

**Multigenerational Learning at Informal Education Settings with a Focus on
Environmental Education: An Exploratory Study**

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September 19th, 2018**

**A Thesis submitted to The University of the Arts in partial fulfillment of the
requirements for the degree of M.A. in Museum Education.**

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Committee Signature Page**To the Faculty of The University of the Arts**

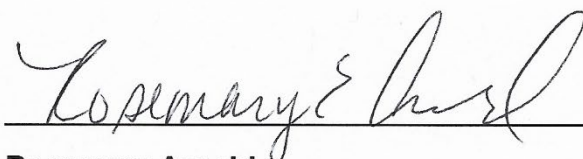
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Abstract

A significant issue in the informal education field is the lack of consideration paid to multigenerational audiences. This study is meant to explore what professionals are doing regarding the planning and construction of successful programming that addresses every member of the visiting multigenerational group. The research goals were to organize and provide practices for the planning of multigenerational audiences that are being used. This objective has application throughout the field of informal education, but more specifically within the realm of Environmental Education. As part of the study, the researcher determined if professionals would use a resource targeting facilitation of multigenerational learning for every member of the group through programming, activities, and events at informal education settings, specifically at Environmental Education Centers. Though the topic deserves additional research beyond this study, this paper is meant to bring focus to a unique learning situation. The study serves as a basis for further inquiry regarding practices that align with learning goals per institution for multigenerational audiences.

Dedication

This thesis is dedicated to the late Helen Shannon for saying yes to someone who was looking for his path. Without her and her willingness to find a fit for every one of her students into the University of the Arts Museum Education department, I would not be submitting this thesis today. She looked at me as an educator with a passion for doing what is right and for helping others in my unique manner. She saw an opportunity to instill knowledge, inspiration and the proper tools for success in the field of museum studies and did so in every one of her students. Her resolve and character are pillars that I will build my professional career on moving forward.

Acknowledgments

Ellen Owens

Thank you for decoding my big picture ideas not just for this project but also in this career change for me. Your work ethic and motivation to change the way the public views and interacts with museums has inspired me to tackle topics that I thought were bigger than my scope and ability.

Molly Phipps

Thank you for being the environmental educator in this process. I questioned means and ability to do this project while studying in a museum studies department but your experience in both worlds has guided me. This is not just guidance for this paper but the next steps in my career moving forward.

Rosemary Arnold

Thank you for showing me that applying proven museum practices can and should be applied to other facets of informal learning, including environmental education. The hours that you allowed me to bounce ideas off you for this thesis, as well as ideas concerning informal education, are more valuable than you know.

Stacey Mann

Thank you for being the concise and demanding individual not just for this project but in my thought process for education at informal learning settings. I will forever ask “why?” when I am working on a potential project or even in a gallery space to make sure that the audience’s needs do not get lost.

My Museum Education cohort

Laura, Meg, and Steph you three have taught me more than you know. Coming from a formal education background allowed me to see some things differently but you three grounded me and kept me focused throughout our studies. Each of you brought something to the table that added to my thoughts and process for this project as well as my future endeavors in the field.

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Nomenclature

For this paper the following abbreviations and definitions are applied:

Abbreviations

EE - Environmental Education

EEC - Environmental Education Centers

K-12 audiences - Kindergarten through twelfth grade in formal education

Definitions:

Audience segmentation: “the process of dividing an audience into smaller groups, with similar characteristics, wants and needs that are selected according to our communication objectives. Audience segmentation is based on the assumption that different groups of audience have different characteristics that influence the extent to which they pay attention to, understand and act on different messages.”¹

Environmental Education: “Environmental education (EE) is a process that helps individuals, communities, and organizations learn more about the environment, and develop skills and understanding about how to address global challenges. It has the power to transform lives and society. It informs and inspires. It influences attitudes. It motivates action. EE is a key tool in expanding the constituency for the environmental movement and creating healthier and more civically-engaged communities.”²

Environmental Education Center: an organization that presents Environmental Education and education about nature in a non-biased manner to the public through trained staff that may include nature centers, environmental learning centers, residential learning centers, parks, and conservatories. These can consist of federal, state and local organizations as well as non-profit, corporate-sponsored and university-sponsored facilities.

Environmental Literacy: “An environmentally literate person, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the well-being of other individuals, societies, and the global environment; and participates in civic life.”³

¹ “Audience Segmentation Is Important for Better Communication,” Cutting Edge PR Insights: Boost Your Career, March 27, 2017, accessed November 01, 2018, <https://cuttingedgepr.com/free-articles/core-pr-skills/audience-segmentation-important-better-communication/>.

² “About EE and Why It Matters,” NAAEE, October 26, 2017, accessed October 25, 2018, <https://naaee.org/about-us/about-ee-and-why-it-matters>.

³ “Defining Environmental Literacy,” MAEOE | Overview, accessed October 11, 2018, <https://maeoe.org/environmental-literacy/defining-environmental-literacy>.

Family or families: “The one conclusion that can be drawn from such introspection and research is that it is increasingly difficult for any one individual to define family. Thus, I have chosen to use a fairly simple but broad definition: two or more people in a multi-generational group that has an ongoing relationship; they may be biologically related but not necessarily. In fact, the general rule is that if a group defines itself as a family they are one!”⁴

Family visit: “Families come to museums with a variety of goals and agendas, including socializing, convenience, family tradition, to support their identity as a family, to have fun, and of course learning, all of which influence family behavior during their visits.”⁵

Formal Education/Learning: For this paper, formal learning or education is referring to the typical ages of individuals while they are attending the traditional kindergarten through twelfth grades or K-12 education.

Informal Education/Learning: For this paper, informal learning or education is learning that happens outside of the formal learning ages and settings (schools) which can include but is not limited to museums, aquariums, zoos, science centers, galleries, pop-up exhibit spaces, and environmental education centers.

Multigenerational Groups: For this paper, multigenerational groups are any social group that attends as a unit with more than two children of typical K-12 school age.⁶

Programming: For this paper, programming is referred to educational programs, activities, and events that individual informal education settings design and present to their audiences.

Qualitative Research: “A qualitative research method delves into a particular situation to better understand a phenomenon within its natural context and the perspective of the participants involved.”⁷

Social Learning: For this paper, social learning is the process of attending a setting with others to make connections through shared beliefs, culture while making sense of new ideas within a group with a shared identity (family, friends, club, etc.).⁸

⁴ Lynn Dierking, “What Is Family Learning?” Engage Families, Accessed October 03, 2018, <https://engagefamilies.org/family-learning-101/what-is-family-learning/>.

⁵ John H. Falk and Lynn D. Dierking, *The Museum Experience Revisited*, (London: Routledge, 2016), 150.

⁶ Marianna Adams, Jessica Luke, and Jeanine Ancelet, *What We Do and Do Not Know about Family Learning in Art Museum Interactive Spaces: A Literature Review*, 2010, <http://www.familiesinartmuseums.org/>; Margaret Middleton, “Bring the Family: Children’s Museum Wisdom for the Rest of the Museum Community,” Western Museums Association. October 23, 2014, Accessed October 15, 2018, <http://www.westmuse.org/articles/childrens-museum-wisdom>.

⁷ Yvonne N. Bui, *How to Write A Master’s Thesis*, 2nd ed. (Los Angeles, CA: Sage, 2014), 290.

⁸ John H. Falk and Lynn D. Dierking, *The Museum Experience Revisited*, 28.

Introduction

1.1. Research topic

As informal education settings grow their ability to interact with multiple audiences at the same time, a need has also grown to better understand how certain audience segments learn through programs, activities, and events. Informal education settings offer, for many, opportunities to explore and learn about the culture around us. Audiences experience them in different ways. One fundamental way of experiencing these cultural and learning environments are as families. Researchers now refer to these families as inter-generational, cross-generational, or multigenerational groups.⁹ The researcher focuses on how and to what extent informal education settings, specifically Environmental Education Centers (EECs) are addressing the needs of multigenerational audiences through programming, that include activities and events.

Falk and Dierking explore how families use informal settings for educational and social purposes. Institutions should be cognizant of this, “Family learning goals are more likely to be met when museum staff understand and respect the reasons why families are visiting their institutions.”¹⁰ They also state that humans are social and “live in societies, among other humans, and the other humans we interact with to a greater or lesser extent play a role in shaping our ideas, our beliefs, and our behaviors.”¹¹ Part of the social aspect of visits by multigenerational groups is to shape beliefs and behaviors of the members of the group through education and experiences found at informal education settings. They choose to attend Environmental Education Centers for social reasons and to have an interaction with nature. The

⁹ Lynn Dierking, “What Is Family Learning?” Engage Families, Accessed October 03, 2018. <https://engagefamilies.org/family-learning-101/what-is-family-learning/>.

¹⁰ John H. Falk, and Lynn D. Dierking, *The Museum Experience Revisited*, 155.

¹¹ John Howard Falk and Lynn Diane Dierking, *Lessons without Limit: How Free-choice Learning Is Transforming Education*, (Walnut Creek, CA: AltaMira Press, 2002): 48.

visit could be the first interaction with nature, or to elevate an already established connection, or what is universally called their environmental literacy. While Environmental Education Centers can have an unclear answer to “how” primary and secondary audiences learn. They do consistently define environmental literacy and work through their education departments to raise it within their audiences. As described by the Environmental Protection Agency, “Environmental education does not advocate a particular viewpoint or course of action. Rather, environmental education teaches individuals how to weigh various sides of an issue through critical thinking, and it enhances their own problem-solving and decision-making skills.”¹²

Reflecting on research, it is evident that there is a focus in environmental education (EE) on learning techniques for K-12 audiences. There is concentration on K-12 audiences who attend EECs and a lesser emphasis on ages after the K-12 formal education years. It is evident that there is an opportunity for the adoption of learning techniques and strategies designed for multigenerational audiences by education staff. The adoption of learning techniques will improve the opportunity of learning-for-all.

This study is meant to be a basis for further research. While the number of interviews may not traditionally be conducive to comparison and generalizations, the researcher used the data in that way to show possible trends and avenues of study. The data could also reflect a regional bias towards the information being presented with most interviewees situated on the eastern seaboard.

¹² “What Is Environmental Education?” EPA, January 19, 2018, Accessed October 12, 2018, <https://www.epa.gov/education/what-environmental-education>.

1.2. Research problem

Understanding how EECs consider multigenerational audiences while constructing their robust learning opportunities in programming is the overarching question for this research. This study researched what defines learning in informal education settings while using it as a framework to analyze how EECs define learning in their practices. Identifying the educational strategies being used by EECs, alongside how institutions define learning practices and objectives for their programming were vital to understanding their application of multigenerational learning opportunities. Through interviews with informal educators and scholars, the researcher gained an understanding of how staff addresses multigenerational audiences. While conducting the interviews, the researcher collected practices for multigenerational learning used or referenced by professionals working in informal education. The collection of practices alongside the exploration of benefits and challenges of working with multigenerational audiences helped evaluate opportunities to implement learning for this audience. Finally, the researcher established the potential for a resource that focuses on how to facilitate multigenerational learning through programs at informal education settings, specifically at EECs that could be utilized by professionals.

1.3. Purpose of the study

Informal education settings are working toward continued use, achievement of learning objectives, and the creation of memorable experiences through programming. The purpose of this study is to offer some fundamental research to establish effective ways to work with multigenerational audiences for EECs. The researcher did this through the exploration of how EECs alongside other institutions in the informal education field address multigenerational audiences in the design and implementation of programming. Many multigenerational groups visit informal education settings to investigate, learn, and create memories. Most institutions cater to specific sub-sets within the group, while not fully considering the whole unit.¹³ Multigenerational groups must be considered in the design of solutions to meet those goals.

Despite missions to educate broad audiences, institutions can find themselves concentrating on one audience segmentation during programming development while others fall by the wayside. The group that usually gains the most attention is K-12 audiences, as evidenced by research. Families are also expected to visit the informal education settings but are not always considered during the design of family or multigenerational programming by staff.

To explore the education practices associated with multigenerational audiences, the researcher conducted interviews with fifteen professionals who currently work in the field of informal learning and environmental education. The interviews solicited information about educational practices with a focus on multigenerational audiences. The purpose of the interviews was to understand the process institutions go through to implement multigenerational learning and to build on the published literature that has a focus on K-12 school trips and school-aged audiences at EECs. It also is meant to recognize how interviewees define learning, identify the

¹³ Anna Johnson, *The Museum Educators Manual: Educators Share Successful Techniques* (Lanham: AltaMira Press, 2009), 75.

benefits and challenges of multigenerational learning, and how successful institutions implement strategies for this audience segment. Ultimately the study demonstrates the prioritization of engagement for learning of multigenerational visitor groups. Finally, the interviews were used to understand if interviewees intentionally plan for multigenerational groups as a learning unit. Analysis of the interviews further informed the need for a tool to help the field.

1.4. Research objectives

The objective of this exploratory study is meant to lay a foundation for others to build upon for multigenerational learning at informal education settings, specifically EECs. The objective of the research is to build an understanding of how EECs planned for learning of multigenerational audiences. It also was to analyze the practices regarding learning for this group used by EECs, and other informal education institutions. It assessed the need and a willingness of EECs and other informal education staff to use a resource for adapting programs to suit multigenerational audiences. While this study may not definitively answer specific questions asked, it did lead to further steps that the field of informal education can build on for multigenerational audiences while looking at how secondary audiences as a whole are addressed at institutions.

1.5. Research questions

Many studies of informal education settings analyze the influence of children's acquisition of knowledge on parents and other members of the group¹⁴, learning in social situations, and how children learn as individuals but not necessarily as part of this audience.¹⁵ The writings on multigenerational learning are not as prevalent as the research conducted on an individual as a learning unit. There is a comparatively smaller group of researchers that are working to better understand this learning unit, namely Ellenbogen, Luke, and Dierking as well as others. Specifically, there are no readily identifiable practices for multigenerational learning within EECs. What is available are practices that focus on the multigenerational audience in or around the tradition museum exhibition spaces which EECs often use less than programming to convey content and their mission. This makes the use of already established practices within museums less applicable. Research questions focused on EE educational practices for multigenerational audience groups:

- How do environmental education centers define learning and does that align with research findings from other informal education environments?
- How are other informal education settings successfully implementing multigenerational learning?
- Are environmental education centers designing programs with multigenerational learning in mind?
- Would a set of practices or a framework be beneficial to both the informal education field and more specifically EECs moving forward?

¹⁴ Christopher Vaughan, Julie Gack, Humberto Solorazano, and Robert Ray, "The Effect of Environmental Education on Schoolchildren, Their Parents, and Community Members: A Study of Intergenerational and Intercommunity Learning," *The Journal of Environmental Education* 34, no. 3 (2003): 12-21.

¹⁵ Roy Ballantyne, Jan Packer, and Michele Everett, "Measuring Environmental Education Program Impacts and Learning in the Field: Using an Action Research Cycle to Develop a Tool for Use with Young Students," *Australian Journal of Environmental Education* 21 (2005): 23-37.

1.6. Significance to the field

EECs connect to visitors and their ideals by creating experiences, while elevating environmental literacy, that can evoke learning in both school-aged individuals and adults. Learning goals can be defined and practiced differently between school group attendees and multigenerational (non-school) visitors, which consist of children and adults together. There is an opportunity for both EECs and the informal education field to create meaningful opportunities for learning adjacent to social experiences that multigenerational audiences seek.

For many EECs their educational mission is achieved primarily through robust programs, rather than exhibitions, like in museums. They do use walls, artifacts, or panels to display text that quickly creates a line of information to the audience. However, EECs use programming to create more substantial learning and experiences both inside and outside (in some facet of nature) of a physical building. Lessons learned from exhibit-focused research is not entirely applicable to programming and that while EECs do use exhibits to a small degree, they focus much more on their programming than museums do. The design of programming needs to be accomplished just like at any other informal education institution with the understanding of their audiences and the social factors that play into most visits. There is an opportunity for programs to be adapted so multigenerational groups can learn together in these unique settings.

1.7. Anticipated results

Research objectives and questions were developed over several months, influenced by fieldwork at EEC sites, personal interactions with EEC educators, and a literature review of multigenerational learning in informal education settings. Through literature, the researcher compared the examination of topics that the larger informal education field is working on regarding multigenerational audiences. Informal education research is very focused on exhibits typically found in museums, aquariums and zoos, and the learning that accompanies these spaces. Regarding learning it is not the setting that creates a division but the exercise in which the audience participates in, viewing an exhibit vs. engaging in programming.

The researcher expected that how EECs define learning would be varied. EECs look to organizations like the North American Association of Environmental Education (NAAEE) and The National Association for Interpretation (NAI) for guidance on educational practices. The researcher expected the understanding and adaptation for multigenerational audiences in EECs to lack of uniformed responses because of the focus on K-12 audiences attending. Also, the weight EECs put on the introduction of environmental literacy to these younger audiences was expected to dictate institutional learning objectives. This parallels the notion that traditionally there is not a significant amount of professional development and networking in the EE field. EECs do not have the governance and standards that organizations like the American Alliance of Museums (AAM) present to its members on their educational practices.¹⁶ NAAEE does provide members educational means that help them strive for individual excellence via a different platform of resources. However, museums have served as institutions with a central focus on

¹⁶ “Ethics, Standards, and Professional Practices,” American Alliance of Museums, September 27, 2017, Accessed October 04, 2018, <https://www.aam-us.org/programs/ethics-standards-and-professional-practices/>.

education for all ages for decades, thus have bodies such as AAM to create standards, while EECs, which are often under-resourced, have brought education as integral to their work much more recently.

2.0. Literature review

2.1. Introduction

The research was conducted to understand multigenerational learning and how informal education settings work to enhance education for multigenerational groups. The researcher implemented a three-pronged approach. First, looking at learning at informal education institutions and how EECs fit into that historically rich literature. Then searching the broader informal education literature for multigenerational learning, looking more specifically for multigenerational learning in EECs. Finally, the researcher focused on a qualitative exploration of what considering multigenerational learning looks like in practice in informal education settings, specifically EECs. Literature focusing on topics concerning K-12 audiences with some specifics on field trips arose from the research. These writings have fewer implications on learning past the K-12 ages in informal education settings, specifically at EECs. Multigenerational learning at informal education settings, specifically Environmental Educations Centers, is not well represented within the literature. The literature does imply that EECs can learn from what other informal education settings have implemented within their institutions.

The literature review addresses three areas related to understanding if EECs consider multigenerational learning while constructing their robust learning opportunities in programming. The review focuses on three bodies of research: 1. defining learning in informal education settings, 2. multigenerational learning in informal education settings, 3. implementation of strategies or practices.

2.2. Learning in informal education settings and EECs

Given the wide variety of subjects addressed at informal education settings the definition of learning at these settings can be broad and troublesome. Because of this, the researcher focused on the literature about learning in informal science settings, since this content most closely aligns with the content of EECs. Most studies concentrate on the K-12 formal education years, with a primary focus for available research on the success of field trips.¹⁷

In *Learning Science in Informal Environments: People, Places, and Pursuits* the authors offer a compilation of what informal settings are currently offering to teach science to visitors, alongside what the institutions have accomplished in the past. By doing this, they have created a robust framework for science educators to follow. The book is meant to expand the definition of “learning” beyond a set definition used by informal science education settings.¹⁸ It refocuses on what is realistic to expect in informal science learning experiences while broadening the accepted definition of “learning” for these settings. The book is also an organization of learning science at informal education settings by the national academics. This book has been helpful in setting the direction of work and in raising the validity of the less measurable learning outcomes that naturally occur in these settings. Even though the understanding of how people learn science is not universal, this literature does a good job providing what is known.¹⁹ The report is an important starting point for informing educators, researchers, and policy-makers who work with

¹⁷ Haim Eshach, “Bridging In-School and Out-Of-School Learning: Formal, Non-Formal, and Informal,” *Science Literacy in Primary Schools and Pre-Schools Classics in Science Education*: 174.

¹⁸ Philip Bell, 2009, *Learning Science in Informal Environments: People, Places, and Pursuits*, (Washington, D.C.: National Academies Press.) <http://0-search.ebscohost.com/catalog.library.uarts.edu/login.aspx?direct=true&db=nlebk&AN=285283&site=eds-live&scope=site>, 127.

¹⁹ James Kisiel and David Anderson, “The Challenges of Understanding Science Learning in Informal Environments,” *Curator: The Museum Journal* 53, no. 2 (2010): 181-89.

or within informal science institutions.

The authors of *Crafting Museum Experiences in Light of Research on Learning: Implications of the National Research Council's Report on Informal Science Education* focus on the aforementioned book by Bell and the six main segments he calls “science learning strands.” They develop a clear expression of the strands on three specific topics that show the importance for informal education professionals: a framework for developing and studying science learning experiences; cultural diversity as a resource for learning; and assessment of learning.²⁰ In *Strand 6: Think about themselves as science learners and develop an identity as someone who knows about, use and sometimes contributes to science*, the authors note a powerful and relatable point by Bell for informal educators,

Think about the frequency with which your peers, neighbors, or friends declare that they never liked science, could never understand it, and so on. This kind of self-identifying statement— being a non-science learner—is (according to studies cited in the report) prevalent today. Identifying with science seems to be more valuable all the time. Identifying with science may entail tracking scientific issues in the news, taking informed positions on science policy, seeking opportunities to learn science for personal or pragmatic reasons, contributing to science, working in a science-based field, being a hobbyist, or simply being inclined to draw upon science when it seems relevant and appropriate.²¹

²⁰ Andrew Shouse, Bruce V. Lewenstein, Michael Feder, and Philip Bell. “Crafting Museum Experiences in Light of Research on Learning: Implications of the National Research Council's Report on Informal Science Education.” *Curator: The Museum Journal* 53, no. 2 (2010): 137.

²¹ *Ibid.*, 143.

The previous point of using relatable experiences to express topics in science is relevant in any learning environment but ties strongly to EECs and what they want to accomplish.

Multigenerational groups could be a pivotal interaction point between the acquisition of content and memorable experiences for children and adults alike. If this is accomplished through experiences in programming, then individuals will have a base of knowledge of science, or in the case of EECs a connection to nature, that can be built upon at any stage of life. Educational materials used by EECs address individuals' connections to their environmental impact no matter an individual's age. A way that EECs work to create a personal link to their content is through environmental literacy or the connection and relationship to the environment that develops into conscious decisions in an individual's personal and political life. Ballantyne, Connell, and Fien sum up why EECs and their programs are particularly important, "Environmental education aims to foster public awareness of and concern about environmental issues, problems, and solutions by providing people with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to investigate issues, solve problems and protect and improve the environment."²²

Most research on learning at informal education settings still focuses on students within the K-12 years for many writings. This can be because of priorities of funding for research, museums' reliance on school visits (being their primary audience), and a continued view that science museums are for children. The lack of funding may also hinder the availability of research that may be used internally more often than outwardly published. Children can and will make a difference in many avenues in the future. While many children visit informal education

²² Roy Ballantyne, Sharon Connell, and John Fien, "Students as Catalysts of Environmental Change: A Framework for Researching Intergenerational Influence through Environmental Education," *Environmental Education Research* 12, no. 3 (July 2006): 413-27.

settings through school field trips, visits are often taken by families for learning or leisure. Addressing the accompanying adult in the planning stages of programs can also be part of essential objectives for EECs. A place where these two groups meet is field trips to informal education settings. In the study *Measuring Environmental Education Program Impacts and Learning in the Field: Using an Action Research Cycle to Develop a Tool for Use with Young Students* the authors constructed and validated a measurement tool to understand better how learning occurs in EE but with a focus on students. The researchers observed four identifiable engagement and learning results which they classified as: actively involved in learning; making links and transferring ideas and skills; sharing learning with peers and experts; responding to new information or evidence.²³ NAAEE's *Excellence in Environmental Education: Guidelines for Learning (K-12)* breaks down practices and application of learning theory to grade levels. This resource provides the field with a robust fundamental guideline for setting a high standard of educational planning for the primary audience of most EECs. It addresses differentiated instruction in these resources for learners of different developmental levels "Using the guidelines and knowledge of individual learners and different classes, instructors can make environmental education relevant to specific learners at particular developmental levels."²⁴ The book can be put into practice past the K-12 education years but does not show explicit ways to use practices provided to address audiences past these years.

In *Field Trips as Cognitive Motivators for High Level Science Learning*, Marlene Hurley identifies vital factors of successful field trips that could be used by EECs. One point that is

²³ Roy Ballantyne, Jan Packer, and Michele Everett, "Measuring Environmental Education Program Impacts and Learning in the Field: Using an Action Research Cycle to Develop a Tool for Use with Young Students," 23-37.

²⁴ NAAEE National Project for Excellence in Environmental Education, *Excellence in Environmental Education: Guidelines for Learning (K-12)*, (Rock Spring, GA: North American Association for Environmental Education, 2004.), 4.

simple but powerful is that “Few other learning tools can provide richer resources or better real-world experiences for learning than a well-selected location and a well-planned field trip.”²⁵

Though trends in audience research are changing to include the importance of multigenerational groups, the previous statement underscores why they are looked at as a secondary audience group compared to other groups in informal education settings. The reason could be money, time, and other resources for an audience that is secondary in most settings. Field trips though are a viable form of income and are comprised of teachers, chaperones acting as facilitators to learning, and parents or adults accompanying children could occupy the same roles.

