteers is possible, consider using volunteers who work in STEM fields to help participants work through the activities.

Plan for Variation in Program Attendance

Usage patterns varied in both locations when school was not in session. While both program locations accommodated student groups during school days, usage of the program spaces by families increased dramatically in evenings and during summer break. YOLO program staff perceived much higher program usage during the out of school time hours when families visited the sites; however, badging data revealed that similar numbers of students participated before the summer months as during the summer months. This may have been due to school groups participating during the school year, which allowed more students to participate, but put less of a burden on YOLO staff.

Recommendation: Plan staffing and marketing strategy to account for differences in program usage between days and evenings, and between school and summer times.

Encourage Attendance

Conversations with participant’s guardians provided insight into situations and circumstances that encouraged visits to the YOLO program sites. Many of the parents interviewed stated that they reserved Wednesday nights for trips to OH WOW! because the museum was open late. Additionally, participant guardians were interviewed at a special event at the Library. They mentioned that they enjoyed being invited to the event and others the YOLO project provided, and that they would welcome future events that encourage their children’s education.

Recommendation: Ensure program locations are open in evenings when families can attend. Plan for community events to promote and utilize program activities.

Program Sustainability

The YOLO program expanded the partnership between the Library and Museum while teaching program participant’s skills and strategies related to using the scientific method to explore STEM-based exercises. Components of the YOLO program will remain in place past the end of the grant term, including the physical LabSpaces at each location. The program itself, including the badging system, is not expected to continue past the term of this grant. However, some lessons learned and benefits of having had the program for the past year will likely contribute to the two organizations’ futures. In addition to working towards fulfilling its own program goals, the YOLO project serves as a case study for future programming for libraries and museums across the United States.

PLYMC is planning to continue hosting a hands-on learning space on the main floor of the library. Their plans are to make the space more attractive to teenagers and adults rather than K-8 students and to turn it into more of a traditional MakerSpace where users can create items to take home with them. The supplies used in the YOLO project that are useful specifically to younger audiences will be incorporated into the Library’s children’s area.

OH WOW! plans to continue offering their LabSpace to museum patrons and to continue changing the theme of the activity in their space on a monthly basis. Additionally, because YOLO participants reported enjoying having a guided set of activities to complete while at the museum, OH WOW! is considering implementing a “passport” to guide future patrons through their exhibits.

Leadership at both the museum and library consider their relationship to be stronger than ever. Through this partnership with the library, OH WOW! has realized the value and importance of integrating more

literacy programming into its traditionally STEM-based activities. Through the YOLO program, library staff have come to realize how important it is to integrate hands-on learning activities in their work where possible.

The two partner institutions are actively looking for future collaborative projects. They also are looking for opportunities to bring other Youngstown, OH organizations into future projects in order to build additional strong relationships among service and cultural organizations in the area.