Gregory Rohlf asks a question about the context of learning objectives in *How to Make Field Trips Fun, Educational, and Memorable: Balancing Self-directed Inquiry with Structured Learning*. His research “sought to probe if the field trip had changed behavior and attitudes.”²⁶ This question can be applied to extend and reinforce learning past the field trip itself with a return visit with a multigenerational group. The question by Rohlf carries weight for EECs who have a similar goal and look to increase their visitor’s environmental literacy or their behaviors while they attend through opportunities to interact with nature. While EECs are creating an experience for K-12 audiences that involve environmental literacy through field trips, there is a large group of adults that also could use a structured visit to elevate their connection to nature. Using structured programming and possibly the field trip model that Rohlf states can broaden and open attendees’ perspectives, EECs can provide productive programming for

²⁵ Marlene M. Hurley, “Field Trips as Cognitive Motivators for High Level Science Learning,” *The American Biology Teacher* 68, no. 6 (2006): 66.

²⁶ Gregory Rohlf, “How to Make Field Trips Fun, Educational, and Memorable: Balancing Self-Directed Inquiry with Structured Learning,” *The History Teacher* 48 (3), (2015): 517–28. http://www.societyforhistoryeducation.org/pdfs/M15_Rohlf.pdf, 525.

multigenerational groups.²⁷ This can be effective in opening the context of understanding content or meaning-making within any age, not just the K-12 audience. While this question of understanding if field trips have changed behaviors is something that can connect other informal education settings with EECs, it is best to note that different learning environments have different outcomes and objectives that they achieve individually.

The researcher explored literature attending to multigenerational learning in informal settings. In the Smithsonian's report *Results of the 2004 Smithsonian-wide Survey of Museum Visitors* researchers asked attendees what the most satisfying part of their museum experience was. 35% answered, "Spending time with friends/family."²⁸ This implies that social/family time is a driving force for visits and program design should reflect this and support this motivation. The most common answer was "seeing the real thing" with 60% of visitors marking that, and 40% said that gaining "information or insight" was their most satisfying experience.²⁹ These three answers play vital roles in any programming in informal education but specifically within EECs. While a report from the New England Museum Association (NEMA) titled *Museum Education 2015: A Benchmarking Survey the 'Whos' and 'Hows' of Museum Education in New England* investigated questions that include "Whom Do Museum Education Programs Serve?" In this section, the report states that "K-12 programs use an average of 62% of a museum's educational time and effort."³⁰ The report goes on to present that, "school-aged audience makes

²⁷ Ibid., 527.

²⁸ Smithsonian Institution and Smithsonian Institution Office of Policy and Analysis, "*Results of the 2004 Smithsonian-wide survey of museum visitors*," (Washington, D.C.: Smithsonian Institution, Office of Policy and Analysis, 2004), 11.

²⁹ Ibid.

³⁰ Meg Winikates, *Museum Education 2015: A Benchmarking Survey The 'Whos' and 'Hows' of Museum Education in New England*, Report, Membership and Advocacy Manager, New England Museum Association. 5.

up the bulk of museum programming.”³¹ It states that 86% of museums in the New England area had targeted programs for elementary school age audiences while “61% offer family or inter-generational programming.”³² The NEMA report says, “unsurprisingly, 100% of science and children's museums offer programs designed for the family or intergenerational audience.”³³ This data set emphasizes that the subject of an institution often has a correlation to its core. Informal education institutions that lay outside the realm of the traditional museum setting are not clearly delineated in this data. The report does not clarify how institutions are categorized and if EECs fall under science museums or if they are just excluded from the report entirely.

These writings show that the K-12 audiences are a focus when writing about learning. It also brings up a point that surveying professionals and institutions may have neglected some informal education settings like EECs. The writings about learning in science settings, as well as writings that address topics of the context of the learner after a visit, can be tied back to the importance of whether adults as learners in groups receive enough attention in these settings. For the researcher, understanding constraints to program development for audiences was essential, and the conclusion that multigenerational objectives and outcomes are not a one-size-fits-all answer. What becomes evident, beyond the scope mentioned above, is that there is not enough written on multigenerational learning as a stand-alone topic to acquire a full understanding of how the field addresses learning at informal education settings, particularly EECs in relation to the researcher's questions.

³¹ Ibid., 4.

³² Ibid., 4.

³³ Ibid., 5.

2.3. Multigenerational learning in informal education settings

What the researcher identified as a scope in the literature, are resources that directly talk about learning objectives for multigenerational audiences revolving around the focal point of exhibit spaces. The idea of creating spaces where multigenerational learning can flourish has been concentrated on within informal education regarding exhibits in museums and aquarium spaces. Specifically, for EECs, who have typically have less exhibit space compared to museums, learning by multigenerational audiences through programming needs to be a focus. Strengths to the research are writings that involve children in museums and social aspects of a visit for adults³⁴. However, a comprehensive approach regarding multigenerational audiences is challenging to find. Anna Johnson addresses this point in *The Museum Educator's Manual*, “Educational programming, exhibitions, and institutional resources, however, rarely address the needs of this group holistically or emphasize interaction among varied age groups.”³⁵ The researcher examined what museums and other informal education settings have accomplished in regards to family (multigenerational) learning through the literature. The literature points EECs in the right direction of how they can best serve multigenerational audiences in their future programming development.

The researcher examined the scope of multigenerational learning and the role it may play in EE. To narrow that focus to the most applicable studies, the researcher attempted to uncover the role that children (the traditional primary audience) play in transferring knowledge to adults. In *The Effect of Environmental Education on Schoolchildren, Their Parents, and Community Members: A Study of Intergenerational and Intercommunity Learning*, the authors examine the

³⁴ John H. Falk, and Lynn D. Dierking, *The Museum Experience Revisited*, 156-157.

³⁵ Anna Johnson, *The Museum Educators Manual: Educators Share Successful Techniques*, 75.

hypothesis that children learn and retain conservation principles in school environments and transfer the principles to their parents who were not with them. Though this study addresses formal education, its theory applies to the informal education field. The study used a pretest to identify a baseline of knowledge for students, and how it translated to parents. After the completion of the course, a test was conducted of both the parents and students. An identifiable uptick in knowledge between both parties occurred. The authors theorize that parents learned directly from the children. It also saw that both groups transmitted information and knowledge to neighbors, which became a separate control group, further increasing the reach of the content provided.³⁶ The authors' theory aligns with the researcher's emphasis on the importance of multigenerational learning, including actively involving parents in student activities or on family trips, to increase understanding of environmental subjects through the transfer of information between children and adults.

The article, *A Review of Research on the Effectiveness of Environmental Education in Promoting Intergenerational Learning*, reviews and brings together results from seven studies that sought to answer the question of how to design environmental education programs in ways that encourage children to influence the environmental knowledge, attitudes, and behaviors of adults, see Table 1 from the article.³⁷ The topic of children influencing adults has intrigued researchers for more than a decade. It is a question addressed without a solid answer. The authors go on to say that, "One effective way to reach adults may be to design and implement K-12 EE

³⁶ Christopher Vaughan, Julie Gack, Humberto Solorazano, and Robert Ray, "The Effect of Environmental Education on Schoolchildren, Their Parents, and Community Members: A Study of Intergenerational and Intercommunity Learning," 12-21.

³⁷ Jason Duvall, and Michaela Zint, "A Review of Research on the Effectiveness of Environmental Education in Promoting Intergenerational Learning," *The Journal of Environmental Education* 38, no. 4 (2007): 14.

programs in ways that promote intergenerational learning.”³⁸ The authors also express that “Intergenerational programs encourage children to share environmental knowledge with adults, thereby influencing their attitudes and behaviors.”³⁹ Duvell and Zint’s research examines programs that have an extended period in which participants are involved which could be a challenge for any

informal education setting. The authors cover longitudinal topics but what is lacking is a look at one-off programs that EECs typically use.

TABLE 1. Summary of Articles on Environmental Education Programs Fostering Intergenerational Learning

Reference	Grade	Topic	Teaching method	Duration
Sutherland & Ham (1992)	6	Local watershed	Booklet	3 weeks
Uzzell (1994)	5–7	Water pollution	Interview, diary	2 weeks
	6	Water pollution	Hands-on activity, interview, diary, take-home activities	6 months
Leeming, Porter, Dwyer, Cobern, & Oliver (1997)	1–7	Environmental/conservation issues	Activities	1 year
Ballantyne, Connell, & Fein (1998b)	5	Endangered flora and fauna	Drama, story, interactive quiz	1.5 hours
	7	Electricity safety and conservation	Class discussion, hands-on activity, homework	2 months
Legault & Pelletier (2000)	6	Green School Project	Integration of ecology into the curriculum	1 year
Ballantyne, Fein, & Packer (2001a)	5, 7	Water and land use	Drama, story, water testing, class discussion, worksheets, field trip	1–5 months
	9	Local environmental issues	Small group research, presentations, written report	5 months
Vaughan, Gack, Solorazano, & Ray (2003)	3, 4	Scarlet Macaw conservation	Class lecture, coloring books, homework	1 month


The researcher then returned focus to examining the effects of informal education settings on learning by multigenerational audiences. A study by the Philadelphia/Camden Informal Science Education Collaboration (PISEC) titled, *Families Are Learning in Science Museums* asked three essential questions regarding family or multigenerational learning during their three-year family-learning project for individual exhibit interactions. Researchers asked, “(1) How can we identify and measure family learning? (2) Is there a connection between family learning and specific exhibit characteristics? (3) How can we change exhibits to enhance or promote family learning?”⁴⁰ The study itself focused on whether or not family groups learn from an exhibit even

³⁸ Ibid., 15

³⁹ Ibid., 15.

⁴⁰ Minda Borun, Margaret Chambers, and Ann Cleghorn, “Families Are Learning in Science Museums,” *Curator: The Museum Journal* 39, no. 2 (1996): 123.

if the amount of time spent within it was short. It also focused on if the individual members of the family interact with the exhibit in different ways and the effectiveness of different parts within the exhibit space. The defining question for this study that PISEC asked, “Are family visitors who engage in activities that could support learning actually learning?”⁴¹ The study analyzed observations of conversations and what the researchers of this study call the “family experience” instead of cognitive tests to weigh if multigenerational groups learn together. The methodology of this study steered away from the testing techniques used in other studies because they would break up the group, require multiple age-specific versions and distract from the experience itself. At the end of the group’s time in the exhibit space, an interviewer asked two questions, and responses were tape recorded. Each interview involved a multigenerational group discussion with the families that attended, about the experience, with the youngest member and moving through the group to the oldest. The data was based on 129 families, with each institution completing a pilot study of 25 families to narrow down behaviors for observation. By coding and examining the behavioral data, the study comes to a discussion that states,

 Families have a culture of shared knowledge, values, and experiences. A family group that visits a museum can enrich its culture, storing knowledge for later sharing among family members. We can think of this as ‘potential learning’ by analogy to potential energy. If information and associations are acquired by a member of the group, they are available for exchange with other family members, not just at the moment of acquisition, but at any time in the future.⁴²

⁴¹ Ibid.

⁴² Ibid.

The study specifically examined multigenerational groups participating in an exhibit experience. It also defines that observable behaviors can be collected, coded and analyzed to understand if learning can take place. The writing documented the learning that accrued within a multigenerational group while creating the potential for future access to knowledge. The research leaves the opportunity to study these observed behaviors and learning experiences over a longer term than one visit within a museum. By applying the methods from this study to EECs, these programs could have the potential for a more significant impact.

An interesting examination by some researchers is that inside informal education settings, it is children often initiating the activity, with older members of the group observing, reviewing, and coaching. In *Adult Play-learning: Observing Informal Family Education at a Science Museum*, Kanhadilok and Watts discuss how the use of a common strategy of play that is employed to engage children can be used to engage adults as well. They state that play can affect adults and catalyze learning. The authors argue that “Play is not only for children, it is also important for adults. Play has been reported to make adults feel alive and be important for their physical and mental health and their general well being.”⁴³ The authors introduce the application of a commonly seen child learning strategy applied to not just the children of a multigenerational group but rather the whole group itself. Learning settings that allow individuals within multigenerational groups, from children to adults, opportunities to play and learn activates their learning, based on this study. For EECs this topic carries merit with programming usually containing some aspect of play or active learning strategies.

⁴³ Peeranut Kanhadilok and Mike Watts, “Adult Play-learning: Observing Informal Family Education at a Science Museum,” *Studies in the Education of Adults* 46, no. 1 (2014): 23-41.

In *Understanding and Engagement in Places of Science Experience: Science Museums, Science Centers, Zoos, and Aquariums*, Schwan, Grajal, and Lewalter write that “Most people primarily plan their visit as social events (such as spending time with family) rather than as learning opportunities.”⁴⁴ John Falk, Carol Scott, Lynn Dierking, Leonie Rennie, and Mika Cohen Jones addresses the topic in their paper *Interactives and Visitor Learning*. The authors acknowledge the link between effective interactives and social learning in informal science education settings. However, they also identify that social learning goals are not educational goals that science museum professionals cite. The authors state that “Visitors who perceived interactivity as an essential component of their learning were able to report significant educational benefits and diverse learning outcomes from their interactions with them, both short-term and long-term.”⁴⁵ The paper reviews the social learning aspect of visits regarding active learning which is a foundation for multigenerational groups when choosing a leisure activity. Both previous papers address social learning as something that deserves further educational research while individuals do more hands-on work to see the benefits of learning with specific components for multigenerational audiences.

While investigating the literature, two papers continually appeared in writings by other researchers. Zimmerman and McClain’s articles titled, *Intergenerational Learning at a Nature Center: Families Using Prior Experiences and Participation Frameworks to Understand Raptors* and *Exploring the Outdoors Together: Assessing Family Learning in Environmental Education*. These two writings lead to a better understanding of the development of collaborative

⁴⁴ Stephan Schwan, Alejandro Grajal, and Doris Lewalter, “Understanding and Engagement in Places of Science Experience: Science Museums, Science Centers, Zoos, and Aquariums,” *Educational Psychologist* 49, no. 2 (2014): 80.

⁴⁵ John H. Falk, Carol Scott, Lynn Dierking, Leonie Rennie, and Mika Cohen Jones, “Interactives and Visitor Learning,” *Curator: The Museum Journal* 47, no. 2 (2004): 188.

actions and learning of multigenerational groups in EECs. They cover a topic that EECs sometimes feature and shows relevance to staff who are working at these locations. The papers focus on creating roles, structures, and tools for educators to improve the learning that is already occurring within cultural and social constraints. Zimmerman and McClain address theory and structure to better understand multigenerational learning in EECs, but summative feedback of the learning itself is not a focus of these studies. The authors address the social aspect of learning and the dynamics that are implemented within a multigenerational group while using tools provided by EECs to understand better learning within family units in localized environments.⁴⁶ These resources are highly applicable to the development of widely-disseminated practices for EECs.

These studies offer insight into specific ways that multigenerational groups learn in informal education settings. What is evident from this literature review is that these informal education settings, including EECs, strive to attract, understand, and cater to multigenerational groups to the best of their settings' abilities. The writings follow distinct objectives to understand methods for fostering learning within a socially motivated visit. Combining the writings into a set allowed the researcher to develop an overarching understanding that gave merit to each work while analyzing how a wide range of informal education settings work with multigenerational audiences. Having this baseline knowledge of how institutions work with multigenerational audiences allowed the researcher to explore the practical application of the practices used.

⁴⁶ Heather Toomey Zimmerman and Lucy Richardson McClain, "Intergenerational Learning at a Nature Center: Families Using Prior Experiences and Participation Frameworks to Understand Raptors," *Environmental Education Research* 20, no. 2 (2013): 177-201.; Heather Toomey Zimmerman and Lucy Richardson McClain, "Exploring the Outdoors Together: Assessing Family Learning in Environmental Education," *Studies in Educational Evaluation* 41 (2014): 38-47.

2.4 Implementation of strategies or practices

Looking at the construction of practices developed for audience segments lends to the notion that multigenerational learning research can lead to better practices for this audience segment. Multigenerational audiences are becoming a critical demographic with unique needs and dynamics, as research about them appears in more and more publications. In the paper *Family Learning Research in Museums: An Emerging Disciplinary Matrix* Ellenbogen, Luke, and Dierking investigate how the model of studying families has changed. It references past studies and how it is important to now look at multigenerational learning differently, “reflecting a more holistic understanding of the family as an educational institution within larger learning infrastructure.”⁴⁷ It builds upon research that had struggled with the application of methods and the studying of multigenerational audiences during visits to informal education settings.

The framework that Ellenbogen, Luke, and Dierking suggest brings the focus on multigenerational learning into a more prominent light. The authors address the change in methodologies for investigating multigenerational audiences. They examine the current methods of study of learning for this audience segmentation with the adoption of new and diverse methodologies. In the past researchers focused on using timing and tracking. Now the use of a range of methodologies that includes, “discourse analysis, video and audio recording of moment-by-moment interactions, pre-, post- and post-post interviewing, journaling, talk-aloud cued visits, and providing family members with cameras as a documentation and meaning-making tool, all in an attempt to better understand and document the role that museums play in families' lives.”⁴⁸

⁴⁷ Kristen M. Ellenbogen, Jessica J. Luke, and Lynn D. Dierking, “Family Learning Research in Museums: An Emerging Disciplinary Matrix?” *Science Education* 88, no. S1 (2004): 48.

⁴⁸ *Ibid.*, 51.

Multigenerational groups, or, in the last quote, families, are now a primary focus for many informal education institutions, including collaborations between institutions to better serve families. This uptick in programs and program analysis can help develop practices from the proper study of how multigenerational groups learn at informal education settings.

Some research-based resources that museums have published directly for the use of staff while working with and designing programs for multigenerational groups, as well as studies that focus on the design of exhibits and spaces, helped the researcher solidify the understanding of learning within multigenerational groups. In the study *Developing Family-Friendly Exhibits*, the PISEC institutions involved came to a consensus of seven characteristics of successful family learning in exhibits. The seven characteristics are,

Multi-sided--family can cluster around exhibit; Multi-user--interaction allows for several sets of hands (or bodies); Accessible--comfortably used by children and adults; Multi-outcome--observation and interactions are sufficiently complex to foster group discussion; Multi-modal--appeals to different learning styles and levels of knowledge; Readable--text is arranged in easily understood segments; Relevant--provides cognitive links to visitors' existing knowledge and experience⁴⁹

The resource for exhibits inclines toward the physical space which is and will always be an essential part of museums and other informal education institutions. Many EECs lack more advanced exhibits, but these findings and recommendations can become an influence in the

⁴⁹ Borun and Jennifer Dritsas, "Developing Family-Friendly Exhibits," *Curator: The Museum Journal* 40, no. 3 (1997): 189.

design and development of programs, activities, events for this unique learning setting. EECs should use a resource like this with the understanding that it relates to exhibits, because staff can only elicit so much from the actual space that they contain. With programming, EECs can instill the same messaging and mission as museums do with both programming and exhibit space. The physical space or the lack thereof at EECs require them to creatively use the inside space and outside space, providing distinctive programmatic experiences.

Other more practical resources for the development of programs are available for staff members to explore at informal education settings. Three distinct resources reviewed that fall into this category are first, a review of the collaboration between the Boston Children's Museum and Chicago's Children's Museum. Secondly, a resource from the Crocker Art Museum, and finally the last resource comes from a partnership in England between The National Institute of Adult Continuing Education (NIACE) with Renaissance North West (a partnership of museums in the North West of England). The three identified collections of practices create user-friendly instruments through evaluation and research as practices that have shown a history of success.

The most rigid but also the most detailed material of the three is the Boston and Chicago Children's Museums' *Learning Together Families in Museums: Staff Training Curriculum*. This work is a collection of collaboration between over forty museums in the United States, and Canada, that include children's museums, science centers, zoos, aquariums, history museums, and others. The researchers were able to develop and test methods that can keep the attending children engaged and learning while still implementing a level of education that meets the needs of adult learners. This resource is meant to be a training package that, “focuses on family learning and on skills that will allow front-line staff in museums to better meet the needs of

visiting children and their adult caregivers.”⁵⁰ This resource provides activities for training as well as in-gallery experiences during a typical day at a museum. The training curriculum includes, “ten validated *Standards of Engagement*; a series of *Activities* supporting these standards; and a *Staff Profile Tool*, a self-assessment tool which is designed to help managers determine the strengths and areas for possible improvement of their staff.”⁵¹ EECs could apply ideas from the featured programs to their work.

The next two resources were designed to be user-friendly guides to understand the realm of successful multigenerational planning better. It also contains some objectives to follow but with less detail and rigidity. Published by the Crocker Art Museum and Renaissance North West, in partnership with NIACE, they have a focus on multigenerational groups within a learning environment and context. The NAICE and Renaissance partnership states in its introduction that, “It is important that all those working with families in a learning context, whatever sector they are working in, have a shared understanding of the key principles and practices of family learning which underpins the work.”⁵² The Crocker's booklet addresses eight key topics and is meant to be an actual guide that informal learning educators can use to better their institution's knowledge on multigenerational or family learning. These eight topics are, “Expand our definition of family; Provide engaging experiences for all ages; Inspire multigenerational collaboration; Serve parent needs and desires; Provide value through family betterment and transformation; Make connections between art and daily life; Create a culture of

⁵⁰ Tim Porter and Tsvia Cohen, *Learning Together Families in Museums Staff Training Curriculum*, (Boston Children's Museum & Chicago Children's Museum, 2012), 5.

⁵¹ Ibid.

⁵² Clare Meade, “Developing and Supporting Family Learning in Museums and Galleries: A practical resource for museum and gallery staff, family learning tutors and managers and for early years practitioners,” *Renaissance North West*, 2009.

intentional experimentation; Incorporate audience evaluation in our decision-making process.”⁵³

These two resources breakdown what professionals have used and continue to use to engage family or multigenerational units in learning practices. The Crocker booklet goes to state, “In terms of museum programming, it is useful to think of ‘family’ as a multi-generational unit with an ongoing relationship, rather than as a group of children and their adults.”⁵⁴ Both resources provide a level of infrastructure either by elaborated bullet points or actual tables that can be used to understand current programming or the design of programs for multigenerational audiences. What all three of these resources have in common is that they were developed at children's and art museums. In the literature, these settings are often leaders in multigenerational learning that have shown success and growth with this audience.

The researcher identified EE resources that addressed practices like the *Ohio EE 2000: A Strategic Plan for Environmental Education in Ohio* titled *Best Practices for Environmental Education: Guidelines for Success*. This writing gives educators a structured set of guides broken up into chapters to construct a complete program from development to evaluation. The guideline discusses adult learners early in the section titled, *Who are the Learners and Educators in Environmental Education*, “While adult and general public audiences are considered together, the general public category presents a unique challenge in that general public programs often serve learners in mixed age groups. Care must be taken to address the diverse developmental stages of the learners in these types of programs.”⁵⁵ Within the section *Program Development*

⁵³ Lial A. Jones, *Best Practices in Cultivating Museum Experiences*, May 2013, Crocker Art Museum, Sacramento, CA.

⁵⁴ Ibid.

⁵⁵ Joyce Meredith, Diane Cantrell, Michael Conner, Bruce Evener, Diana Hunn, and Paul Spector, “Best Practices for Environmental Education: Guidelines for Success,” ERIC - Education Resources Information Center, November 30, 1999, Accessed October 16, 2018, <https://eric.ed.gov/?id=ED472040>: 6.

and Implementation, it is evident that adults and children are divided into distinct groups of learners even though earlier the guideline discusses the two groups as one distinct group labeled “mixed age groups.” It discusses theory and techniques for adults only, “Adult learning theory, which represents the best knowledge of how adults learn, provides a basis for guidelines for this audience.”⁵⁶ This division may be because many informal educators have a basic understanding of pedagogy, but not adult learning or what is called andragogy.⁵⁷ This resource does a satisfactory job addressing theory for adults or adult-led programs while family or multigenerational groups, or by the guideline’s terms “mixed age groups,” are not addressed, unlike the museum-based resources discussed previously. EE, and similarly, EECs, could benefit from the approaches of museums.

All these writings, booklets, and curricula work towards a better understanding of how multigenerational groups learn. They also address how individual institutions can continually work towards successful programming for this audience segment. When these topics are put into social learning situations in EECS, they can carry merit to how children and adults learn together and aid each other’s growth and enjoyment. The creation and adaption of programming at EECs to address higher level thought is needed moving forward. The consideration of individuals who fall into categories past typical K-12 school ages can still receive the benefits of learning techniques that staff commonly utilize for children in these types of settings. The topics discussed can also help address the social and cognitive needs of the parents who attend with their children, which the literature suggests as a newer path to follow. The literature stated above

⁵⁶ Ibid., 27.

⁵⁷ Christopher Pappas, “The Adult Learning Theory - Andragogy - of Malcolm Knowles,” ELearning Industry, July 30, 2018, accessed November 13, 2018, <https://elearningindustry.com/the-adult-learning-theory-andragogy-of-malcolm-knowles>.

was a foundation for developing research objectives, research questions, and tools of measurement for this project.

3.0. Methodology

3.1. Introduction

The qualitative study aims first to understand how learning is defined by acting members of the informal education field compared to how research and literature have described it. The study then addresses how much attention multigenerational audiences receive within the field of informal education, specifically at EECs. Interviews were used to collect data from working professionals to identify a practical definition of learning, to understand the weight institutions place on multigenerational learning, and practices that contain merit and value for discussion. The narrative data was recorded, transcribed, coded, and grouped into themes within the research questions. The researcher's questions addressed in this report are,

1. How do EECs define learning and does that align with research from other informal education environments?
2. How are different informal education settings, specifically EECs, successfully implementing multigenerational learning?
3. Do EECs consider multigenerational audiences when they design programs, activities, and events?

3.2. Setting

The study took place either remotely by a phone call or in person with professionals that work in a range of informal education institutions. The institutions the participants work at ranged from a children's museum, a county-run environmental education center, an institution that defines itself as, "an informal learning laboratory," as well as an aquarium, a conservatory located in the heart of a major metropolitan area, and other informal education settings. Eight out of the fifteen participants (53%) worked in what the researcher defined as EECs (see Nomenclature).

3.3. Participants

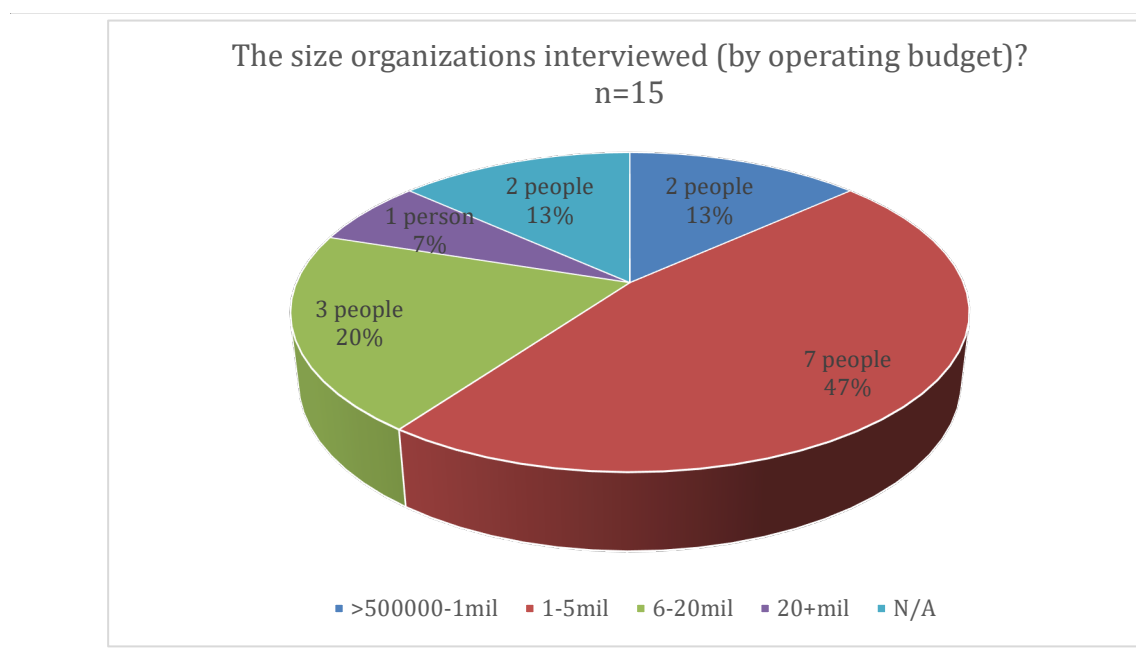
The sampling procedure used for this research project was a variation of convenience sampling. The researcher developed a list of potential participants and reached out via email to weigh the willingness of the potential interviewees. The researcher selected individuals to meet specific criteria and had a willingness to participate. The requirements were that individuals were actively working in the field of informal education in any facet but with connections to institutions that were either EECs or broadly known to work with multigenerational audiences regularly. The participants also meet specific criteria on expertise and knowledge base within the field of informal education to forward the research productively. All participants in the interviews have spent considerable time working with learning theory in K-12 and informal education with a focus on either science learning or settings that engage with multigenerational audiences on a regular basis. The researcher emailed potential candidates with information regarding the study, the overlying research questions and the goal of the study itself — the researcher scheduled individual interviews with all individuals willing to be part of the study.

Two other individuals were interviewed but not included in the final data set. The participants could not answer several questions or, if they did answer the questions, their answers showed little to no connection to the questions themselves. The participants acknowledged that they felt unable to answer the questions at the time and did not feel that their experience or knowledge base would be best suited for the study. The researcher reviewed the interview notes, transcribed audio, and decided the interviews to be off topic enough to exclude them.

The participants in the study work throughout the United States with the majority (53%) of the participants located within 50 miles of Philadelphia. The other remaining participants' (47%) locations are Bartonsville, Pennsylvania; Brooklyn, New York; Dingmans Ferry,

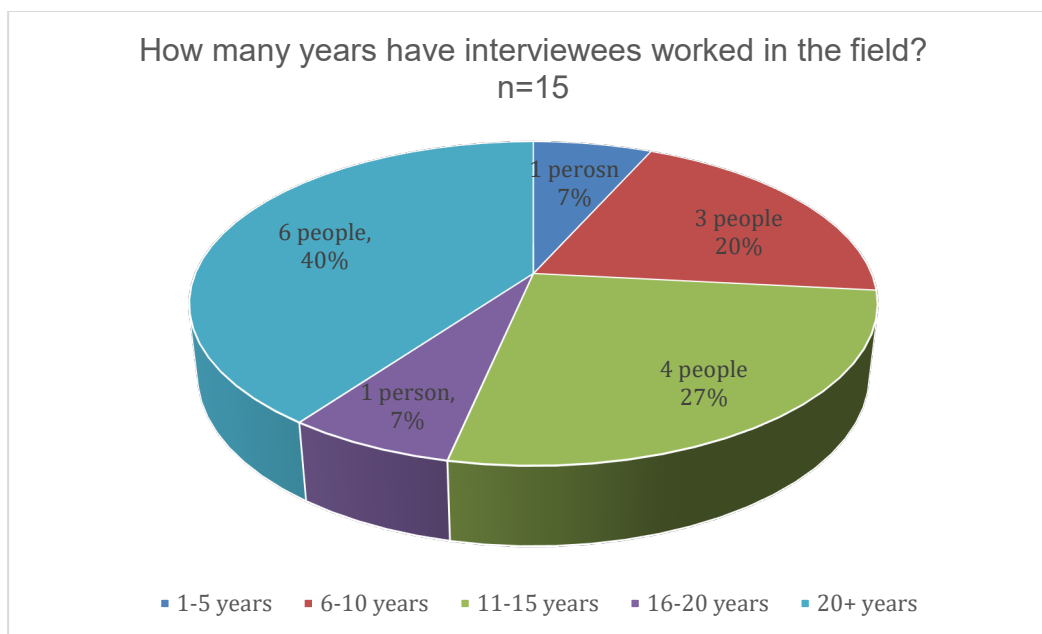
Pennsylvania; Milford, Ohio; San Francisco, California; St. Paul, Minnesota; and Washington D.C. The researcher determined the size of each participant's institution based on its annual budget. Budgets ranged from less than five hundred thousand dollars (7%) to fifty million dollars (7%). Four institutions fell in the range of one to two million dollars (33%), two others in the range of three to five million dollars (13%), two more in the range of six to ten million dollars (20%) and two participants (13%) who did not have the numbers available and could not be found in the appropriate public records (See Chart 1).

Chart 1. Breakdown of the organization by operating budget



This question was designed to compare participants of different sized institutions, but this was not used after the data collection when the comparison was found to be not fundamental to this study. The participants' experience, in years, ranged from over forty years to three years (See Chart 2).

Chart 2. Breakdown of interviewees by years working in the field



All the participants work in the field of informal education and include seven Directors of Education (47%), one Manager of Education (7%), two Coordinators of Education (13%), three consultants (20%) and two participants who fell under the coded category of “other” (13%) (See Table 2).

Table 2. Breakdown of position title of interviewees

Position titles of interviewees	Percentage of total interview participants, n=15
Educator	0%
Coordinator	13%
Manager	7%
Director	47%
Consultant	20%
Other	13%

3.4. Measurement Instrument

The research tool was a structured interview developed for this study. The reasoning for a structured interview as the tool for this qualitative study was to allow for the best statistical analysis once responses were given.⁵⁸ The purpose of the interview was to collect organized data for the research questions of how is learning defined in the field and how much attention multigenerational audiences garner within the field of informal education, specifically EECs. An interview was selected to allow flexibility and elaboration from participants to receive fuller answers to the in-depth and sometimes thought-provoking questions. The total time spent on the interviews was over eight hours and two minutes. The average time spent on the interviews was thirty-two minutes and ten seconds. The shortest interview conducted was ten minutes and two seconds. The most extended interview was fifty minutes and fourteen seconds. This timing excluded the two participants removed (see chapter 3.3 Participants).

The researcher organized questions into three distinct sections. Questions allowed each participant to answer the question openly by starting the inquiry with either, “Do you or your organization” or “Based on your experience.” This decision was purposeful and designed to allow participants to speak openly. The first questions included demographics to identify baseline information and create a comfort level between the researcher and the interviewee. Questions regarding the broad definition and understanding of learning in the field followed to align with research questions for the project. The line of questioning on learning was meant to build to the more complex examination regarding multigenerational audiences and how individuals and institutions make programming with the audience segmentation in mind (See

⁵⁸ Diamond, Judy, Michael Horn, and David H. Uttal, *Practical Evaluation Guide: Tools for Museums and Other Informal Educational Settings*, (Lanham: Rowman & Littlefield, 2016), 69.

Appendix A). The answers were recorded via an application on a cell phone as well as a computer, if in person. Then the responses were transcribed, and the researcher used inductive coding to recognize new patterns and themes within the data.⁵⁹ The emerging themes were analyzed and used to answer the research questions. The researcher then pulled quotes from interviews during the coding process to help solidify how and why the code was relevant and appropriate.⁶⁰

The researcher reviewed the effectiveness and reliability of the interview instrument during different stages of development and implementation. The purposeful approach and line of questioning were first to familiarize the participants with the pace and how the researcher would conduct the interview. The interview was designed to ignite the participants thought processes and recollection of learning theory while building on prior knowledge. It was meant to then build to more in-depth questions regarding multigenerational audiences. This process also increased the validity of responses because participants could navigate the stages of questioning out loud and refer to their conclusions to evoke more thoughtful answers through their previous statements and reflection. The researcher provided participants with questions concerning learning and learning theory that they would be more familiar with to then introduce the idea of multigenerational learning. The distinct order of the questions allowed participants to answer the section on multigenerational learning based on method and understanding of learning at their institution. It also allowed a personal thought process if they had preconceived notions that they did or did not consider multigenerational audiences. The researcher reviewed and reflected on interactions during questioning throughout the process to adapt questions if needed.

⁵⁹ Ibid., 95.

⁶⁰ Ibid., 96.

An example of this was adding samples of learning techniques commonly discussed in the field to a question. This was done, so an understanding of what the question was asking for was clear and precise. The instrument was redesigned after an initial round of 12 interviews and adapted to reduce the time and remove questions that did not produce useful data and answers to the research questions. At no time were questions added or modified that would elicit responses differently from the original set of questions (See Appendix B).

3.5. Procedure

The interviews were conducted via phone (67%) or in person (33%) when possible from June until the first week of October 2018. The interview questions were provided in the confirmation email to allow the interviewee to familiarize themselves and retrieve any information that they may not have readily known. The researcher provided a copy of the questions to interviewees who participated in person.

Before the interview started, the researcher explained that the conversation would be recorded for transcription purposes. Then the researcher asked if the interviewee had any questions about the project or process before starting the actual interview. During the interview the researcher would ask each question, making sure that the interviewee finished the answer before moving onto the next one. The researcher applied timestamps with notes of importance or relevance to make the review later more efficient. Throughout the process, the researcher would clarify any questions an interviewee may have had during the interview. The researcher would attempt to keep the questions and conversation on task. After the completion of the interview, the researcher would explain more about what was being attempted, researched and why. Explaining what the researcher was attempting in the study at this stage was purposeful so as not to skew answers during the interview of the participants.

3.6. Data Analysis

The data was collected on a rolling basis, as previously described and transcribed by gotranscript.com. The transcribed interviews were then moved to Google Sheets to organize and code. While reviewing the transcribed interviews, the researcher noted that participants would give viable data within specific questions that were designed to retrieve different answers. An example of this would be the interviewee gave practices that they have used in the past in a question referring to benefits and challenges of multigenerational learning rather than the question that asks for practices. The researcher noted the answer and used it in the coding process for practices. The researcher developed themes or codes from the coding process that aligned with the research questions. These themes were arranged in a separate document to allow continued addition or association of answers to create a set of codes — the researcher selected quotations from each question that highlighted and reinforced the emerging themes. Coding went through multiple rounds of data reduction to create a more concentrated set of themes.⁶¹ The researcher used the themes to develop an analysis of the research questions themselves, leading to more concise and developed arguments and deliverables. The themes also helped support and identify practices to be discussed in the next chapter.

⁶¹ Ibid., 95.

4.0. Presentation of Data

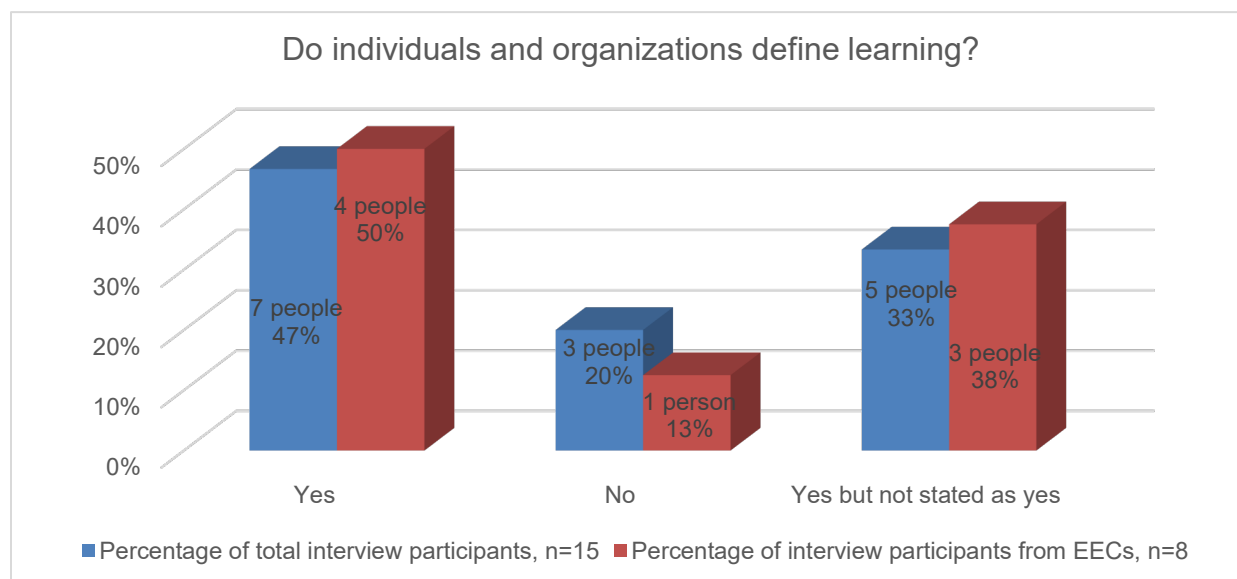
4.1 Data Analysis

As stated in the introduction (Chapter 1.1) this study is meant to be a basis for further research and that the researcher took liberties in how results are being displayed and in comparisons and generalizations. Also, the data may reflect regional bias which is stated early. The data, as well as this study, are meant to show patterns that in which a further study could help define better.

The first question asked, “Do you or your organization define learning? How is it defined?” The researcher coded responses into three categories; 1. “Yes,” 2. “No,” 3. “Yes but not stated as yes.” The code for the response “Yes but not stated as yes” was used when an interviewee did not state “Yes” but either gave a loose definition or explained how the institution defines learning without stating a definitive answer. The most common responses identified were “Yes” (47%) and “Yes but not stated as yes” (33%) with 80% of total interviewees stating “Yes” in some form. 20% of the interviewees stated the response of “No.” (See Chart 3)

EEC professionals as a subset of the institutions involved in the interviews answered Yes 50% of the time with 38% of respondents falling into the category of “Yes but not stated yes.” 13% of EECs stated “No” to this question. An example of an answer to the answer “Yes” is, “Our organization defines learning as the acquisition of knowledge/skills through our informal strategies.” An example for the coded response of “Yes but not stated as yes” is, “I’m not sure we have a formal definition, but we do believe that child-centered learning fosters communication, creativity, collaboration, and critical thinking. That’s how we create our educational frameworks and programming around those four things.” For the coded response of “No” an example is, “We don’t have an operational definition of learning.”

Chart 3. Breakdown if institutions define learning - subgroup of EECs included



To gain a better understanding of whether institutions present programming that includes a strong foundation and use of educational strategies the researcher asked the question, “Do you or your organization classify different learning techniques (examples: inquiry, direct instruction, hands-on learning) that are being implemented within your organization? If so, can you quickly list some in any detail?” The researcher coded the interviewees' responses to three categories of 1. “Yes,” 2. “No” and 3. “Yes, but not consistently.” From the twelve interviewees, 42% answered “Yes” with 8% answering “No” and 50% as the coded answer “Yes, but not consistently.” An example of the coded response to “Yes, but not consistently,”

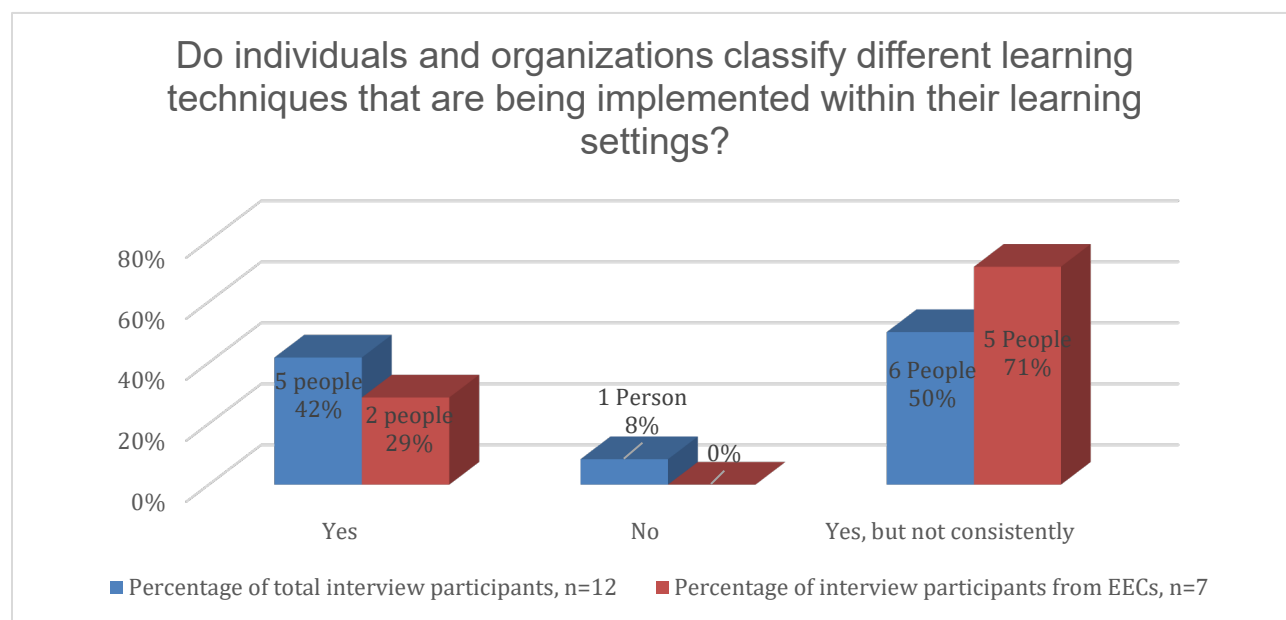
We don't have a clear set guidelines in classifying our learning. Breaking it down, that's fine. What we do is we provide, I would say, hands-on experience-based learning. Our two biggest things because we get them outside. We try not to do a lot of indoor lecturing. Once they're here, we want to use the outside environment

and give them an experience with the hands-on investigation and things like that.

That's the primary core of the learning process.

The subgroup of EECs answered “Yes” at 29%, “No” at 0% and “Yes, but not consistently” at 71%, while 13% of the EECs were not asked this question (see Measurement Instrument section for explanation) (See Chart 4). This result could be a place where settings are lacking direction regarding how they implement educational strategies. It also aligns with the lack of institutions having a set definition of learning as seen in the last question.

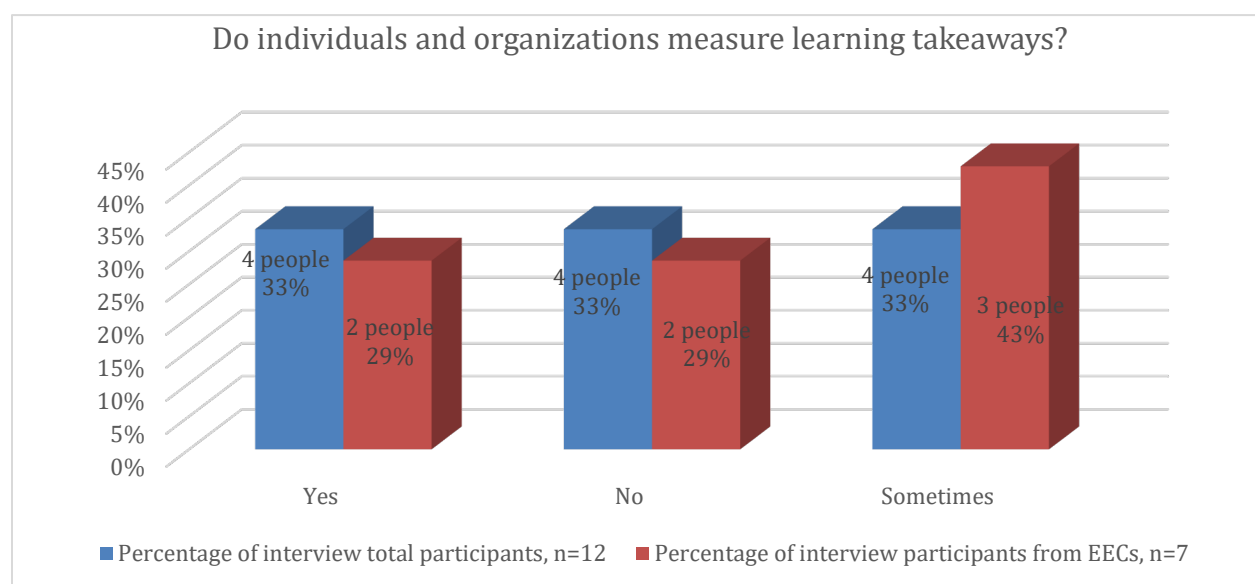
Chart 4. Breakdown if institutions classifying learning techniques - subgroup of EECs included



The last question concerning the topic of learning asked, “Does your organization measure learning takeaways? If so, how?” This question was asked to cognize how institutions self-evaluate for a better understanding if adaptations of programs happen. The responses were coded to three categories of 1. “Yes,” 2. “No” and 3. “Sometimes.” For the total participants, the coded answers of “Yes,” “No,” and “Sometimes” all equaled 33%. (See Chart 5). For EECs as a

subgroup, the numbers fluctuated slightly with “Yes” and “No” receiving 29% respectively and “Sometimes” receiving 43%, while 13% of the EECs were not asked this question (see Measurement Instrument section for explanation). An example of an answer coded as Sometimes is, “We do for certain programs. Things like our 'Every Kid in a Park' program and our educational income tax credit. We do pre and post surveys.”

Chart 5. Breakdown if institutions measure learning objectives - subgroup of EECs included



The results of this section ended up contrary to the researcher’s anticipated results of the interviews. A difference in the results between other informal education institutions, professionals who have worked in these institutions who now consult, and EECs was part of the researcher’s initial hypothesis. What was found was only a maximum difference of 7% of responses between these two groups besides the two coded responses of “Yes, but not consistently” (17%) from the second to the last question and “Sometimes” (11%) from the last question asked. The original hypothesis was never to look at EECs’ staff as not working to the same standard as museums. However, these results show that EECs do work within the same

realm of museums when it comes to measuring learning. The lack of inclusion of EECs in literature like the NEMA study⁶² creates a possible division from the informal education community as a separate entity even though they are relatively close in regarding responses to this question.

The results could be classified as problematic to understand if educational strategies by the interviewees are effective with only 54% responding that they either measure or sometimes measure learning objectives in any fashion. It also could be problematic that only 47% of the institutions, including EECs, can say their setting defines learning. If individual institutions, especially EECs, do not work with a definition of what learning should resemble in their setting, they may have a harder time understanding and identifying multigenerational learning within their institution.

To better understand how informal education institutions, specifically EECs, serve multigenerational audiences the researcher asked a specific set of questions that pertained to the segmented audience. The first question asked, “Based on your experience in the field, what do you feel are the most significant benefits and challenges of multigenerational learning in programming and programming design?” The answers for the benefits (See Table 3) and challenges (See Table 5) were separately coded and noted how many times interviewees mentioned the individual codes. The researcher coded the benefits into three categories: 1. Children influence their parents, 2. Learning together, and 3. Social experience. The examples of the benefits codes are found in Table 4.

⁶² Meg Winikates, *Museum Education 2015: A Benchmarking Survey The ‘Whos’ and ‘Hows’ of Museum Education in New England*, Report, Membership and Advocacy Manager, New England Museum Association.

Table 3. Breakdown of benefits of multigenerational audiences mentioned by interviewees

Significant benefits of multigenerational learning in programming and programming design?	Number of total participants, n=15
Children influence parents' learning	3
Learning together	4
Social Experience	5

Table 4. Definitions and examples of the coded benefits of multigenerational learning

Benefits of multigenerational learning codes	Definition of code	Examples
Children influence parents' learning	Children will influence their adults to break their own barriers and reframe their thinking and absorbing of knowledge.	You can even have parents as well trying to break their barriers for the betterment of their kids
Learning together	There is an advantage for all when there are very different perspectives that can be complementary to each other through observations of different experience levels and content knowledge.	It's nice if there are people who get to learn together
Social experience	The lasting memories that tend to stick with individuals because of the context of the group's visit/experience (pre, during or post) interaction with the setting and content.	These are things that you're going to talk about in the car on the way home; you're going to talk about it at dinner next week, you're going to talk about a year from now. These are the lasting memories that tend to stick with a person because of the social experience and because it exists in a context other than that one museum visit or wherever the place just visited.

The codes for challenges developed into four categories: 1. Adults' fear of lack of knowledge, 2. Designing for multiple audiences, 3. Difficult to show measurable results, and 4. Lack of engagement. The examples of the challenges codes are found in Table 6.

Table 5. Breakdown of challenges of multigenerational audiences mentioned by interviewees

Significant challenges of multigenerational learning in programming and programming design?	Number of total participants, n=15
Adults' fear of a lack of knowledge	1
Design for multiple audiences	6
Difficult to show measurable results	3
Lack of engagement	3

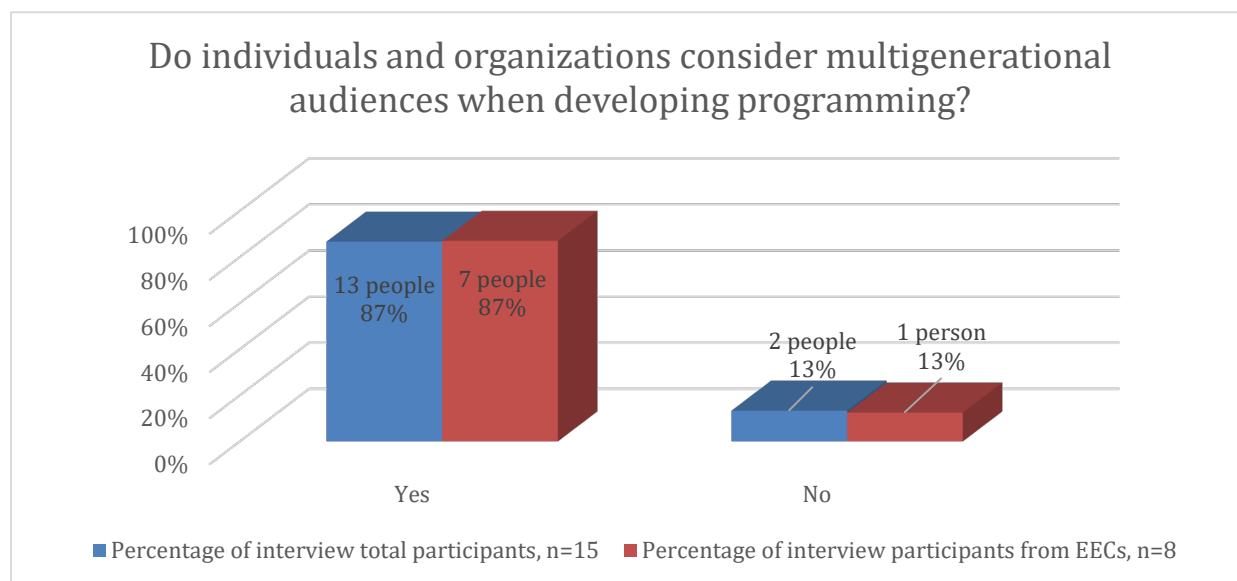
Table 6. Definitions and examples of the coded challenges of multigenerational learning

Challenges of multigenerational learning codes	Definition of code	Examples
Adults' fear of lack of knowledge	Adults may not want to participate in front of others if they are unfamiliar and uncomfortable with the content.	Adults may feel intimidated by STEM content and fear how they might appear to the children if they do not know answers to questions
Designing for multiple audiences	Designing for two different age groups learning together can be challenging without practice on how to avoid shortcomings in learning as well as how the two different ages interact with prompts and presentation of content.	As a museum professional, the true and deep challenge is to figure out how to create experiences that truly and deeply engage parents and kids, or grandparents and kids, or adults and the child in ways that don't shortchange either one.
Difficult to show measurable results	Groups that attend with different ages, developmental levels, and pre-existing knowledge make common measurement strategies challenging to use and compare to other groups that may be similar.	I think the most difficult aspect of it is finding measurable results at the end of the day and tracking that data over time to show impact
Lack of engagement	Keeping different ages engaged and learning through preconceived notions that the program is designed for one audience, not their group attending while allowing for "recharging" if needed.	They are constantly running around with their kids to the museum, so once their kid sits down and is engaged, it's like they are trying to walk away, not walk away, but sit down, and just remove themselves from the situation for a little bit. We call those refuelers, and whether they are on their cell phone, or just sitting, they are not really engaged in what's happening.

The researcher eliminated responses that did not answer the question. The responses helped clarify if institutions and individuals put a value to the audience segment of multigenerational groups.

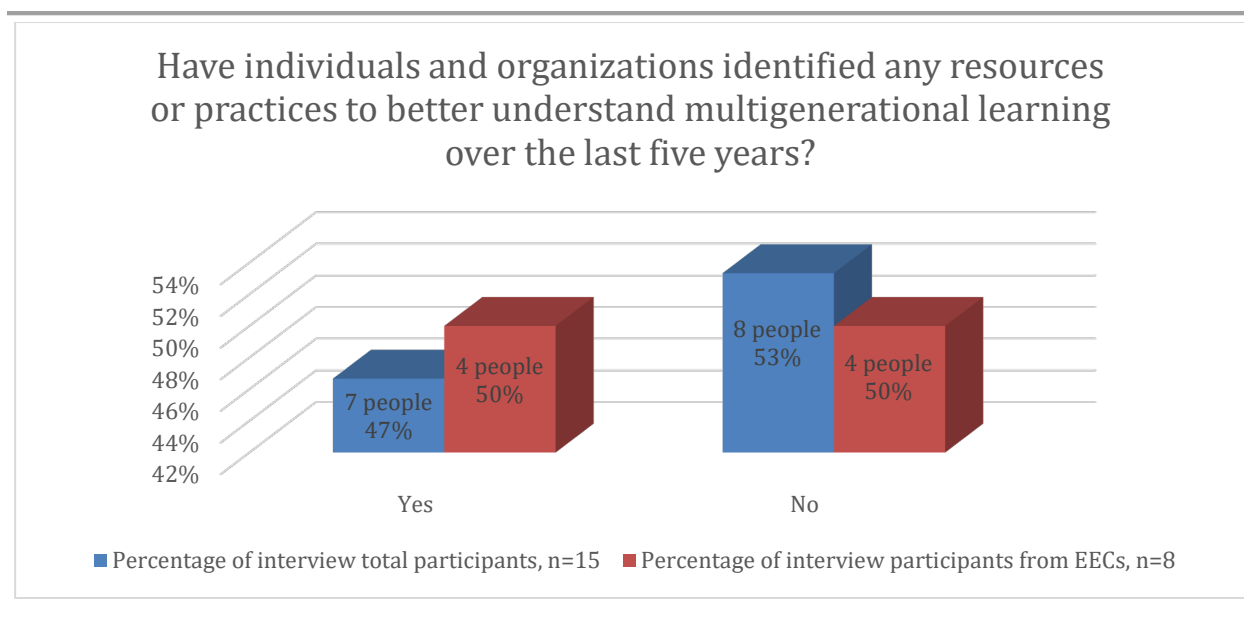
The next question asked, “Do you or your organization consider multigenerational audiences when developing programming?” Participants responses showed no variation with 87% of respondents saying “Yes” and 13% saying “No” for the total participants, as well as the subgroup of EECs (See Chart 6). This response shows that education staff feel that they are considering multigenerational audiences while developing programming for their space. The audience segment is still a secondary audience but the fact that such a high percentage of respondents answered “Yes” must mean when focus leaves the primary audience group staff feel they are working with this audience. This could be a place of the distinction between considering an audience and supporting learning in multigenerational audiences by staff.

Chart 6. Breakdown of interviewees considering multigenerational audiences



The next question asked was, “Have you or your organization identified any resources or practices to better understand multigenerational learning over the last five years?” (See Chart 7) The total respondents answered “Yes” 47% of the time, while EECs had a slightly higher response at 50% of the time. The answer of “No” by the total respondents was 53% while, EECs again said “No” 50% of the time.

Chart 7. Breakdown if interviewees identified practices for multigenerational audiences



If individuals answered “Yes” to the previous question, a question followed, “Have you or your organization used any of these resources into practice? If so, can you give an example of which and why?” The results of total respondents answering “Yes” (71%) were significantly higher than the answer of “No” (29%) to this follow-up question. There was a slightly higher uptick of “Yes” responses (75%) for EECs (See Chart 8).

Chart 8. Have organizations used the practices after answering “yes” to the previous question of “Have you or your organization identified any resources or practices to better understand multigenerational learning over the last five years?”



If the interviewee answered yes to the follow-up question concerning the identification of practices, the researcher collected the narrative responses given by participants for the process of coding. All cited practices came from what the researcher perceived to be a personal experience, with no participant ever citing evaluation or research. The researcher organized the responses into four coded categories of 1. Be prepared, 2. Content/curriculum design, 3. Create an experience, and 4. Keep a high level of engagement (See Table 7).

Table 7. Breakdown of practices identified by interviewees responses

Practices identified by interviewees	# of total participants, n=15
Be prepared	6
Content/curriculum design	8
Create an experience	6
Keep a high level of engagement	10

Found in Table 8 are examples from the interviews that were used to create definitions and the coded responses for the question regarding practices.

Table 8. Definitions and examples of the coded practices

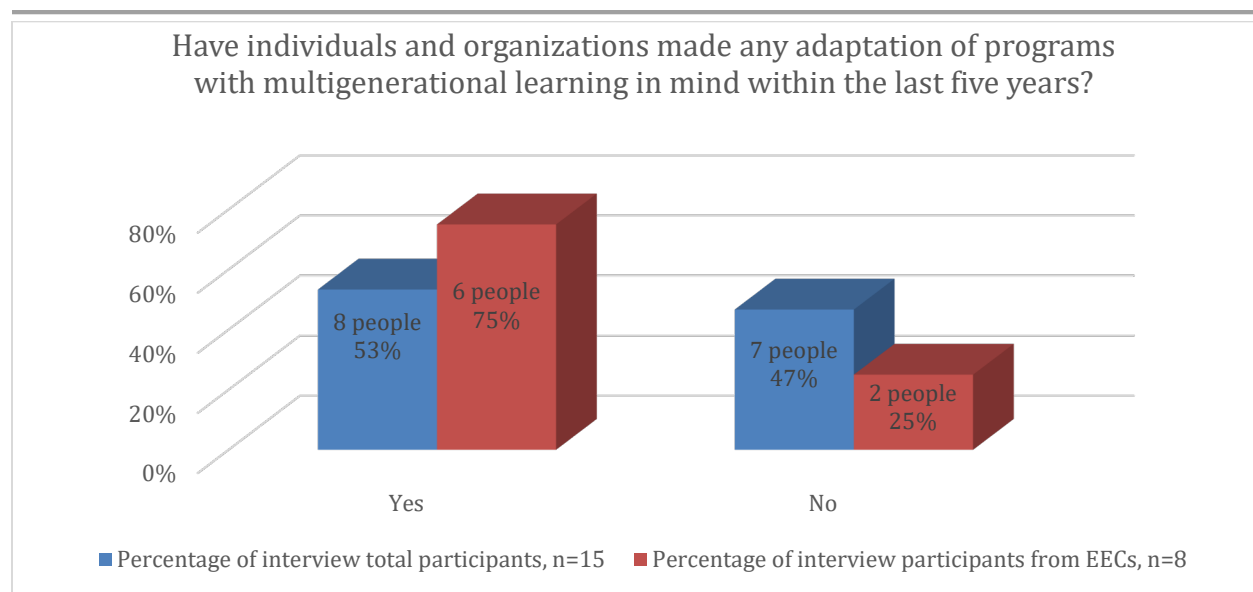
Practices codes	Definition of code	Examples
Be prepared	Work with staff to be prepared for the audience and ready to adapt for an unknown situation that may arise through training internally or with other institutions through professional development.	Things will happen, that you will not be prepared for, so prepare yourself, right; you're trained to do, is adapt to the audience in front of you; It is a training basically for informal educators. It is like The Reader's Digest version of the cognitive and developmental psychology
Content/curriculum design	Understand how the program can meet learning objectives for the whole group through scaffolded content that is designed for everyone.	Add learning goals in for adults as well; You have to design for a smart fifth grader because for a lot of adults, if it's not your specialty area of content, like if you didn't study it in college, your remembrance of particular topics stops at about fifth grade.; raised the learning objectives to a higher level there
Create an experience	Create a learning experience that is memorable and relatable for the whole group but does address the individual learning needs of the audience.	The grownup can touch and explore, and something new for the grownup too, makes it a memorable experience and beneficial for both of them.; In general, we try to make learning fun.; We really intentional and thoughtful about how we set up our expectations of the roles of the parents.
Keep a high level of engagement	Have interactions between individuals that spark the interest of the content through ownership of the learning with active learning strategies that all can participate.	We would sometimes ask them to be co-facilitators with us, or co-learners alongside their children to support what we were doing so that they would get more involved in the process.; Give them a job, give them ownership and responsibility, and it makes a better class and utilize them, use adults of assets.; including toys from when grownups were younger, would engage the grownups even more and help to keep them engaged and interested

During the coding process, the researcher removed codes that could be included as standalone practices that are worth noting. They were removed to follow the typical coding process of selecting points that are repetitive and powerful to the data. Examples of these individual practices are an adult focus, doing as a theme, and self-reflection of staff. For adult focus, the information given was in concern to developing an experience, rich in content, that the

adult would buy into, find relevant and benefit them uniquely within the program. For doing as a theme, the material was regarding creating actionable moments in the programming that excite learning. For self-reflection of staff, the information expressed was on reevaluating programs and the staff who are delivering the program opinion on how the program worked for the audience.

The researcher then asked a specific set of questions that corresponded with the final research objective of constructing a simple resource or a set of objectives. The first question asked “Has your organization made any adaptation of programs with multigenerational learning in mind within the last five years? If so, what?” Interviewees answered that “Yes,” they had made changes 53% of the time, with the subgroup of EECs saying they have made changes slightly more (75%) within the last five years (See Chart 9).

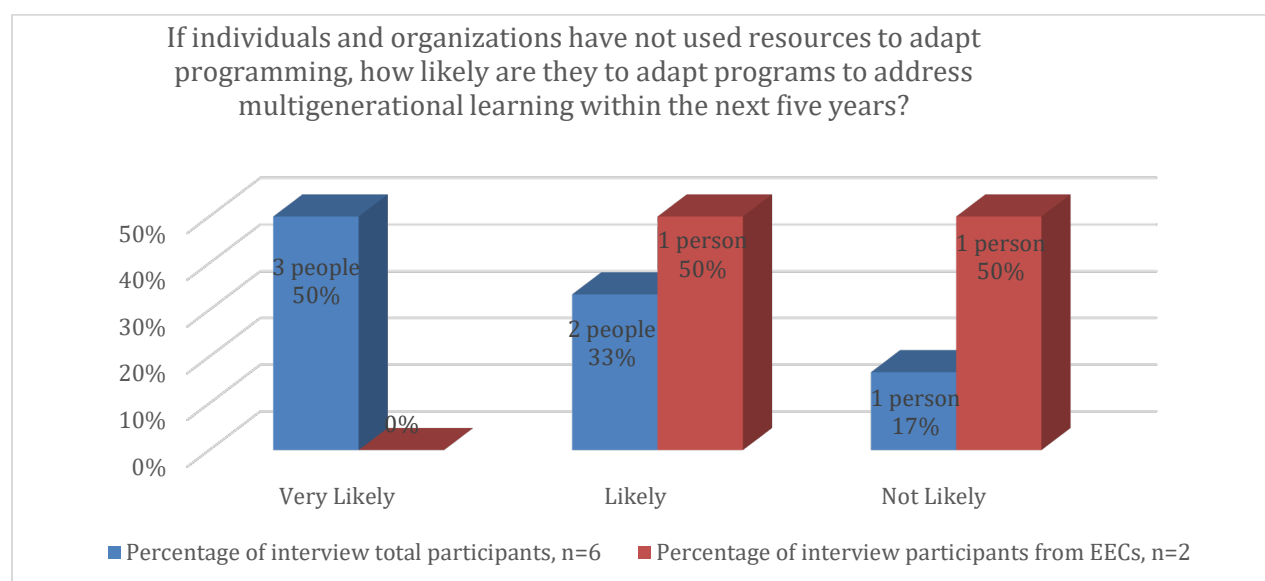
Chart 9. Breakdown if organizations made adaptations to programs in the last five years



If the participants answered “no” to the question, a follow-up question asked, “If not, how likely is your organization to adapt programs to address multigenerational learning within the next five years?” The researcher then coded for the respondents that said no, into three categories of 1. “Very Likely” (50%), 2. “Likely” (33%) and 3. “Not Likely” (17%) that they would make

changes for the total respondents. EECs answered this question with participants saying “Likely” 50% of the time and “Not Likely” at 50% as well (See Chart 10). Some participants went on to say that they would make changes when creating new programming but not to existing programs. The fact that institutions have made some adaptations is promising, but this audience segment is attending at a high rate, seen in the NEMA report in the literature review, and should be considered more than 50% of the time or 75% of the time at EECs.

Chart 10. Breakdown if not how likely will organizations make adaptations to programs



When participants were asked, “Do you have successful programming that addresses multigenerational learning?” 93% of respondents said yes and 7% choosing not to respond to this question (See Chart 11). For the subgroup of EECs, 100% responded yes to the question. This data would support the consideration of multigenerational audiences by EECs even if there were a struggle to express practices that individual locations are using. What the data from this question does show a slight but a possible negligible variation from the earlier question of “Do you or your organization consider multigenerational audiences when developing programming?”

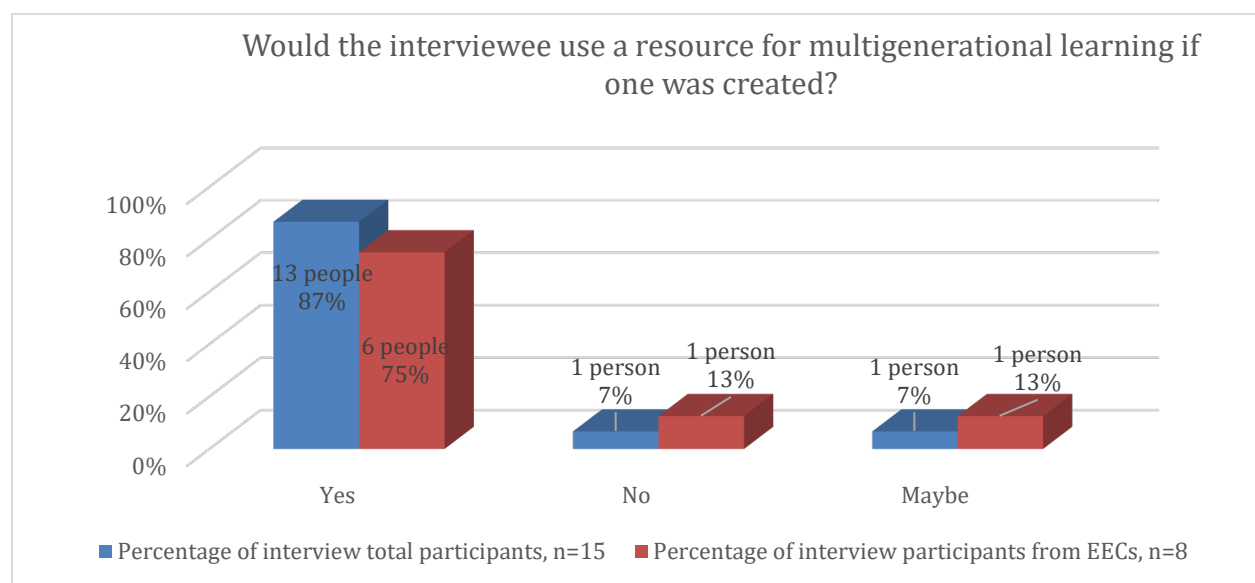
with the responses tallying 87% compared to the fact that 93% of institutions and 100% of EECs state they have successful programming, even though different locations may measure success differently.

Chart 11. Breakdown of successful programs for multigenerational audiences



The final question asked, “Would you use a resource for multigenerational learning if one was created?” 87% of participants and 75% of EECs said yes, they would use such a resource (See Chart 12). The clear majority from both the total participants and EECs does not just show the need to fill a void with a set of practices but the want of practices by these institutions that should be filled sooner rather than later to address this critical audience.

Chart 12. Breakdown if interviewees would use a resource for multigenerational learning



4.2. Conclusions


As already stated in the previous section (Chapter 4.1) and the introduction (Chapter 1.1), the researcher, took untraditional routes with how the data is presented and used in comparisons to show conclusions and possible avenues of further research.

Results from the interview analysis show that there is in fact agreement on addressing the creation of programs for multigenerational audiences. The data collected from interviews did not coincide with the original hypothesis, that EECs are not considering and measuring learning while using educational strategies at the same degree of historically more established informal education settings. The data does show that EECs are working to address multigenerational audiences at the same degree as other informal education settings. The research also identified themes that align with the fact that audience-specific programming is being used and can be adapted to better the overall learning experience in informal education settings, specifically at EECs.

The fact that a minority (47%) of all participants across the whole interview process (including EECs) answered that their informal education institution had clear definitions of how learning is defined could be a constraint that curbs chances for successful educational programs. EECs were slightly higher regarding this question with 50% of participants stating they had a definition to follow. Participants across the whole study could identify a definition (33%) that they or their department may use, but it did not fall as an official definition used by their institution. EECs had a slightly higher percentage of respondents (38%) answering the question this way. The apparent lack of majority begs the question of whether informal education settings are delivering philosophies of learning for staff to implement through educational strategies? The fact that only 42% of the total participants and then only 29% of EECs could clearly define how

they look to engage their learners with specific educational strategies creates apparent opportunities for growth. If EECs look to excite individuals and to make an actionable change regarding the environment, they must engage their visitors using methods with proven results. When we see that learning and educational practices are not defined, then there is an evident lack of direction on how to accomplish these goals. Even if EEC staff work with the best resources that organizations like NAAEE provide, educators will still need institutional direction to follow that aligns with their mission.

The researcher identified patterns that would lead to an assumption that more time can be spent to help these learning institutions while working with multigenerational audiences. One such pattern is that only three coded responses emerged concerning the benefits and four concerning challenges of working with multigenerational audiences. The fact that there were more answers coded for challenges may illuminate why they have not developed programs for the audience segment. Another theme was a lack of identification of resources or practices that individuals and institutions use. This theme makes this exploratory study useful in that people could use a widely available guide or tool. Majority of participants (53%) answered that they had not identified any sources of guidance on the topic. Only 50% of EECs stated that they had identified resources to use. The minimal number of productive responses to the last question compared to the fact that 93% of total participants and 100% of EECs said that they have successful programming concerning multigenerational audiences begs the question if institutions can see past challenges of working with this audience segment and see actual benefits to spending time on multigenerational learning. These results could create a debate if institutions can have successful programming without discovering or supplying what practices for the planning of these programs are. The result is also in conflict when it comes to claiming a

successful program when they only measure their learning objectives at 33% of the total participants interviewed and at 29% of EECs. It begs to question how locations measure the success of a program, which in itself could a place for further research. With a strong focus on K-12 audiences, EECs need to put a more substantial effort into understanding this growing secondary audience of multigenerational groups. If EECs are to claim to have a high rate of  successful programming (100%) without giving substantial benefits, challenges, practices (even their own) and are not consistently measuring learning objectives or programmatic success, can their programs be catering to all the needs of a multigenerational group? This question asked connects back to how EECs and the field examine learning for this audience.

Newer observational tools and methods that have shown success by Ellenbogen, Luke, and Dierking alongside older methods of studies like the PISEC collaboration ask informal educators to look at multigenerational learning differently. EECs need to look at multigenerational audiences as a unique and independent audience segment that learn differently than the audiences that they are traditionally accustomed to working with in programming. Further research is needed to see if institutions indeed consider the specific learning needs and proven tactics for this audience, based on available literature and resources. The data leads to a query of, is this audience segment a secondary thought and not as crucial to EECs as it is becoming for the broader field of informal education? Also, why are proven multigenerational learning tactics not considered more often when staff plan and design programs that they classified as multigenerational? The answer could be money, time, and other resources for an audience that is secondary in a lot of informal education settings.

Another theme that emerged was the fact that professionals have made adaptations to programs for multigenerational audiences but only by a small majority of 53%. Half of the

respondents from EECs that said they had not adapted programming and stated they were not likely (50%) to do so in the future. Alternatively, is this audience segmentation a secondary concern with less time and effort spent on refinement of programs concerning them compared to other audiences? The understanding that time and effort is substantial for the development of every program alongside the fact that some EECs have minimal staff is only another reason why they should work to adapt programming that is already successful. EECs do not need to recreate the wheel. Instead, they can work within their means to take their robust learning programs and adjust them to cater to this ever-growing audience segment.

There was a visible majority (87%) for both the total participants and EECs alike that said they consider multigenerational audiences. Participants said at an 87% rate, EECs at a 75% rate, that they would use a practices guide concerning multigenerational learning. With the growth of understanding of audience segmentation in the field of informal education, there is an uptick in needs for these new and more complex audience groups. Multigenerational audiences are one of these groups with complex needs. As the understanding of this specific audience segmentation grows, it is vital for EECs to stay up to date on how others are successfully working with it.

The research showed that both participants from other informal education settings and EECs continue to do what they feel best suits their institutions for the broader topic of learning, as well as the more segmented topic of multigenerational learning. This data brings to light that all informal education settings, including EECs, need to refocus to make current programming more targeted on the growing needs of multigenerational groups and how they learn. Overall, the focus of EECs has been K-12 audiences, and this field has devoted most of its time to supporting this audience. However, many people are using their leisure time to bring children and older

generations to EECs for education and leisure, increasing the need for better practices to support this type of learner.

5. Application to the field

The results of the interview showed that staff work in their realms to serve multigenerational audiences. It is an opportunity for the future success of the informal education field to continue to elevate their learning techniques but to also to introduce new ideas and topics to an older generation that attends alongside younger audiences. However, the fact that staff have not identified a set of resources to help adapt programs for multigenerational groups is a place for growth. The understanding that not once was there a suggestion or even recommendations of a specific set of practices that others have found is something that stood out. This last statement compared to the fact that in literature museums and other organizations have created helpful resources, is a place for growth and refinement in supporting these audiences. Educators may not have a deep command of all the content but are supposed to know the best way to engage audiences, and it is essential that the informal education field know that there is still a need for a universal set of practices.

Further, the research shows that while staff claim that they address multigenerational audiences, only one participant who said their organization is addressing this audience segment said that they would not need or use a resource to better help their institution. The previous explanation led the researcher to infer that even though staff may be working well with the audience, they still would like a more concrete set of actionable guidelines for program design, as well as possibly staff training. The preceding statement aligns with the fact that participants could not provide a strong link to their practices or provide many themselves. It also aligns with the literature review that other audience groups are still the primary focus even though the development of new ways of studying multigenerational learning with a stronger understanding of how this distinct group learns together is available. Even if individuals feel they are working

well with the audience, they feel that it is still a relevant audience to plan for not just for the future but now. EECs have a place of growth on this topic. The fact that they recognize that there is a need and would use a resource of some kind shows the need for one to be developed.

Environmental education centers aligned right with the other informal education settings interviewed but the one question that stood out is the question regarding learning techniques and strategies. This is a place where EECs could benefit from a “voice to follow,” especially for standards of training. This may be training for staff and others that is truly comprehensive to what their setting is looking to provide to the public regarding learning. Informal education settings that EECs could look to as case studies are aquariums and zoos with similar missions and content being presented to audiences. The problem may not be how programs are being designed but understanding the why when it comes to programming design for these locations and their audiences. Solutions could be simple like providing clear and definitive learning objectives for all levels of development. If the staff is trained to use proper learning techniques from learning theory, they can use the strategies in the design and then naturally the implementation of programs. This training may focus on proven pedagogy for all learners but also an introduction of andragogy or the methods used in teaching adults.

The research conducted does suggest that the informal education field is applying some time and effort to multigenerational learning. Though this disproves the researcher's initial hypothesis that the field and EECs can better engage these groups, it suggests that they look at and serve the audience segmentation only to certain extents. The literature and research also showed that the environmental education field could and should continue to grow its understanding of the audience segment as its own unique entity and not a subgroup of an audience that is already attending. Finally, a presentation of the research and data to individual

informal education settings so they can better reflect on how they present their learning goals, objectives, and mission to individuals while attending as part of a multigenerational group could be carried out. The data collected shows that this is a viable avenue for improvement even if this paper does not give a concise direction to follow but a place to start for further research and application.

6. Recommendations for future research

While discussing the topic with individuals in the field of Environmental Education, a common theme came up that pushed the researcher to focus on the topic of this study. This theme was that these institutions concentrate on their target audiences and that there can be a lack of focus on other audiences attending. While the research did show a consensus among professionals that their institutions plan for and conduct multigenerational programming, interviewees were not able to identify successful programs to serve as definitive case studies from each institution. Some interviewees did provide viable examples of programming that may address multigenerational audiences. Other institutions discussed the topic but could not identify their programs at the time of the interview. The review of programming at EECs as case studies is a viable place to start to look at this research question further.

A simple question also presented itself of why EECs and other locations are not being studied and classified as part of informal education settings in reports such as the NEMA report cited earlier. They apply the same practices and sometimes with less worry on a “hot topic” issue like global warming than other locations can try. EECs are at their core informal or free choice learning settings. The same set of audiences that Falk and Dierking identified and the field of informal education has adopted attend and use EECs.⁶³ It may be time someone looks at them and figures out if they are their own standalone setting or part of the larger museum field.

Looking at how EECs compare to the larger informal education field regarding time and money spent by education departments regarding training that involves educational strategies and understanding how audiences are using their settings is a place for continued inquiry. The implementing of “museum practices” to EECs is happening with individuals working within both



⁶³ John H. Falk and Lynn Dierking, *The Museum Experience Revisited* (London: Routledge, 2016), 47-49.

realms. There is a disconnect between EECs and museums, but each set of staff can benefit from the introduction of planning, application of strategies, and standards that both settings have been using productively. There is an opportunity for a study that looks to apply “museum practices” to an EEC and vice versa to see how this can change staff production as well as the programming itself.

The slight difference between responses that said there is a consideration of multigenerational audiences (87%) when developing programming and the higher response that the institutions have successful programs that address multigenerational audiences (93%) while not adapting their programs at a high rate (53%) leaves some room for exploration. If institutions address, design, and implement some form of multigenerational learning, then there should also be a larger amount of practices that institutions use and share. Another avenue of research moving forward should be in depth inquiry to identify practices across the field. If the study is large enough, then researchers could segment the locations into individual learning settings especially involving those who may have less research and application currently at their disposal. The number of respondents that said they have identified resources (47%) and the number of respondents who have not (53%) could quickly change if identifiable and well-published information became available. The previous information could lead to the construction of a broader set of practices for science learning, especially with the introduction of information to older members of the audience group that involves the newer concept of science, technology, engineering, and mathematics or STEM learning.

This Master’s thesis did not seek to test if the institutions were implementing multigenerational learning in their programs, activities or events, but rather collect information and the practices that these institutions have organized themselves formally or informally. There

is an opportunity for future research to work with individual informal education settings to understand and measure if multigenerational groups learn while attending these already established programs. It is evident from the interviews that more could be done at all these locations to measure learning during the visit. All of this has the potential to raise the opportunity for the whole informal education field, including EECs, to develop lifelong learners and for them to become lifelong attendees even once they have aged out of the traditionally focused upon K-12 audience segment as individual adults and part of a multigenerational group.

Appendix A.

Measurement Instrument version 1.0

Demographic questions:

1. How many years have you worked in the field?
2. What is your position title?
3. What type of organization or museum do you work for?
4. What is the city and state of your workplace? (e.g., Philadelphia, PA)
5. What is the size of your organization (by operating budget)?

Questions based on defining learning:

1. Do you or your organization define learning? How is it defined?
2. Do you or your organization classify different learning techniques (examples: inquiry, direct instruction, hands-on learning) that are being implemented within your organization? If so can you quickly list some in any detail?
3. Does your organization measure learning takeaways? If so, how?

Questions based on multigenerational learning:

1. Based on your experience in the field, what do you feel are the most significant benefits and difficulty of multigenerational learning in programming and programming design?
2. Do you or your organization consider multigenerational audiences when developing programming?
3. Have you or your organization identified any resources or best practices to better understand multigenerational learning over the last five years?
 - a. Have you or your organization used any of these resources into practice? If so, can you give an example of which and why?

4. Has your organization made any adaptation of programs with multigenerational learning in mind within the last five years? If so, what?
 - a. If not, how likely is your organization to adapt programs to address multigenerational learning within the next five years?
5. Do you have successful programming that addresses multigenerational learning?
6. Would you use a resource for multigenerational learning if one was created?

Appendix B.

Measurement Instrument version 2.0

Demographic questions:

1. How many years have you worked in the field?
2. What is your position title?
3. What type of organization or museum do you work for?
4. What is the city and state of your workplace? (e.g., Philadelphia, PA)
5. What is the size of your organization (by operating budget)?

Question-based on defining learning:

1. Do you or your organization define learning? How is it defined?

Questions based on multigenerational learning:

1. Based on your experience in the field, what do you feel are the most significant benefits and difficulties of multigenerational learning in programming, activities and event design?
2. Do you or your organization consider multigenerational audiences when developing programming, activities, and events?
3. Have you or your organization identified best practices to better understand multigenerational learning over the last five years?
 - a. Have you or your organization used any of these best practices into practice? If so, can you can you talk about what you did and why?
4. Has your organization made any adaptation of programs with multigenerational learning in mind within the last five years? If so, what?

5. Do you have successful programming, activities or events, or have you seen, any that addresses multigenerational learning?
6. Would you use a resource for multigenerational learning if one was created?

Appendix C.

Raw Data

Transcribed interview responses

How many years have you worked in the field? n=15	
1	I've been in the field for-- Let's see, it'll be 12 years now.
2	35 years
3	Okay. I have been here for about eight and a half years at this museum if that's important to you. Because your first question was how many years I've worked in the field. The seaport is like when I went to New York, I still working here part-time at the front desk and then moved my way. I've been in the education department for seven years, but here for eight and a half. Then prior to that I live in Cincinnati and I worked at a couple of museums there, so for a couple of years. Cool, all right.
4	I've worked in museums for about three years, and I have over 10 years in the education field.
5	Informal learning, eight years and before that, as a grade school teacher I also have my masters in developmental and cognitive psychology. I have an educational research background.
6	I was setting a public program at a little nature center all four years since I was in college, it's over 40.
7	Over 40 years.
8	Over 13 years. I have 15 years of government experience, but I've worked between National Park Service sites and the Fish and Wildlife Service for 13 years.
9	I should have thought of that before we talked. Let's see, I've been in the Exploratorium for 15 years. I've been in the field since 1999. What does that get us to? [crosstalk] 20 years.
10	27 years 9 months
11	23
12	11 years
13	Like 15.
14	2011
15	25

What is your position title? n=15	
1	Director of Education
2	Environmental Education Coordinator
3	Director of Education

4	I am the education coordinator at the Please Touch Museum. I work on a team of educators, so three, four, I think there's five education coordinators and then there is one part-time educator, and then we've got our team managers.
5	Sure, I'm director of education at Brooklyn Bridge Park. I'm sorry, with Brooklyn Bridge Park Conservancy at Brooklyn Bridge Park.
6	Director of Education and Organizational Development
7	I use president [unintelligible 00:03:53] more
8	Visitor Services Manager
9	Sure. I'm the director of planning and program development in Global Studios.
10	Executive VP and COO
11	Education Director
12	Director of education
13	Sure. I'm the owner of the consulting business.
14	Manager of education programs
15	Museum consultant

What type of organization or museum do you work for? n=14	
1	We're an independent non-profit type of [unintelligible 00:00:30].
2	County-run facility
3	Museum
4	Children's museum
5	We are a Conservancy and the main focus that we dedicate our work towards is, public programming. We are an adjunct sister organization to Brooklyn Bridge Park. A lot of what we offer is geared towards people. So, that entails providing the art as well as education recreation, those sorts of things.
6	Delaware Nature Society
7	Consulting.
8	It's a national lab wildlife refuge. Historically, it's named as John Heinz National Wildlife Refuge. In the 1990's, it's used to be called Tinicum Environmental Education Center or Tinicum National Wildlife Refuge. Then, before that it was the Tinicum Environmental Education Center, but the building that ran this, it's an environmental education visitor center and environmental education center.
9	You know, that's a funny question. We call ourselves an informal learning laboratory.
10	Aquarium
11	Private Non-Profit Nature Center

12	Environmental education center
13	
14	Environmental Education Center
15	I've worked for children's museums, history museums, and art museums.

What is the city and state of your workplace? (e.g., Philadelphia, PA) n=15	
1	Dingmans Ferry, Pennsylvania
2	Monroe
3	Philadelphia
4	Philadelphia
5	Brooklyn, New York
6	Wilmington DE
7	Washington DC.
8	It's in Philadelphia and it is in Delaware County.
9	San Francisco
10	Camden, NJ
11	Milford OH (o30 min form downtown Cincinnati)
12	Philadelphia PA
13	Yes. Saint Paul, Minnesota.
14	Gladwyne, Pennsylvania.
15	Wilmington, Delaware,

What is the size of your organization (by operating budget)? n=15	
1	I believe it's a 1.5 million.
2	500000
3	The Education budget is around \$600,000, while the museum's total operating budget is right around \$6 million.
4	It is eight million.
5	Operational budget is three million dollars, the working budget or the operational budget specifically for the education program is a half a million, 580,000. So, just a little over half a million.
6	operating budget of a four-million-dollar budget
7	Basically, I don't know. Hadn't had one.

8	<p>Interviewee: The physical building we're in now is in Philadelphia, but the refuge span is 1,000 acres and spans into Delaware County.</p> <p>Interviewer: What is the size of your organization by operating budget?</p> <p>Interviewee: Well, there's a lot of ways to ask that or answer that. We have a work chart here for our individual, but we're the largest conservation organization in the world. We have almost 10,000 employees, probably about 8,000 maybe right now. Usually at our site here, we have 12 employees top to bottom. We contract out some other things. I have a work chart with one, two, three- how many of these are actually vegan? 1, 2, 3, at this very moment, 4, 5, 6, 7, 8, 9, 10. We have 11 employees full-time. As of right now, we'll be losing two employees, full-time employees within the next couple of months. It will take us a very long-- We don't know if we'll be able to fill those positions. I would say, 8 to 12. [laughs]</p> <p>Outside contracted positions. There are a few lacks in conservation association or [unintelligible 00:03:11] core positions, base level. Those aren't educators</p>
9	I think that's public information. You could just take out the actual number, look at our annual report, it's online, but it's somewhere in the order of 50 million.
10	Small - 2 Mill. 15 FT, 50 PT, 130 Vol
11	2.1 mil
12	2 million
13	a consultant. You could say under \$100,000.
14	We are just a smidge above a million dollars.
15	The vast majority of museums that I have worked with both in my past career and currently, have budgets over eight million dollars annually.

Do you or your organization define learning? How is it defined? n=15	
1	Learning is any kind of group and experience where it can be used to further both knowledge and social skills, as well as self-awareness. For us, our mission is to provide environmental education and appreciation for hands-on experience in the national parks. It's basically gaining experience that they have not had before.
2	<p>Well, basically, our goal is to provide hands-on experiences and outdoor experience for our audiences depending on what age group it is. We don't have a strict definition of learning as long as it's a positive experience outdoors. We feel that's a pretty good accomplishment.</p> <p>We have limited time with our groups, so it's not like we can spend days and days and days with them to reach certain goals. They are pretty quick and simple goals. Some of them connected to what they're doing in school, some of them not.</p>
3	<p>Do you really define learning? How is it defined? We haven't actively defined learning as an organization here. Actually, we're in the process of refreshing a mission for what we're doing in the education department. We can run a number of years ago. We need to refresh that.</p> <p>That also coincides with the process that we're in like refreshing all our field trip programs. Really what we try to focus on is to make sure that whatever we're planning it connects to our mission and content, but it helps drive the goals of our mission, which is to conduct visitors to the water. Through science, art, and history, is really the basic principle of our mission. We always make sure that any programming or educational content that we are developing makes sense within those parameters</p>

	which are pretty large.
4	I'm not sure we have a formal definition, but we do believe that child centered learning fosters communication, creativity, collaboration and critical thinking. That's how we create our educational frameworks and programming around those four things.
5	<p>We don't have an operational definition of learning. That's a great question because it also makes me think of how I should modify things. When things that we have done with our programs, me specifically, I've wrestled with measuring outcomes because, you get kids who-- we have them for an hour and a half. We serve 20,000 children and families per year. How do you measure your impact? That's a big question mark that I always have. With that, looking at the behavioral outcomes is a big one. But, no, we don't have an operational definition of learning or things learned. We survey, but that's attitudinal.</p> <p>Would you like me to define just like I sure define what I think learning is? Do you need that? Yes, that would help, thank you.</p> <p>Sure. A general definition of learning would be what an operand receiving stimuli- stimuli, whatever, in which that will change, how they approach other things in thought or in action.</p>
6	Helen: [inaudible 00:06:41] organization is starting with different learning techniques. Now, here's where we go back to everything that we do, it's a combination of hands-on, and I can tell right now there's an adult natural series going on and actually is a combination of the lecture first with [unintelligible 00:07:04] specimen, whether they be flora or fauna and then they are out in the field during a field trip.
7	If I had a definition, I would use the one probably from the National Academies of [unintelligible 00:05:54] Science and informal environments which uses six scholastic strands of learning with the two that are unique to particularly important to informal learning being developing interest in science and fostering of science identity.
8	The definition of learning, I think, yes. I would think that we have a definition of learning. I'm not sure if we have a definition for learning. I mean, we have a definition for what's interpretation and what's environmental education, and those are learning. Yes, we definitely have a definition for learning.
9	<p>That's interesting. I would say that in an official way, we do not- as I said, our job is to think about learning and how learning happens. That's what we do, and we are very interested in inquiry. I think we think a lot about how learning happens. I'm not sure if we would- is there any place where it's defined what we would say learning is, what it looks like.</p> <p>There are probably lots of places that already defined what the outcomes might be of the kinds of learning experiences. It's a complicated question.</p> <p>This is a tough one. It's tough for me to speak for the entire institution because we have so many people here thinking so deeply about this, in lots of different ways. I can say for myself, one thing you might notice is that in our mission statement, we've actually dropped the word learning. We create inquiry-based experiences.</p> <p>There might have even been the word learning in there that we even cut out, if you [unintelligible 00:10:05] inquiry-based learning experiences. We're really just interested in people being able to ask their own questions and investigate questions for themselves. That process is something that we care about more than I would say the outcome of learning. Does that make sense?</p>
10	Our organization defines learning as the acquisition of knowledge/skills through our informal strategies. As will informal settings, learning opportunities are voluntary and self-directed. Our belief

	that learning is life-long and should be accessible and inclusive to all.
11	Acquiring Facts and skills --- not organic here- info and knowledge that you can impart that can be applied to their lives “make nature personal” how it becomes relevant to them.
12	725 may not have defined it officially. Don't bother to define cuz it is elemental. Nothing written out. Personally 808 - learning happens when you are just in the experience. You learn by doing. Not by watching or listening but doing. Define by experiential learning.
13	<p>Sure. I would say that I do define learning. I'm not sure if I have a statement on my website, but since my organization is-- Just bear with what my definition is, which I would say is learning is a dynamic process as well as a product. It's both. I draw from both constructivist and socio-cultural frameworks. Socio-cultural is really focused on the process of learning, and how you work with others to change how your understanding. It's you coming to understanding new patterns and for things to go from being difficult and things that you really have to think about, to things becoming second nature.</p> <p>Then I also look at things from a constructivist point of view which say if you can't do or demonstrate that you actually know something and not just saying back the facts but showing that you have a competency in doing something. I think that that's important, too. Because I also look at learning as very social. Intergenerational learning or learning that takes place in a group, and group work, group settings is really important. That you can see the learning that people do in conversations. If you listen to the way that people talk about things before and after an experience that that's one way to document or show the learning.</p>
14	<p>Interviewee: We do you define learning. We define it internally really just among the education team, really the front-line team. I'm trying to remember exactly because we actually just did this as a group the other day. The first thing that actually floated to the top when we were defining learning was the learning needs to be fun.</p> <p>Learning needs to have authentic experiences are one of the things that for our institution, we really want to be part of learning. Opportunities for kids to ask questions, with our staff asking questions and not lecturing. What else? I just wrote this down into a really nice thing, and I forgot to bring it.</p> <p>Interviewer: You can send it.</p> <p>Interviewee: I might send it to you.</p> <p>Interviewer: It's okay.</p> <p>Interviewee: It's more about doing less about talking. We exclusively said we value the power of silence. With that particularly during with the education staff having them ask the question, and then not jumping right into the answer. Giving kids the opportunity to sit with something and think about something to make their own connections.</p> <p>Learning needs to have authentic experiences are one of the things that for our institution, we really want to be part of learning. Opportunities for kids to ask questions, with our staff asking questions and not lecturing. What else? I just wrote this down into a really nice thing, and I forgot to bring it.</p>
15	Yes, I do define learning and it's a change in understanding, and that is a change in understanding either of a concept or a piece of factual information. A change in understanding in family relationship, a change in understanding of your community or the world for that matter.

Do you or your organization classify different learning techniques (examples: inquiry, direct instruction, hands-on learning) that are being implemented within your organization? If so, can you quickly list some in any detail?

1	Learning is any kind of group and experience where it can be used to further both knowledge and social skills, as well as self-awareness. For us, our mission is to provide environmental education and appreciation for hands-on experience in the national parks. It's basically gaining experience that they have not had before.
2	We don't have a clear shape guideline in classifying our learning. Breaking it down, that's fine. What we do is we provide, I would say, hands-on experience-based learning. Our two biggest things because we get them outside. We try not to do a lot of indoor lecturing. Once they're here, we want to use the outside environment and give them an experience with the hands-on investigation and things like that. That's the primary core of the learning process.
3	Yes and no. Whenever we're writing a field trip program, we really focus on touching on those areas. Making sure that it's not just a lecture, but there is a hands-on component to everything, every program that we offer. Some programs are naturally more inquiry-based than others. Like our River Ambassadors program which is for teams. They're doing a lot of over the summer intensive learning and then delivering content to the public as well. Then others are more of a guided experience that maybe aren't necessarily focused on like we wouldn't classify them as inquiry-based, but definitely experiential and hands on.
4	I run off of those four Cs. Critical thinking is the first one, and we aim to expand awareness and understanding of various concepts that we're teaching. The second is collaboration, and we try to engage in social learning through interactivity. That would be two people working alongside each other and learning together. Then the third one is creativity. Through our lessons and programs, we encourage exploration, and we try to spark curiosity through multisensory experiences. We believe that children, even grownups, explore and learn about their world through the five senses. Then the last one is communication, and we practice verbal and nonverbal language to connect to the big ideas and try to relate that back to their everyday experiences in their life and their background knowledge.
5	Interviewee: Learning techniques as in on? Chris: Like hands on learning, action or actions to play as learning, experiential learning, [crosstalk] things like that. Interviewee: All of those essentially, like, we're very much like, out of the classroom. So, there's inquiries of hands-on learning, there's experimentation, the whole goal of our program is essentially to get New York City kids to realize that there is actually nature around them. We do that through emotion, putting them into a context that would seemingly be commonplace because it's still in their City and we operate with the idea of element of surprise on to impart investment in the habitat and protecting the planet.
6	We have four sites; different sites are different. We have a farm where we're doing agroecology, we have an urban center, a world center and a suburban center and how that adds on some learning is done is a little bit different in each place, as the audience needs may be different. The angle really, I think of my career, the impact [inaudible 00:06:13] nature, and I think that people have to discover and engage in nature before they're able as adults to make good voting [unintelligible 00:06:28].
7	Interviewee: What do you mean by classified different learning techniques? Interviewer: I am using this as a-- If they're doing inquiry-based, experiential based, if they are doing a lecture series, different learning techniques that fall into those realms that the ones that are presenting it, how maybe an organization does something or if you've seen any or classify any ones in any way. Interviewee: I guess I haven't tried to do that.

8	Yes. Both environmental education and formal instruction and interpretation. Environmental education, interpretation are two learning, but also service-based and other volunteer activities.
9	<p>Anne: Classify learning techniques? [crosstalk]</p> <p>Chris: You want me to define--? [crosstalk]</p> <p>Anne: Can you give me some examples of what that means? [crosstalk]</p> <p>Chris: Yes. You mentioned inquiry-based experience or experience based if it's-- Oh, man, I'm blanking now. But anything like inquiries-based, experience-based, if it's based individuals are being asked to do those active learning and try those things that you may be dealing with inside the Exploratorium.</p> <p>Anne: I would say, if I find people who to think about or employee techniques across the board that you're talking about, but by and large, if you want to think, assume that was the frame of the Exploratorium. We are most focused on experiences in which people get to interact directly with phenomena. For example, for developing an exhibit, a phenomenon that we're exploring is something that people's feel they're directly interact with.</p> <p>If you're exploring light and color, people should be able to manipulate the light, rather than they're relying on a model to explain what's happening. Does that make sense?</p> <p>Chris: Yes.</p> <p>Anne: So, a direct experience with phenomena is, I think, central to our thinking, and so is engaging in the inquiry process.</p>
10	<p>We utilize a variety of methods to engage learners. We utilize inquiry throughout our programs and the majority of them are place-based. In some cases, we use experiential learning (i.e. kayaking, biking, hiking, field experiences, etc.). Many of these kinds of experiences may have problem-based, action-based strategies. In these cases, we attempt to create MWEs (Meaningful Watershed Educational Experiences- Chesapeake Bay Program).</p> <p>Sometimes we will use nature play or dramatic play with younger children and their families.</p> <p>For Camps we use the 5 E's model based (constructivist learning).</p> <p>We almost always use animal ambassadors to promote empathy that builds connections between the natural world and learners.</p>
11	<p>There's the lecture type and the drop-in hands-on stations and the experiential hands-on planned programs, self-guided, school field trips, exhibits, written materials. age relevance used by David Sobel "no fear before 8th grade" - positivity and empowerment and enviro socialization are used. A similar love for nature and challenge. Learning techniques are age appropriate. to create experiences other than online and are hands on.</p>
12	<p>912 - nature preschool - 3 preschool 1 kd classroom - follow emergent curriculum - 1046 - let interests of student guide the learning in the unit. Different classrooms can be focused on different ideas at the same time based on what the students want to learn. 1146 Reggio Emilia - classrooms use this theory 1218 - everything else outside of pre-k, connect people with nature. If the child can be attached to something that wows them then they will learn cuz they are in it and want to learn. Everyone has a connection with nature within them and once they see and do cool things children will learn. 1340 - a lot of educators use inquiry-based learning, which leads a student through a topic by asking questions that ppl know the answers of to lead them to a higher level. 1548 - at least 2 more nature-based preschool being placed inside the city</p>
13	
14	
15	

Does your organization measure learning takeaways? If so, how? n=12	
1	<p>We do for certain programs. Things like our 'Every Kids in a Park' program and our educational income tax credit. We do pre and post surveys. These are fourth-grade level that the kids come, they basically meet a [unintelligible 00:02:46] Park Ranger because it is a partnership between our organization and the National Park. Ranger Rainey, who was our park education coordinator, we actually do the pre-survey, asking kids about just general knowledge about the park, the wildlife. [off mic conversation]</p> <p>Asking kids about general knowledge about park and wildlife. Before they came, they would come here, do a day field trip, and then, we would have a post-survey where they would have to go through the same questions and see the difference in their improvements of what they took away. That would include going hands-on or eco-zone which is a little more lecture based but also interactive with the fact that they get to touch, focusing on wildlife, and then, going out into the field for exploration hikes looking for signs of wildlife and writing it in down.</p> <p>Those are some of the ways that we measure. Otherwise, a lot of it comes from teachers using us as part of their curriculum work because we host a lot of school field trips, so we meet standards for us and the school. That's why they come to us just to get that hands-on learning with specific classes. Overall, our measures is the continued growth of schools that come by word-of-mouth, and then also, the longevity of some of our schools who've been coming for 30 or more years.</p>
2	<p>Well, we don't do testing or anything like that. Occasionally, we'll give out evaluations to the group leaders. It's not a set thing that we do with every group, but if we feel that we're doing a program and we're not exactly sure the kids are getting the experience that they need throughout of it then we'll go to the group leaders and usually, provide an evaluation sheet for them to fill out and get their impressions and things like that. With school groups, it's very difficult for us to go back to the schools and try to evaluate their experience or test or anything like that.</p>
3	<p>That varies by program. We have what we call after schools and programs. Some of them are within the school. Sailor and Eagle are the two kinds of major programs. Sailors are boat building program, which we have high school students that come in and build boats over the course of the school year.</p> <p>Then Eagle is a four-year program for high school girls that their freshman year they do robotics, and then their sophomore year they participate in sailor. Then they are actually at the navy base in Northeast Philly doing more robotics for their junior and senior year. For both of those programs, we do like KWL assessments, which we're constantly updating and trying to improve because they're really not that useful.</p> <p>This year, what we really try to focus on was more of student feedback and self-reflection. One of the things that we really talk about with Sailor and Eagle is that it improves math skills, engineering skills. It's all these extreme concepts, but really Sailor, in particular, that is also really beneficial for developing 21st-century skills, so confidence in those subjects, how to be part of a team, how to be a leader.</p> <p>We started doing a lot of more self-reflection. Do you feel more confident in this? What's your biggest takeaway from the program? What did you enjoy? What didn't you enjoy it? That's kind of qualitative. We're also participating in an assessment program this year to develop more assessment tools focused on sailor in particular within those, what we learned from that will be incorporated into our other programs.</p> <p>I remember Ambassadors program that is part of a partner grant project as well. It's funded in part by that and through that, there's a really big assessment component. We do pre and post surveys</p>

	<p>with those students of basic knowledge that they have entering and then reviewing that knowledge afterward but then also, self-reflection to their interest. This year, we also had them do journals and they created a blog and so they each had to do like a post and talk about their experiences, a lot of programs. [laughs]</p> <p>For some of our field trip programs we also have surveys that we administer to the teachers afterwards like, "Did we hit what you expected?" Those sorts of things and then we're also in the process of creating a more embedded assessment for field trip programs that we can do really quickly with a group at the end to seeing how much of the content the students have absorbed.</p>
4	<p>Yes. I had to dig deep for this one. I think that's one of the most difficult things for me, moving from formal education to informal education. In the classroom, you've got tests and worksheets, and you are constantly with the children, so you can see how they're developing and growing and learning. Here, you get a few minutes with each kid and you're like, "Did they learn anything?" "I don't know." That is definitely difficult, but some of our programs are more structured and formal, where you sit down and then you have a discussion for different objects.</p> <p>For that, sometimes we'll have worksheets that the children can fill out during the end with different prompts, whether it's drawing a picture of something they learned, or a question they are writing sentences. Sometimes it could be as simple as just having a discussion at the end, or someone simply just saying, "I didn't know that. That's something new I learned." Both for children and grownups. More so for grownups, we have surveys that they can fill out for our programs, and questions on the surveys usually just you know what I guess that, "Did you enjoy the program?" They can let us know how they felt about the program. If they took anything away from the program things like that.</p>
5	<p>Yes. We have because, I do have a background in educational psychology. One of the things that I have wanted to measure is, what is their impact? I know it's impactful, but I don't know how. One of the things that I said, and it was very much like a pilot study is with, our programs. We have data sheets for certain ones where you know kids are acting as scientists and collecting data. So, with that, I embedded a pre-imposed attitudinal measure instrument. There, it was not effective, it was cumbersome to the educators. Also, I should have made-- because it was three questions imposed, and it had three yes, no maybe. What I should have done is actually used a Likert scale with happy faces and five of them instead of three, and not having again, to read words.</p> <p>Chris: I understand that with my internship right now, I'm doing the same thing. You mentioned you do some formal surveys?</p> <p>Interviewee: [crosstalk] Yes, I can tell you about that. Our education program is essentially like the feed for the whole thing. That's what it was first. We also have an environmental education center, where half of what we serve now is with the Education Center, most children and families. We have a survey and we'll do a month-long quarterly query, where we collect data. We try to keep any naughty ones to fill out an exhaustive survey. So, it's like five questions and then open for comments and all the questions are Likert scale.</p> <p>Chris: Okay, thank you.</p> <p>Interviewee: With our classes, it's similar. Because, I do want feedback from the teachers. What we used to do is, have an online Survey Monkey thing that would automatically be sent to the teachers, but our response rate was less than 50%. So, instead, what we now do is, we hand that survey to the teacher at the beginning of the class, and that gives them a little wiggle room to actually be thoughtful about what they're responding or thoughtful about their responses. That gives us a guarantee that we actually get some feedback.</p>

6	<p>We measure [unintelligible 00:07:31]. As you know, we're an organization with advocacy, conservation and education. Right now, we're working on a water bill and also funding for open space whether it's agricultural or other open space that needs to be saved, so there are free spaces for all of us to enjoy. I think if they'll pass, certainly it will be because people have contacted their legislators and told them that they value that.</p> <p>When you look at students, we do measure takeaways and we actually have worked for decades with professionals who do that all the time. We have a teen club that we just started right now in an urban setting. The teens served one three seasons, and after each season our evaluator is doing focused group both with the adults and the teens, so the we can learn from that and make our program stronger. Second with what our [unintelligible 00:08:41] in goals were whether we're reaching them or not.</p> <p>Chris: Great, thank you. On that note do you do that yearly for every new program or is that that just something new being introduced? This might seem like an obvious question but I'm just trying to cover grounds.</p> <p>Helen: Yes, [unintelligible 00:09:05] and all of those groups are given the evaluation, and so really do [inaudible 00:09:25].</p>
7	<p>Well, I've been involved in reviewing evaluations for projects and I was also on the board of Visitor Studies organization for a number of years.</p>
8	<p>Both in numbers and using different survey techniques, different participant data like there's some demographic data that we have, test scores, formal school programs. We use a lot of different metrics. Mostly participant data for the amount of people and different test scores that are based on different schools, school data and other things that we have access to.</p>
9	<p>Yes and no. We have a whole department of visitor[sic] research and evaluation. In ways, we think of ourselves as a learning laboratory. We actually do our own research about how learning happens, and sometimes we're doing that research or evaluation on the museum floor of exhibits or in specific programs.</p> <p>We usually have a question that we're trying to answer, whether that's just about like how well specific experience of is working to meet our goals, or if it's like really trying to understand how learning happens. We do that. We're not necessarily evaluating everything that's happening all the time, but we do our own research.</p> <p>Do you want me to give you a couple examples? Like there's some things that have been published that you could look at.</p> <p>Chris: That would be great. [crosstalk]</p> <p>Anne: There's the GIVE project. It's a Group Inquiry for Visitors at Exhibits, and there's a book that was published about that where they're basically asking, "Can you learn inquiry skills that you can exhibit?" There was another one called Active Prolonged Engagement, APE, about exhibit designs. There's another recent one called EDGE, I don't remember the acronym that it stands for, but it was about designing exhibit to be good for learning for both girls and boys. That one came up very fairly recently and it's a really good one, and all of those you should be able to find online.</p> <p>I would say, we're more evaluating ourselves than we are- the experience of this, or like the people who are the learners, I think a lot of times those kinds of research is like there's somebody gain a certain kind of new conceptual understanding of an idea. We don't really evaluate for that.</p> <p>We're really evaluating those experience we create, engage people as learners. Just the kind of I think a different approach from what you might expect. It's something to think about if you're reading those.</p>

10	<p>Some programs (i.e. Youth Development Program, classroom lessons, embedded school programs, trail intercepts) we assess content, literacy, behavior, attitudes and awareness through post-reflection survey, observation, reflection, testing, goal/action plans and embedded evaluation. We also assess skill, critical thinking and STEM/teaching practice through observation, photography and project products.</p> <p>We have also had opportunity to assess learning through competition (i.e. our high school underwater ROV team placement in competition).</p> <p>Yes. Well, in particular, the WPI, we do a survey at the end of the program. It's really more-- Well, I can't say it's more about-- We do cover everything from learning to help. How was it kind of thing? In the matrix that I put together, I can probably print out a copy of what it looks like, the questions. I go with experience by experience with it. Then there's columns that say, you gained knowledge. You gained practical skills. It applies to your work. You will integrate some of this into your current programming or modify your programs. Or you developed a collaboration with your peers. That sort of thing.</p> <p>We do try to gather that information about what you took away from it. Whether it was a collaboration, or you've learned something new. You're inspired. That kind of stuff.</p> <p>For kids, if you're going to be doing something with your kids or families, then usually at the end because it is immediately action oriented. There's an observable product. Is it a letter to your representative? Is it a birdhouse? Something like that. It's a little bit more embedded. It doesn't require pushing or stuff like that.</p> <p>Of course, people keep coming back to the programs, different kinds of programs. That's also an outcome, right? They've gotten something out of that and they want to continue to learn.</p> <p>A little bit further on, I talk about our family learning projects that we've been doing with the [unintelligible 00:09:12] group for 25 years now. What we found somewhere about early on, I would say in the late '90s, we started looking at patterns of attendance. What we would do is we would offer three entry points into these learning experience. The first and the lowest engagement would be a full museum experience. That means that anybody could come, the museum was open. We'd have a few extra activities to do while you were here. It was four hours long, three hours long but you can come and go you wanted.</p> <p>Then we would have an hour and a half workshop that you could come to. That would be a couple times a year. Some of these would happen here at the museum or they would be on other community, the community centers or partners. Then there would be a little bit more in-depth experience which could be anywhere between four to eight hours or even overnight.</p> <p>What we ended up seeing is a pattern of novice users, low-users, medium, and high-end users. There would be, let's say, 600 families that would all come to the museum day and there would be 75 families that would come to or maybe more than that. Maybe 300 families would come to a one-and-a-half-hour workshop, but there were 50 families who would come to all of those things and participate in this really intensive experience.</p> <p>Interviewer: That's cool. That's really awesome. Jumping on that just because I'm more curious, have you measured those families ever post three months later or six months later?</p> <p>Angie: We did interviews. There were some selected interviews with folks who were medium and high-end users to after-the-fact to find out a little bit more about where they are. I don't recall if we were asking them necessarily, "Why did you come to more?" A lot of what people would say is-- This was across the board is that they were coming to the events that we had either kind because they wanted to do something together as a family. They wanted to have fun together as a family. They knew that the learning experience was something that they [unintelligible 00:12:11] experience that they want for their children.</p> <p>When we were interviewing folks, we were looking after-the-fact. A lot of the families who were</p>
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	<p>high-end users really focused on their children. The children were interested in Science. They were trying to find as many opportunities as possible for them to engage in Science. In quite a few cases, those children, because we've been doing it for two and a half decades, had moved into college or careers in Science. They were there specifically for supporting their child's future.</p> <p>Interviewer: This is just part of the last question. I'm curious now because you said that, have you ever seen someone that did the program as a child who's now bringing back their children?</p> <p>Angie: Yes, absolutely.</p> <p>Interviewer: You've seen that?</p> <p>Angie: Yes.</p> <p>Interviewer: That's just a personal, I want to know- [crosstalk]</p> <p>Angie: In one case, I'll go one step deeper, we did have somebody who's a community partner, who used to be a teacher. Her daughter would come to the programs. I wouldn't say she was a very small child, but she was tween-ish. She would come to the programs. Also, very interested in Science, ended up getting her degree in some kind of Animal Science or something or another. Through one of our projects, ended up coming back as an adult and being an apprentice. This was a year-long experience that we had. It was an NSF grant. We wanted to present programs, I think we talked about this, present programs to the community, not just developed for them, but delivered by them. These ambassadors, if you will, ended up serving in an apprenticeship with us for a year or more at each of the four museums.</p> <p>Her daughter became one of those apprentices and is working in Science now, but now she has a son. She has two sons actually. Now that we're doing this literacy project, she's bringing her children because it's Science and Literacy. They're young children, so she's bringing her children to those experiences, which are family literacy series.</p>
11	<p>Not yet but we hope to. nothing formal yet. Hard with 1-time program over time but use survey for pre and post and use formative assessment during program. Also, Indicators of engagement during the program. Are they applying inquiry skills? Are they leaving comfort zone or are they disengaged? See visible behaviors of kids to measure engagement. There are outcomes but hard to measure. Behaviors that show empathy. For older kids', do they identify with it? Even older do they take action? Adults, are they controlling species and planning or working on conversations about it?</p>
12	<p>1627/1700 - don't believe so, talk about data to collect. Have used surveys in the past on limited basis. Done camp in the past but really haven't measured learning. 1805- before "me" there were program evaluation but not sure if they were implemented or if there was a focus on what they learned. 1840 - difficult to measure learning on a field trip. It is hard to know if the student learned on the field trip compared to a classroom. 1930 - in past have used pre-post-tests at another location but don't here. Early ed does measure to meet goals etc.</p>
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Based on your experience in the field, what do you feel are the most significant benefits and difficulty of

multigenerational learning in programming and programming design?	
1	<p>Most significant benefits is the fact that you have different generations that can influence each other. In the past, I've worked with both toddlers, youth, and parents, during family programming. At that point, you can have a child that will then re-influence their parents by absorbing knowledge and encouraging them to--</p> <p>[radio chatter]</p> <p>Stephanie: Sorry about that radio.</p> <p>Interviewer: It's all right.</p> <p>Stephanie: Encouraging them to explore outside, or you can even have parents as well trying to break their own barriers for the betterment of their kids. I think that's really significant, the fact that you have a ripple effect that happens once you start bringing in multi-generational programming. Some of the biggest difficulties is also a catch-22 is that you have some people just not being as willing to go outside whereas it might hold another back, or you have the kids engaging but they learn differently, or they're not as fully engaged. It's trying to find out how you want to stimulate, do something very simple that reaches the youngest group but then, also throw in tiny bits of information that's practical for older generations.</p>
2	<p>Well, I think a lot of these public programs that we do, multi-generation is what we're shooting forward to family-based programming. We try to provide a program that would interest the kids, but also the adults with them. Occasionally, we will be more specific and some of our programs that are designed for adults or in the opposite direction designed just for kids.</p> <p>Even with the kid's programs are being done, we feel the adults that are with those kids are getting something out of it even though it might not be designed specifically for them. Multigeneration Learning is a big part of our programming when we do the public education, not when we do the schools.</p>
3	<p>Based on using some of our programs here as a guiding post for that question, we work with a lot of Philadelphia youth. They have varying degrees of family involvement at home in a different situation. We haven't really developed or focused on creating programming that is truly multi-generational because so many of our programs are the kids come here, they get dropped off or whatever. We have started to incorporate events into those programs that really encouraged them to bring their families and do things with their friends or their families. We've seen from that.</p> <p>I think there's a deeper level of engagement that you start to see when, especially if a kid is really invested in something that they're doing here, and they can bring a grandparent or their parents. Not just show them what they're doing but get them involved in what they're doing. It enriches their experience.</p> <p>Then it's shown to me that it creates more of a bridge for them to continue doing things together and learning different ways to gather. One example is River Ambassadors or Kids Confidence Sailor for a number of years for working the docks they'll bring a family member to go rowing with them. Often, that person has never been in a boat before. They get them in a boat and then I see where there are multiple times when they bring them back or they don't want to come and do other things together. I think it really helps facilitate long-term engagement. Difficulty, I would say, that-- Based on, again, the audience that I had the most experience with, a lot of difficulties are their parents, or grandparents, or caretaker, or whomever really having the time to come and do something together.</p>

4	<p>As an educator, as a benefit, I find joy when grownups can sit down with their little ones and learn alongside each other. It can be challenging to get that to happen. I try to throw something into the program to help create a memorable experience for both of them, for both the grownup and the child. Whether it be a new object that they've never explored or interesting facts that neither of them knew. In program design that's really something I try to look into. For instance, let's see, I was writing a program for ocean explorations for toddlers, and of course it's hard to get grownups involved when it's just like plush sea creatures that children are exploring and things like that, but I really wanted to make it beneficial for the child and the grownup as well.</p> <p>We purchased some models of sperm whale teeth, and just something simple as that, that the grownup can touch and explore and something new for the grownup too, makes it a memorable experience and beneficial for both of them. Difficulties in program and program design, I think that some grownups, they don't want to get involved in programming. They are constantly running around with their kids to the museum, so once their kid sits down and is engaged, it's like they are trying to walk away, not walk away, but sit down, and just remove themselves from the situation for a little bit. We call those refuelers, and whether they are on their cellphone, or just sitting, they are not really engaged in what's happening.</p> <p>That's the hardest part. It's getting those types of grownups involved. For that I really try to just openly say, "Grownups, come on over get involved." Again, sometimes they don't want to, or they don't know how to engage. They don't know how to play or get down on the ground and engage with the kids. That's the most difficult part.</p>
5	<p>Okay. Well, multi-generational learning IOB have for a very long time offered like a small amount of multi-generational learning, where it's all ages. That specifically is our training program. So, people who are old enough can put on just waders, walk out into the you server and call a thing that through the water and see what the catch is a 20 foot by four-foot net. Very immersive interactive data collection, marine biologists are there.</p> <p>That's been one of our landmark things and it's very much a strong suit for our environmental education center. We very much intentionally designed it so that it's not going to be boring for the parents, it's very much skewed towards the younger ones. With the content that we provide, we want it to be approachable by everybody. We do have a higher level of sophistication for older people, but we do provide things that are for toddlers as well. Remind me of the rest of the question.</p> <p>Chris: Do you feel like you have any greatest benefits, or any difficulties involved in multi-generational learning?</p> <p>Interviewee: Difficulties-- Yes, absolutely. The difficulty I would say is, engaging adults. Often, we have people that show up either to our education Center or our school program where they have just on assumptions that it's going to be just a school program, and they are dropping off your kids but you're still there. There's the lack of engagement. One of the things that we have done is in addressing that, again, techniques to make sure that you have actively engaged learners.</p> <p>So, within our classes, when there is the introduction, we make a point to say, "And, adults and chaperones, make sure that you're also paying attention because you are going to have a job later." We put people in charge of different groups. So, a lot of our classes, because it's so hands-on, and we only have a couple teachers. We actively make the adults take part instead of being on their cell phones.</p>

6	<p>Helen: Thanks, that helps. I'm sorry that [unintelligible 00:12:18] are for everyone [inaudible 00:12:49] that I worked with, the parents had done that [inaudible 00:13:13].</p> <p>Chris: Great. You feel that there is a strong benefit from thinking about multi-generational learning when looking at a program having known this from adults would maybe be the first time in your experience outside?</p> <p>Helen: We know that that about [inaudible 00:13:55] experience from a multi-generation, we're going to end up with a generation that do things virtually [unintelligible 00:14:19] their place where they are.</p> <p>Chris: Yes. That's 100% true, solved that question really nicely. Thank you. Do you see any difficulty though with that to engage the adults that are involved?</p> <p>Helen: [inaudible 00:14:53] I know when I'm teaching, I care. Let's say right now they're all sorts of tools that are around. If I picked up a template, I'm showing it to everyone told everyone at the [unintelligible 00:15:07] if they're looking at something that I expect them to do, theories that they have. I actually will show these children [unintelligible 00:15:19] that they're fearful, I might have been [unintelligible 00:15:21]. [unintelligible 00:15:29] instructor or interpreter [inaudible 00:15:34] having everyone involved, whatever their generation [inaudible 00:15:41] parents. Speaking to colleagues and the parents and grandparents that it's just something natural.</p>
7	<p>What am most familiar with is the family-based learning activities or grandparent child learning activities, or care giver child learning activities. I think the advantage would be you have very different perspectives that can be complimentary to each other. That's different realms of experience based on age that can add to the conversation. Difficulty, I guess, would be setting it up, getting the two different age groups together.</p>
8	<p>I think the most difficult aspect of it is finding measurable results at the end of the day and tracking that data over time to show impact. To me, working in education, that is always the hardest part is evaluation of program success over a longitudinal setting. We don't have access to the data of, is the work we're doing today something that has made a measurable impact in this person's life in 5, 10, 15 years, or is the work that you did in opening their eyes to field of conservation or work that they can do in preserving public lands or fishing or birding or those other things.</p> <p>Is it something that they took on or did that spark this kind of interest that led them to a field of study or on the exit? That data, we don't have. We don't know what happens outside of the place. We have the observational data of what we see when families come together to do a program, but we don't know what the conversations are heard afterwards.</p> <p>We can see if I'm on a nature walk or something like that, or in a program that has different age groups, you can see how they interact at that site, but I don't know if they're asking those questions or using those learning styles afterwards. I don't have access to some of that data, I only have data with what I can see.</p>

9	<p>Anne: The benefits and the challenges?</p> <p>Chris: Yes.</p> <p>Anne: Benefits. It's nice if there are people who get to learn together. [laughs] We're very learner centered in the sense that rather than me saying like, "You should learn to play this kind of thing because there's something," an experience they want you to have or it's something I want you to get out of it. It's really more like what are people coming here for and what are they trying to get out of it.</p> <p>I'd say the benefit is really in the eyes of the beholder of those families or those multi-generational groups and what they're trying to accomplish. That might be that they really care about spending time together as a family and might be that either the adults or the children or both are gaining some kind of a sense of agency or self-efficacy and being able to be a teacher or a learner in that relationship.</p> <p>That's hard to say exactly like what they care about coming into the situation, so I wouldn't want to speak for them in terms of the benefits, but I certainly value it myself, and to be able to create more environments that foster that kind of learning. In terms of the challenges, there are lots of challenges. [laughs]</p> <p>There's design of the physical space of the objects and materials that you're using with facilitation or the signage that are there to support that learning process, or all things that need to be considered when you're designing for a multi-generational group. Do you want me to give you some examples of things that we've learned about when you hear a [unintelligible 00:18:58] question?</p> <p>Chris: Yes.</p> <p>Anne: I'll give you a few different examples. One of them is when authority didn't publish, and I told you about the APE's project, Active Prolonged Engagement. There's a great example in there of a change that we made to one of our exhibits. Exhibit called Spinning Blackboard, and it's a disc that's flat, and it spins where the sands on top of it, and you can put your fingers in the sand to make pattern as it moves around this.</p> <p>They were trying to just actually create an exhibit that was better for multiple people to engage with at the same time, whether it's people of the same age or different ages, it doesn't matter. They ended up changing it into a three-station experience, and we can see the details of all of the design choices that they made in order for it to work for a group of multiple people.</p> <p>That's a really neat example of the change that we made that then has informed other exhibit designs moving forward. I think it's republished in there, but we've noticed things like when you change the height of an exhibit to have tall ones for adults and short ones for kids, it really doesn't make any difference because people just go up to whatever ones open.</p> <p>They have kids standing on stools to reach the tall ones and adults that crouching down to use the little ones. That was not a helpful to [unintelligible 00:20:13] but the multi-station thing really did matter. That's one example that's out there in the world you can look at. One that we learned when I was running the explainer programs and our member education programs.</p> <p>We, the explainers, do demonstrations and facilitate experiences that on the museum floor. We took some of those and did them a family workshops, and then took that learning back out onto the floor. We had families in the classroom. One of the experiences we did was the cow eye dissection where we had families and small groups, and they were dissecting eyes.</p> <p>We were walking them through the process and really framing it in a group-based way where they were asking questions and notice things in doing those kinds of processes. We got a lot of feedback from the adults about what did and didn't work for them. That was really cool. Some of the things that came up or one that--And that kind of environment, a structured environment, where adult is opting in as learners in their family, they need to understand and buy into are this inquiry process that we're doing. Being really explicit about what the parts are of the inquiry process was really</p>
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	<p>important for them as learners.</p> <p>They could be like, “Oh, we’re doing the thing now and we make observations,” and that’s the thing that’s important via the education community. Also, they really wanted to see diagrams and see the scientific names or things written out so that they could read those things out loud, and to have these kinds of things supporting their learning process, so that we’re like projected up on the wall, and on a piece of paper right in front of them, because it helps them feel a little bit more knowledgeable as parents in their family. Having those kinds of support structure there for them is really important.</p> <p>Whereas when we’re working with kids alone, they often didn’t really care about those kinds of things as much, and they are more fluid in moving through something like a dissection or exploration, without needing to refer back to a diagram or something like that.</p> <p>Then we moved those learnings out on to a museum floor. That’s actually like not only is it good for multi-generational learning, it’s just better for everyone. Now if we’re doing an eye dissection on the floor, we’ve got a diagram up there, and we have them out on the table in multiple languages, so that there’s just more than one way to enter into the experience.</p> <p>It might be that for somebody who is hard of hearing, or English is not their first language, or they just really like to see the words in the diagram in front of them on the page, to connect it with what’s happening with the physical object. Learners have these ways to tap in with what’s going on without having to call themselves out or call attention to themselves. There’s some of the changes that we’ve made to support people.</p>
10	<p>The most significant benefits are opportunities for everyone in a learning group to contribute. Learning is a social endeavor and each individual has a fund of knowledge to contribute to the group. Opportunities to spur conversation, especially rich STEM conversation, is ideal. Difficulty with multigenerational learning is the wide-range of developmental stages, particularly in children. Also, adults may feel intimidated by STEM content and fear how they might appear to the children if they do not know answers to questions.</p>
11	<p>We believe adults are just big kids in some ways – info must be personally relevant and tie into their existing knowledge and be relevant to them. We like hands-on, something not available in books or online, and we try to avoid boring PowerPoints and lectures when possible. --- 1638 - kids and adults learn the same way! Ppl like challenges! Like to be hands out. Their definition - Mixed group of ppl, parents etc. bring them but won’t learn. But they ask parents and kids to work together. Helps peak their interest. 1746 - family becomes easy 1753 - best way to learn is teaching. Senior volunteers help and learn themselves. They do the kids a service and the program a service. 1829 - difficulty can be the difference for references and making connections.</p>
12	<p>difficulty, usually easier to cater and design to specific ages. Becomes difficult to create multigenerational learning opportunities, don’t want to get over the head of the little ones but not boring the older ones. Programs can be designed to cater to families but hard to measure learning. “Great American campout” def a way to have a multigenerational program but can’t speak about learning but it is very experiential, but parents can learn about things as well alongside difficult to design for both kids and adults. Adults will probably already know. Usually adults that don’t have any background may learn alongside kids. Benefits - can’t speak to that right now. No drawback - basic things that are part of nature education, things that you would expect most adults would know but other things like learning about climate change or urban watershed science issues like why</p>

	<p>storm water is an issue for a city, what happens to our trash after it gets picked up - adults now haven't been taught or learn about these issues like the kids today have been taught. Those topics are great for multi-generational learning, happens more often around environmental impacts</p>
13	<p>I'd say what's difficult about multigenerational learning is making sure that your learning experience is rich enough that people at a variety of different levels can feel they have an enriching experience, and that you can take something away from it that's new or different. I think it's actually kind of difficult when you're-- It's like, "Well, we're going to make this experience, learning experience, for five-year-olds and their adult caregiver."</p> <p>Often times, it's really easy to think about, "What can be cool for the 5-year-old?" But not so much what would make it enriching and exciting for the adult learners. An opportunity that's often missed or can be missed is helping the adults not so much with facts, which isn't the entirety of learning, but helping them with some of those noticing skills or observational skills or even skills in learning how to be a better helper as their child learns.</p> <p>I've noticed they recently redid the Children's Museum in Saint Paul. Now, they have a lot of stuff that encourages the adults to play along and not just "play is good for your children", but "Hey. Isn't it fun to be here? You can play, too," Giving parents and older people permission because that definitely happens to us, that adults, you feel like, "I'm just here for the kids, and they intentionally step themselves back." Making sure that you draw the adults or older people into the learning is important.</p> <p>Also, helping because I think sometimes people- we've all been schooled pretty well, so that we think that learning is being able to say the right answer. To help and scaffold the experience, so that the adults can ask different questions like, "What do you notice?" Because everybody can notice. Then you can have this rich conversation about, "Well, I noticed that this thing looks sharp." You notice that it looks shiny. You can use those noticing as a way to talk about what there is, and for a parent not to just go in there and do it, but to be able to assist in a way that gives everybody a chance to learn.</p> <p>I think that when people do that together it builds-- Kids notice things that adults don't, so adults can reframe their thinking sometimes. With kids, it's fun. I think it's really important just for kids to see that adults aren't finished, adult learning. Adults don't know everything, and that they can learn together is good for those kids and adults.</p>
14	<p>Benefits to multi-generational learning. We know that going to informal learning institutions, museums, science centers, zoos, aquariums, environmental education centers, all those things are social experiences by and large. Rarely do people go on their own. Oftentimes, the learning that happens does not even involve a person from that institution, it happens amongst the people in the group.</p> <p>They're making their own connection, they're connecting to things that are meaningful to them that the person at the institution may have never heard of. Those are valuable experiences. Is it the benefit to the institution or the benefit in-?</p> <p>Interviewer: In general.</p> <p>Interviewee: In general.</p> <p>Interviewer: To this institution or--</p> <p>Interviewee: They tend to be stronger learning experiences. These are things that you're going to talk about in the car on the way home, you're going to talk about its dinner next week, you're going to talk about a year from now. These are the lasting memories that tend to stick with a person because of the social experience and because it exists in a context other than that one museum visit or wherever the place just visited.</p>

	<p>The difficulties with it are, from the perspective of the institution, it can be hard to design for that if you don't have some practice. If you don't know what you're looking for, they're not intentional about it. It's something a lot of places struggle with, is they define a target audience. It's something Riverbend struggles with because we define our audiences, school aged children, so we're not thinking about the teacher that's along for that ride.</p> <p>We're not thinking about the parents' chaperone, we're thinking about the students, and so we're probably missing opportunities for multi-generational learning because we're not engaging the teacher or the adults in the group like we could. What else?</p>
15	<p>Let's take those one at a time. The benefits, I think, are that when families become proficient at learning together, you can actually see this amazing cycle where everything from family vacations and dinnertime conversations and museum visits and TV shows watched together, begin to seep into each other, and you can actually, if you're lucky, you can begin to watch or see instances where families have almost developed their own learning community. I think that's pretty amazing.</p> <p>Usually, I think museum professionals just get a glimpse of that. I'm not sure I fully appreciated how much that was true until I became a parent and an aunt and began regularly interacting with kids in that way, personally rather than professionally. In terms of difficulties, the challenge is figuring out how to --</p> <p>As a museum professional, the true and deep challenge is to figure out how to create experiences that truly and deeply engage both parents and kids, or grandparents and kids, or the adults and the child in ways that don't shortchange either one. I think one of the things that has long been an issue is that many museums have traditionally taken the approach where, either if it's a facilitated experience like a guided tour, that museum should often assume that it's fine for the staffer to primarily focus on the kids to keep them engaged.</p> <p>Parents will be, or grandparents will be very grateful that, "Oh, the kids are getting something out of it." I think that's an attitude that's lagged behind the way family dynamics have changed. A researcher named Susie Wilkening identified it, a little over a decade ago, that generation X parents of someone clearly a member, really began to interact with their ways and their kids in ways that were very different than previous generations.</p> <p>They expect to have these deeply shared and meaningful experiences that were engaging for everyone in the group. That's a really, really amazing thing when you can do it and it's incredibly hard to achieve.</p>

Do you or your organization consider multigenerational audiences when developing programming?	
1	<p>A lot of it. We could always do better in my opinion. A lot of our programming right now is very centric on the middle school age level because we host the vast majority from fifth grade up to about high school students. That age range is very specific to us. We have other occasions where we do public programming, or we have family nature getaway weekends. Those shift into more informal learning rather than our formal E.E.</p> <p>Those things can keep being improved of how do you engage the older generations even while their-- Because the teachers come, and they're used to being here and they've been coming for quite some time. Other times, we get new ones, which it's a good point because new teachers here, they learn a lot too when they come with their kids, which when we see that it's great. Other times, sometimes parents just come with their kids of wanting to have a good time and are not quite as engaged. Because of the fun family trip aspect of it, we fall a little shorter sometimes. It also depends on the instructor themselves of how much they integrate and work on a multi-generational</p>

	level.
2	When we're doing our public programs like we have a big maple sugaring program in the spring and in the early spring, we designed that for families specifically. Yes, we do a lot of family-based program which will be multigenerational.
3	Yes, it hasn't been an area of focus for us, but we've been so focused on the last several years on developing science-based programming because that just wasn't what we did and really developing the curriculum in the sciences. It hasn't really been an area of focus for us recently.
4	Absolutely. As a whole, we understand that all children come here with an adult, and when a willing adult is given the opportunity, they too can learn through hands-on experiences.
5	Yes. I think that we are very much in the beta stage, because, for so long, we literally were-- we had a shipping container and a wagon. So, I think we're getting our legs with our education center and working on engaging adults. One of the things that we are now working actively to do is, educate other educators. If you're looking at a family unit and all engaged at the same time, we haven't hit the sweet spot with that, it does happen. That is not the majority of our work, but we also are training informal educators and DOE's, school teachers as well.
6	
7	Not that I recall. When I was at NSF, we did grants- this is quite a few years ago, might be 10 years ago, to an organization called STRY, which setup intergenerational learning. I don't think they exist anymore though. S-T-R-Y is the acronym.
8	Yes.
9	Yes, I do. I think that it really depends across the organization on what specific audiences they prefer working with, because we all have different jobs, doing different things. It certainly comes up, and it has come up a lot in my own work here.
10	We do program for multigenerational audiences. Half of our audiences are families, but about half of our audience is comprised of school, scout or camp groups.
11	Yes, because so many of our programs are for "the general public", we do for the target audience. In playscape to mimic in their own backyard. could do a better job.
12	depends on program type. There is an eye to balance on programs that have different audiences, geared just to adults, geared to younger kids, geared for families - may see families as different audiences. May not have thought about multigenerational ages but have created programs that address. yes, but in nature-based experiences but not teach you something programs
13	Sure. I would say yes. I mean something certainly if I am working with a group that is doing a project on multi-generational learning or with not just adults or not just youth, that's definitely something that I'll have a conversation with them about and try to dry out how are they planning for it. I would say in the work I did at the Science Museum of Minnesota, at least in the program, the project I worked on, it was more of an afterthought than it was the focus of the project. But I think that that might have been more about the grants I was working on and the PIs that I was working with. It was harder for me to infer as a evaluation consultant. Good enough.

14	<p>No, we do not. Riverbend, I think it was a couple of years ago, adopted a new strategic plan, it was a small organization. At the time they were they were trying to narrow their focus in order to devote attention to growing the organization but doing it in a very purposeful way. They decided that the key audience for them at that time was school age kids, particularly working with students through schools. Kids on field trips, kids that we would travel to an outreach programs to see them in their classroom.</p> <p>Working with formal education, identifying formal education as our primary audience, so because of that public audiences which is where most multi-generational audiences tend to fall into, are not a primary focus for us.</p>
15	Absolutely. I've insisted on it.

Have you or your organization identified any resources or best practices to better understand multigenerational learning over the last five years?	
1	Having been here for about a year and a half now, I would have to say we have not investigated anything to that level of multi-generational learning or best practices because we're still niched into the school field trip. Like it's a [unintelligible 00:08:21].
2	We don't have any specific resources that we used. We've designed programs in-house for years and years and years. We've tweaked them. Changed them when we felt it was necessary. We've designed new programs, but there's no bible so to speak that we turn to, to design programs for that.
3	We haven't.
4	<p>Yes. We've taken a few different professional developments led by our managers on multi generational learning, and engaging adults. We use different articles and research published through Chicago Children's Museum, and Boston Children's Museum. I think it's a collaborative article that they wrote together. Some of the things we put into practice from those professional developments is, creating a more welcome environment for adults to sit down. We have this drop in and draw program where kids can come up and they have different drawing from. Of course, they want the adults and grownups to draw too, but it's sometimes really hard to get them to even just sit on the gallery floor and draw.</p> <p>One thing I did was take out a carpet and add some plush cushion for them to sit down, and even just changing the environment helps the grownups to feel more inclined to sit. Then again something I also mentioned was, understanding the various roles that adults can play in a children's museum. Through our PDs, we identified that adults can be a player where they can sit along and play next to the child. They could be a student of the child, they could be a co-learner with the child, they can be the interpreter for the child, or they could even just be the facilitator. They could just be there supervising a child, or as I said before, they could be the refueler where they are removed from the educational program and off to the side somewhere.</p>
5	Over the last five years? We have identified best practices absolutely. Our intent and the mission is not directly focused on multi-generational learning, but we do have a level of techniques and best practices that we have or we're in the process of systematizing so that we can share what we've done. I'm not sure if you're familiar with reflecting on practice, it's out of the-- I don't remember what school it is, DC Berkeley, but anyway, it's through an aquarium in a school. It is a year-long interactive. It's a training basically for informal educators. It's like The Reader's Digest version of the cognitive and developmental psychology. That's what we're doing right now with our educators and about eight other institutions. They're sending their people as well as a lot of the leaders of their

	programs to work with us on this.
6	We are involved with those organizations finding out information, make decisions, but no, we are not using any resources at this point that would be-- it's what we base everything on, we're not doing that.
7	Interviewee: I think at the Franklin Institute, Linda Blud. Do you know Linda? Interviewer: I've met her before, yes. Interviewee: She's worked in the art of family learning for many years. She'd be a great resource. Also, somebody that used to be there that's no longer there, Dale McCreedy, also is very good in that area. I think they've both written about family learning. Another thing you might want to check into near-peer learning were college kids work with high school students, for example, adolescents, a generation of the closer generation thing in adult child.
8	Yes, definitely. Yes, we have. Do you want me to talk about that?
9	Probably [laughs]. I can't name them for you, much were--[crosstalk]
10	Not really. We have been working with families in collaborative programming since 1993. We co-created the Philadelphia-Camden Informal Science Education Collaborative. We have numerous publications, and one specifically on observing and defining family learning in museums. We have been using emergent literacy strategies, which are closely aligned with the strategies we already use with family programming.
11	No --- have not at all.
12	no
13	Not in any official capacity, I would say.
14	Yes, I have. From 2011 to 2016, I was the manager of education at Conner Prairie interactive history park, in Fisher Indiana. That is a place that does, in my opinion, a truly remarkable job, of having successful multi-generational learning experiences. Conner Prairie's great strength is that it relies almost entirely on live interpretation with a staff member. That live interpretation provides the ability to adapt to any audience that is in front of you. You don't have to design an exhibit that is meant to be of interest to someone who's 75 and someone who's seven, but that's a really difficult thing to pull off. When you have a person in authentic or semi-authentic setting, you can adapt to that audience in front of you much more nimbly than a stationary exhibit camp. One of the things that Conner Prairie you're trained to do, is adapt to the audience in front of you, read the audience in front of you, and engage the entire group that's there. Oftentimes, you will start with a kid based on the research that was undertaken at Conner Prairie around year 2000? Yes, 2000, they determined that oftentimes multi-generational interactions are more successful or tend to be more successful when a child is engaged. Then you use the child's engagement to engage the adults with the group. Sometimes that involves letting the adults then shine, you let the adult tell a story that connects with what you're doing, or you let the adults milk the cow and show the kid how it's done. You let the adults be a leader in the interaction just as much as the museum staff is. Then that's fun for the whole group, and that gives the entire group an experience that they share and then they talk about.

15	<p>The best practices that I rely on are not necessarily new, but I've relied pretty heavily on research that was pioneered by The Institute for Learning Innovation when they consulted with the Indianapolis Children's Museum, about 2004, 2005. They came up with this rubric that there was a very simple, straightforward definition of what family learning looks like. One of the things that's really always stuck with me and has been continually defined and a deeper understanding has emerged from more recent research, but the idea that family learning is deeply social and it's about conversation.</p> <p>I love the quote from Linda Born that conversation is the currency of family learning. It's been a really interesting exercise to see the way that staff need to be trained. Floor staff specifically and tour guides and facilitators need to be trained, because certainly at the beginning of my career when most of the tour guides were then women in their 60s, they were used to a very traditional, much more authoritarian, or at least authoritative model of parenting and just generally interacting with kids where the guide talks and people speak only when spoken to.</p> <p>That's not how families of today actually interact. At one point my colleagues and I did this emergency intervention with the tour guide when I was working at Winster, and we had to say, "Look, when the parent leans over and is whispering to the kid or the kid is pulling on their dad's jacket and saying, "Look, look, look", that's not an interruption or a distraction. That's actually a critical piece of the learning that's going on."</p> <p>Nine times out of 10, yes it might be, "Dad I need a drink of water", but nine times out of 10 it's, "Hey, that looks like the thing that we saw when we went to the park over the summer. Is that the same kind of bird?" They may be looking at a clock in a historic house, but if they're looking at the Phoenix cast and brass on the top of an American tall case clock and thinking about how that looks like a bird that's off the park, they're beginning to make really critical connections and that's a key piece of learning, but you have to be able to talk to each other in order to do that.</p>
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Have you or your organization used any of these resources into practice? If so, can you give an example of which and why?	
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5	<p>Absolutely. Reflecting impact, this is the most regimented ones that we've employed informally, we do a whole lot of exploration throughout the city. One of the things and this came about when we were designing and figuring out what the hell to do with this education centers that we were supposed to build, one of the things that we did is go see what everybody else is doing. We don't need to build it from scratch, let's find the best practices, let's find the best ideas, we're not going to copy. We're going to use them as exemplars. Even though now we have an education center and we don't necessarily need to look at what other people do. One of the things that we do, and I think that this is very important for morale building and having consortium as a staff, who are continually learning because you can be friends. We also have to be continually learning and we actively and all of us do this make friends with people who are other organizations and then have a staff trip there.</p> <p>Not just to go to a cool place like definitely that's a bonus but look at what are the bones of the organizations, how are they systematize anything, how are they how are they becoming successful informal educators and so we like it's we have field trips often and it's not just for fun. It's for all of us benefiting from learning of what other people are doing.</p>
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7	<p>Interviewee: Mostly, these are family learning programs there is current I haven't seen anything particularly innovative. There is an organization you might look up called the Experience Corps. Have you heard of them?</p> <p>Interviewer: No, actually have not heard of them.</p> <p>Interviewee: They were set up to take advantage of people that are retired looking for opportunities to give back or as second careers or things like that. They bring older adults together with kids in after-school activities to work with them.</p>

8	<p>Interviewee: Yes. For some multi-generational- especially finding things tailored to individual audiences. When we're doing groups that have a bunch of age groups, it's good to have activities that are geared towards those specific things. Some of that might be a craft activity or some of that might be a nature hike. If everybody's doing a bird watching program, having things scaled to where the audience level is.</p> <p>Having an opportunity for them to come together afterwards even though they might have had those same conversation just about the same topics, but at the level of their understanding and something that we could facilitate. That works really well for different programs that we do here, fishing or other things. You also just when you're with other groups is tailoring it towards, you're really the youngest member. A parent is going to be interested in what their child is interested in generally. If you can frame something up that is really captured the interest of their kid, they can then potentially even model some of that behavior or some of the forward questions that you're asking or your follow up questions that are able to spark a conversation with the child.</p> <p>They can then understand better the way that asks questions to the kids and finding out what their level of interest is and then meeting them where to facilitate a conversation.</p> <p>A lot of times we do this all times everybody but with kids especially, you're expecting this level of understanding sometimes. It's like, you really got to start at maybe something that is more observational or other things, and asking, "Well, why did you think that?" Parents respond to that right away and they're like, "Oh, oh, okay." Like sometimes you got to teach really the lowest level in a way that it's interesting to know all levels there. Another great way essentially for multi-generational when you have people that might be a really a subject matter expert that much more in tune with what you're talking about than you are.</p> <p>A lot of times, we're giving programs to naturalist and other things that are way better at plant identification and other things that I am or burgers that are like some of the best you could find anywhere in the country. It's like, yes, I don't need to be the subject matter expert. You're drawing from the experience of the other people to also teach the group and you're understanding that you're the facilitator, you have some of the knowledge, not just the resident expert. That's really not always the role that you need to play as the person that's facilitating dialogue around any educational.</p>
9	<p>I'm not really sure if we have. I do not see anything out there. For us, those little things that we've done are just been based on our own reflection and evaluation of our own work.</p>
10	<p>Have you or your organization used any of these resources into practice? If so, can you give an example of which and why?</p>
11	<p>In general, we try to make learning fun. And We avoid talking about environmental problems to kids under 5th grade.</p>
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14	<p>Interviewer: Great. Just finishing, writing something. You answered to this question already, but have you or your organization used any of these best practices into practice? If so, can you talk about what you did and why?</p> <p>Interviewee: Translating something from Conner Prairie to Riverbend or--?</p> <p>Interviewer: You mentioned some of them. You talked about reading the audience, engaging the entire group, and things like that. Of those best practices, have any stood out, besides the one you mentioned or mentioning?</p> <p>Interviewee: I think the most important thing you can do as a museum educator, is read your audience. After you can read your audience, you know what to do with them. You know how to engage them, once you figure out what they're interested in. One of the things that the museum field struggled with for years and years and years was thinking that we had the monopoly on knowledge, and we don't. Once we started realizing that our audience has just much to bring in as we can offer, I think interaction started getting better. Not everyone had embraced that. When I got to Riverbend, it was still that old model of, "Let us tell you things about nature". I've been working to reverse that and make it more of an interactive experience since I got there, and I think it's going pretty well.</p>
15	<p>There's a newer, steady family learning art museums that could extend that original study. They all really emphasize this co-learner idea, I think. When I curated the discovery room, so the new things American revolution, my colleagues and I were very cognizant of making sure that the language needed to be approachable for kids. Text was actually a really key part of what we were installing in this space because there was an understanding or an expectation that it would serve adults. It might very well be read out loud from a parent to a kid or an older sibling to a younger sibling. It was a really critical way to establish some context in a way that people could approach it.</p>

Has your organization made any adaptation of programs with multigenerational learning in mind within the last five years? If so, what?	
1	<p>Let me see, adaptations, program. One of the things that I brought in since I had more multi-generational learning experiences in my prior experience with non-profits, I've been solely trying to open up more opportunities for homeschool groups with parents-</p> <p>Interviewer: It's a big group.</p> <p>Stephanie: - and kids. Those ones that we get hits on them on occasion but they're an untapped market for us. One of the things that I had, well my intern is working on is something called 'questing', which is a model that has been used for many years and is the precursor geocaching and letterboxing. I've had my intern work on just a pamphlet that is something that we can provide that if it's an adult and a young kid, it gets them out there exploring but it's simple enough that a young one can walk through with some assistance but also an adult can facilitate that.</p> <p>That's our first attempt at true multi-generational programming there, I think. As for the rest of it, with how many classes we serve, with having a menu of 30 different classes and experiences, some of them translate well for multi-generational learning like team building. Team building works well at any age level. However, things like stream ecology and pond ecology only go so far until you can't hit any higher learning until you get into a certain expertise which hasn't been, to us, as a great enough push to invest in that. It really depends on a case by case basis. Some classes translate better than others.</p>

2	<p>Some of our public programs we've adapted because the audiences we're getting more of an adult-based audience for a specific program. We've sort of raised the learning objectives to a higher level there. Some of the new programs that we do are adult oriented. We've raised the level of that, realizing it's not going to be for kids so they're not multigenerational as much there. It's a constant process as we set up our programs schedule to try to design programs that meet the needs of all the people who come here from the smallest preschoolers up to senior citizens.</p>
3	<p>I would say the only adaptation that I can really point to are like what we do with River Ambassadors this year, they have to do specific projects and we made one of them, actually a couple of them, to focused on the idea of bringing their parents, or your caregivers, or friends, family, whomever.</p> <p>They did a mini-exhibit about their experiences and then they did presentations. That was last weekend, downstairs in the makerspace. Each ambassador and we have 11 of them, they each brought at least one person and most of those were either siblings, or grandparents, or parents. There's that and we started incorporating in the beginning of that program we do an open house. We do over on weekends, so they bring their families, make them come and do rowing. Get on the water in addition to seeing where they're going to be spending their summer, what they're going to be doing.</p> <p>Some of our family programs that we do like the science festival, for example, it's really focused on families. Not so much that we emphasize multi-generational learning.</p>
4	<p>Yes, absolutely. I think all of us have dabbled a little bit interest, how to engage these adults and how to keep the adults engaged. One thing I had mentioned before was creating that special environment that helps grownups to sit down and be more comfortable. When I first started here about a year ago, I found it really difficult to engage adults. I was moving from the classroom to teaching in the museum, and it was like, "Do I call these grownups out and just have them sit down?" I just felt awkward doing it, because I just wasn't used to interacting with grownups on that level.</p> <p>One thing I started doing when I write my program framework, I tried to add learning goals in for adults as well. That way, when I am implementing a program, I've got the learning goals for the child, but I'd also know that grownups can participate in this way, and we can achieve these learning goals. That's really helped to keep it on my radar as I'm implementing a program. The drop in and draw program that I mentioned, changing that environment, the educator that oversees that program is partnering with collections, and they've curated different objects or different cases with objects in it, that use different toys from years past.</p> <p>We felt that, including toys from when grownups were younger, would engage the grownups even more and help to keep them engaged and interested. For space odyssey day which we have coming up tomorrow, the educator partnered with collections and they found all these past Star Wars figurines. We are having that display case out on the floor during our drop in and draw program and hoping that some grownups recognize some of these toys from when they were growing up and pull their child over and talk to their child about the different figurines and toys they used to play with when they were kids.</p>
5	<p>Well, I don't think that we have adopted any of our programs with multi-generational learning specifically, but within the last five years, we do have our education center which is an iteration of our programs in general and that would be a very overt and concrete way that we provided content - where at least that we're providing content for everyone. We created, we didn't adapt, I'll say that.</p>
6	<p>From your view, obviously, because you're working on your thesis as this, you're looking at this as being something that has structure. I can tell you that in order for us to grow and adapt and stay current and relevant, that our programs are always changing and adapting. Are we looking at that</p>

	learning specifically from the multi-generational question? No, but we're looking at exceptional quality programs that meet the need of potential participants around each of our sites.
7	
8	We use adaptive management for everything that we do. We're always constantly evaluating our programs. That's just part of just the business model that we do here. We're always actively changing, nothing that we do is stagnant, that's across the board. I think we're always looking for ways to tweak and improve programs, especially where we see gaps.
9	<p>I think those changes are probably made more than five years ago. I don't think it falls in your window. Within the last five years, I ran a small community science center called Helix[sic]. It's not open, it was a one-year pop up. Helix families were one of our primary audiences, and so a lot of our development had to do with multi-generational learning.</p> <p>Those aren't last thing changes that we made, because they're not there anymore, so I don't know if that helps you.</p> <p>Chris: Can you explain that? Then if not, I can strike it down, not now, but I mean like if I'm not-- [crosstalk]</p> <p>Anne: Yes, sure. When we were developing as we went through it, it was a really a short project. Change is an extreme word to use for something that's only going on for a year, more like ongoing development. But families are one of our main audiences, and that was something that we thought a lot about because we were doing public programs, so people could drop in.</p> <p>We really wanted to engage the whole family as learners, even just out on the open exhibit area. This is going to sound funny, but small things, tweaks that we made, made a difference. First thing we notice is our furniture layout. We had a room we called a living room.</p> <p>We had sofas in there and a coffee table that had exhibit, like activities tucked inside of a coffee table, you could pull out and do on your lap, and then those are surrounded by exhibits. We've started out with the sofas in the middle of the room and noticed a behavior where we see a parent on their cellphones and on the sofa, and the kids playing at the exhibits.</p> <p>We made a really small change. We changed the position of the sofas in the room, so that they were end on to one of the walls. For some reason, taking the sofas out of the center of the room changed the behavior of people in it. I don't know why [chuckles].</p> <p>It somehow changed the dynamics and the read of your role as a parent when you're in that room with their children. I don't know why it made a difference, but it did. Then the other thing was these drop-in programs that we were doing. We really intentional and thoughtful about how we set up our expectations of the roles of the parents.</p> <p>This isn't in most office, just in Silicon Valley with the community where most of the adults are very highly educated and they are, many of them in science or technology or engineering positions, in that field. They're extremely knowledgeable.</p> <p>It was important to validate that, and to help them maintain their identities as smart and successful science people. What I think that really means is knowing who our audience was, and being really respectful of them, and what they brought to the table, and their reason for coming there.</p> <p>We would sometimes ask them to be co-facilitators with us, or co-learners alongside their children to support what we were doing, so that they would get more involved in the process. Whatever the thing was that we were doing together.</p>
10	Not really, it is a standard practice for us.
11	<p>Yes – we now teach adult chaperones so that they can have a more involved experience on field trips.</p> <p>Have not otherwise. Cannot deliver programs for small target audience. We do need to figure out</p>

	how to do better cuz of large mixed-age audiences.
12	no - maybe new programs may have been created with it in mind but not adapt
13	No. I guess I'd have to say no.
14	<p>The only thing I can think of is camp-outs. Camp-outs has been part of Riverbend's camp programming for ever, as far as I know, and we now offer opportunities for families to camp out at Riverbend, so it's not like-- It still falls into Riverbend's definition of learning. It's not liked a specific content that we're trying to hit, with these camp-out programs, but it is part of an authentic experience at our site, so do with that what you will.</p> <p>Interviewer: Can I follow up, if Conner Prairie or the museum of the American revolution have done any of those things or made adaptations to programs?</p> <p>Interviewee: Yes. At Conner Prairie, one of the things that I learned to do was-- A lot of things that you design for kids, adults want to do too and usually you don't have to make a lot of tweaks to make that work. I often say, "You have to design for a smart fifth grader" because for a lot of adults, if it's not your specialty area of content, like if you didn't study it in college, your remembrance of particular topics stops at about fifth grade. Fifth, sixth grade maybe, and you never want to make an adult feel dumb and especially in a place that has sort of an authentic or an immersive environment, that's attractive to people of all ages.</p> <p>At Conner Prairie, we do things like-- There is a particular event that became really successful where it was-- The theme of the event, [inaudible 00:14:30] it was a beer event, but Prairie town was open. Our 1836 village was open, and our staff was there. Basically, it was sort of like Prairie town after hours, where we were still doing all of the things that we normally did in Prairie town during the day, but the conversation was a little bit more adult oriented.</p> <p>We served beer in the historic tavern, and that type of stuff. Modifying it slightly to fit an adult audience, but really not straying too far away from the core of what you do. That even was incredibly successful, and attendance grew exponentially over the three years I was there for.</p>
15	<p>Currently at Please Touch -- Because I'm more on the fundraising side now, I'm a little peripheral to the process, but there's very much of reimagining of exhibitions happening and programs to some degree because Please Touch focuses on the very youngest learner. They've been retooling things less to provide to the learning experiences that are content-based for the adults, but more to provide structures and scaffolds that can help show parents how they can best interact with kids.</p> <p>Please Touch I think for years was one of the children's museums that just assumed that parents would take a little bit of a backseat. They would monitor their kids and they might play with them.</p> <p>Now the best practice is very much empowering the adults to learn and play and interact right alongside their kids.</p>

If not, how likely is your organization to adapt programs to address multigenerational learning within the next five years?	
1	not app
2	A lot of our programs are multigenerational. That's basically, how we do it and they're pretty much fine with it.

3	<p>Honestly, I think we would be pretty open to it. I don't know if you were able to peek in. Downstairs, the area that you see there, that shop is a makerspace. It's a shared space with our existing science lab right now which will move out once the several libs open.</p> <p>Then, that entire space will be makerspace where I see the front-end. [unintelligible 00:15:01] is worried to be more-- The front-end part is drop in, very approachable [unintelligible 00:15:07] to be which is ongoing and a place for families to hang out and do something together that is approachable. It is fun for little ones but also interesting enough for older adults to also participate in. I see a lot of potentials for us to provide learning experiences for families to do it together in that space.</p> <p>We have a regular drop-in programming right now, just on Saturdays, usually a craft activity. It's geared towards little kids but it's definitely not like, drop your kid off and wander on the museum situation. Its family is doing something together and that's something that I want to expand in the makerspace.</p>
4	
5	<p>Interviewee: Okay, well, let me bring back up to the front. With us with our program essentially, I've trained everyone to be prepared for every situation that you can think of because, things will happen, that you will not be prepared for, so prepare yourself, right? We serve 20,000 people per year, you have no idea what's going to get off of that bus or like what group is getting off the subway, are they going to show up, who's coming? Because of that, because there is that element of surprise for us, our practice is to very swiftly create a cohesive learning environment.</p> <p>That means, engaging whoever it is be adults, maybe teachers and maybe chaperones, of course, we identify, who is the actual parents, who are their chaperones but engaging them as well. A part of with informal learning in this context, you have to lay a swift and decisive foundation that is strategic and with those parents not just managing the kids, you have to make sure that those adults are engaged. Give them a job, give them ownership and responsibility and it makes a better class and utilize them, use adults of assets. You don't just have to be dragging everything along, make it work.</p> <p>Chris: Great, thank you. Actually, I'm going to be honest the first one to say it that way.</p> <p>Interviewee: Thank you.</p> <p>Chris: Yes. Getting hitting, it's something for me and being a teacher I would-- I just had long field trip days anyway and I've been thinking about quickly.</p> <p>Interviewee: Yes. [crosstalk] that's the thing, and everybody like, you don't want to tell the grown-ups what to do, but if the grown-ups are acting inappropriately, how do you fix that? You don't need to call them out, preemptively prevent them from having a misstep, give them a place to go, give them owners and responsibility and they will. Generally, that's what happens it's our human prep.</p>
6	
7	
8	
9	<p>Just the examples I gave you are all the examples, and that has to do with just my role shifting overtime to be less involved directly in program development. I'm sure that in the last five years some of the things have changed and happened, I'm just not aware of what they are. That will continue to, because we're a learning organization.</p> <p>Everyone here who's developing exhibits and programs is constantly adapting and changing what they're doing. There's really very little that's static at the Exploratorium. I'm sure it's been evolving, and I'm sure it will continue to, and really just depends on what are specific questions are at the</p>

	time, so it's possible. I would guess in the tinkering studio, they're probably thinking a lot about energize generational learning right now, and adapting programs accordingly, because they have a strong family audience there. I'm just less in touch with what their specific things that they've been doing.
10	If there are new studies published with best or promising practices, we would be happy to read them and consider implementing them.
11	We are always striving to do more. --- absolutely.
12	adaptations are usually made for need or interest or lack of interest. If programs work well, we keep them. If we have programs that don't get a great response, we adapt programs them, only when something is going wrong. Don't know if we are likely to address multigenerational but possibly create a new program with multigenerational in mind.
13	Did not ask
14	Did not ask
15	Did not ask

Do you have successful programming that addresses multigenerational learning?	
1	I would think our family camp is probably the most successful programming for multi-generational learning. I would love to see, in the past, other organizations have called it a "you and me" program where it's actually a week-long camp of an adult and a child that come for camp. I have done them at other facilities, and I found them immensely successful just because if you have [unintelligible 00:11:20] you can go teach the parent and the child. It helps open us up to even to toddlers because we stop as young as four for summer camps right now because that's pretty much all the independence, they can handle for being so young.
2	A lot of our programs are multigenerational. That's basically, how we do it and they're pretty much fine with it.
3	I wouldn't say that we have programming that we identify as specifically where the main focus is multi-generational. We have a lot of events where we do that are really focused on their family events. We have Lunar New Year event. We have our prayer life event. We incorporate a lot of craft-based activities and in addition to whatever else is happening in the museum. All of those public events that are really geared towards families-- We're never actively this is multi-- but everything is always given with the idea that families would be doing something together.
4	Yes. The one that I mentioned previously is really learning alongside each other. We also have our top spot toddler program, where the adults aren't necessarily learning the content of the program, but we're teaching the grownups how to interact with their toddlers, whether it be modeling different behaviors, or using tactile experiences, things like that.
5	Yes. Our education programs-- our school programs specifically it's not intended to reach that spectrum, right? They are our school programs. With that, we engage adults and make them part of the learning experience with our Education Center, what one intention is to scale all of the content. We have things that are for little ones and also for adults. We wanted to make sure that you have sophisticated MS material for adults to still learn, but also things that a two-year-old would enjoy as

	<p>well. Then sensory stages, we have things for those and we have things for people who are 40 to 80's.</p>
6	<p>I think a couple of things comes to mind. I mentioned the naturalist theory earlier. That's the program once a month with a lecture and field work over nine months. All of the participants involved. Out then and work with others, whether peers or younger people to share that knowledge and excitement that they've learned. That's been something fun to see.</p> <p>We also offer a professional leadership institute, and that is for adults, who want to learn about how to operate nature centers and other non-profits and from the business side. The instructors in that class are all very seasoned people that have been in the field and our participants tend to be people that are new to the field and so the multi-generational learning there and mentoring, it's just fabulous.</p> <p>Those are two off the top. Certainly, it happens in our school programs and our programs for members. The way our education is set up here it happens in everything we do.</p>
7	<p>Yes, I think that'd be valuable. I'm not sure how much research and evaluation has been done in that area, but there might be more in other fields that you could apply to science learning if it's eliminated in science. I think it's particularly important now with the aging population, and more and more baby boomers retiring, there may be more opportunities for them to get engaged in these kinds of activities.</p> <p>Interviewer: You mentioned just a second ago, other fields or how much has actually been done. Do you mean inside formal education, like the schools, or do you think there's another one besides avenue than just the school end of it?</p> <p>Interviewee: There may be other disciplines, maybe the arts and maybe-- For example-- I'm not sure. Oh, I'm sorry. I haven't really investigated this field very much. I would research not just multigenerational, but intergenerational learning and family learning when you're doing that so that you can get a broader base.</p> <p>Interviewer: Yes. I have a lot on the intergenerational learning stuff and I'm starting to do more and more in the family based at the tail end of collecting materials to read and/or have read to use.</p> <p>Interviewee: Good, good. I think it would be very useful to have something in that area.</p>
8	<p>Yes, we have multiple programs that are based around family audiences. I could just list [unintelligible 00:13:13]. A lot of our programs are built around that. Even just looking at our calendar of events that we have now, our large festivals are built around family and multi-generational learning. There's different of thing for people to do at every skill level and built around family events. Our fishing events are built that way, we have homeschooled workshops and those are across multiple kids or summer camps, not the one that we run with specific age groups but the ones that we're running where multiple age groups are coming here at the same time. Wildlife movie nights. Have different activities that are geared towards different audiences and design as family events.</p> <p>Basically, every single hike that we do is a multi-generational learning opportunity and we have a program nearly every day. The entirety on the calendar of events for like June and July is free family fishing, photo walks, junior ranger, butterfly walks, pop-up archery's is a great program that we do that is geared towards every skill level and built as a family event. Also, litter cleanups. Litter cleanups are huge on the ground opportunity to talk about stewardship and build that select equity and just going the way I like to talk about it.</p> <p>People will remember things when they're doing hands on the groundwork and that's always very important. It's about not just communicating the message but providing that experience, especially at natural areas.</p>

9	<p>Anne: [crosstalk] the explainer programs. Explainers are out on the museum floor facilitating experiences, [unintelligible 00:30:39] that's in the explainer stations. The tinkering studio is probably strong for families. I don't know if this is still happening or not, but-- or the name of this program has probably changed, but I guess--</p> <p>It's like a community engagement or youth and community engagement or something program, the family science life from the schools. They have young people come in and facilitate experiences for the students and their parents. I think that's been really successful.</p> <p>What else do we do for our families? We have a membership program. I used to work with them to develop education programs for members. I'm not sure what they've been doing lately, but I wouldn't be surprised if they are still doing family programs, too.</p>
10	<p>I think so. We have been partnering with the same community organizations for decades and have made substantial impact on the families we serve.</p>
11	<p>Yes, the chaperone program, And many of our family programs.</p> <p>we don't. Volunteers learn to teach the kids. Parents may learn alongside. maybe our trail side station with it being learning by choice. Parents can learn about pollinators and then kids hands so maybe parents read, and parents use the hand on activity.</p>
12	<p>family programs - program called "nature phl" goal is park prescription program. Kids in city aren't getting enough outdoor time for number a reason through their pediatrician. Uses question from the doc to identify the kids who they will get a doc who prescribes outside time. Then a "nature navigator" works with family how to work outdoor time into a daily schedule. Find parks and places they can go around them. Makes going outside- uses scyhukill nature play Saturdays (1st sat specifically nature phl) - focuses on the unstructured free play while talking to parents about benefits about kids playing outdoors and show and talk to parents about playing and looking for things like decomposers, or make leaf press, kids may not be learning but parents are specifically learning. 1445 nature palooza or Halloween hikes (a good one) about learning about nocturnal animals' side by side with parents etc. 4245- toad detour that talks about the migration of toad life cycle that ends up asking ppl to help move the toads.</p>
13	<p>Well, it's not really programming. It's exhibit and the museum design work I was saying at the local children's museum. We went through there. We were there when they were piloting stuff for this redesign. Now, it's redesigned. They definitely worked fairly hard to try to get adults more involved. It seems like what they've struck as working is sometimes little humorous suggestions to the parents.</p> <p>Before, their suggestions on the walls were things like, "Heard that same question 8,000 times? They're learning, that's part of the learning process," to more like, "Hey. It's more fun when you play, too," or, "Why don't you jump in and try something?" Or the hits were more like, "Can you do this together? Can you ask your kid what they're noticing?" It's more along those lines of I can see that they've done that work, like saying, "Play is fun for everybody. It's cool if you join in." Or having activities that maybe require multiple people or some adult skills or something.</p> <p>They have this new makerspace where I would definitely say I see lots and lots of adults doing the same thing, like, now it's fabric, so they have fabric stamps. You can color the fabric. You can cut the fabric and sew it in all sorts of different ways and every time we go in there, there is always adults working right alongside their kids. Not showing them what to do but doing their own thing in parallel. It seems like whatever they've been doing, that that seems to be working better than their old technique of- which wasn't much. It was more like, "Here's something for you to read while your kids are playing," and now it seems more geared towards getting everyone to be playing together.</p> <p>Chris: That sounds good.</p> <p>Interviewee: Yes, it's definitely cool. They tried one with dancing where they had all these old dance</p>

	<p>hits and a green screen. They had, "Parents, you do the dancing, too." That didn't get transferred over. That was just like a pilot. It didn't work out so well. Lots of parents are self-conscious about their dancing, trying to hit things that have less baggage, it seems to work a bit better.</p> <p>Chris: That's a great point.</p> <p>Interviewee: Most adults feel like they look stupid when they're dancing, so it was like-- Maybe having everyone dance to disco wasn't the best way to get the parents involved.</p>
14	<p>Interviewer: Great, thank you. Do you have any successful programming activities, or have you seen any of that address multi-generational-- You answered--?</p> <p>Interviewee: There's that one, I got more.</p> <p>Interviewer: Sure.</p> <p>Interviewee: Follow the North Star is another program</p> <p>Interviewer: Follow the North Star?</p> <p>Interviewee: Yes, have you heard of that one? Okay, Follow the North Star is a program that I ran for several years, and it is an immersive underground railroad experience, where guests take on the role of enslaved and formerly enslaved people. They start out enslaved and then head off on the underground railroad. Our staff played the role of people you might meet along the way, good, bad, horrible, somewhere in between. It's an incredibly powerful program. For the public, it happens at night, so it's dark, they're in an unfamiliar environment.</p> <p>We try to as much as possible, within the bounds of what's-- You can't treat people the same way, but just to give a little bit of that immersive experience. The physical conditions of it help put people in the mindset of and feel a little bit of empathy towards that experience. We can talk about that later. The most powerful part of it was at the end, when we had a debriefing session where the group would come in, after they had completed the program route and talk about the experience. The conversation was led by one of our staff members.</p> <p>The role of our staff was to be very minimal, like we were meant to just guide things, but let the group do as much of the talking as humanly possible. The thing is that, people connected were really interesting, especially when you would have parent and child groups in there or any adult caregiver with a kid. Those conversations were really, really interesting, to have them talk about imagining themselves in a situation like that, what would you do? and how would you feel? Those I've always felt, were really powerful inter-generational learning experiences, so yes.</p>
15	<p>Yes. I think actually the temporary exhibit that Rosie curated at [unintelligible 00:18:03] American Revolution is a great example of something that was designed to be engaging for all ages and being able to watch how different groups of people interact. Some adult-only groups are a little unnerved when they see it. Like, "Oh, I'm not sure what I'm supposed to do here." Others are completely engaged and they're like, "This is so great. There's never a place where if I don't have a kid in tow, I can actually get to do this stuff."</p> <p>One of the, not necessarily unintended, but certainly nice side benefit of really well-designed experiences for families is that they give adults permission to engage in very social, multi-sensory hands-on learning in a way that often gets turned off. Adults learn better that way too, but they don't think that they're supposed to. [laughs]</p>

Would you use a resource for multigenerational learning if one was created?

1	It really depends. A simple one like the questing force that could be a standalone informational packet that we could use will probably work nicely as an interface for visitors. Since the bulk of what we do is the school field trip model, it's more questionable how practical it would be for us because that's where the bulk of our user fees are generated from. Summer camps are something that we do. They're not a huge money maker. They're definitely part of our budgeting, but they self-sustain. We hit capacity, and we can't get really grow much beyond just for between staffing, and budgetary constraints, and the facility itself, and our location because we have other competing summer camps with us too. This year is probably one of the busier ones in the fact that we have roughly 50 kids on site for many of the weeks. That's really a good summer for us. Since the bulk of it is not family-oriented, it depends on the resource that we will get.
2	We're always open to new resources. They come across our desk and if we feel we can get some use out of them or benefit from them, certainly we're not opposed to using outside resources. A lot of our kid's programs we've tapped into things like Project Wild, Project Learning Tree over the years. Certainly, a multigenerational thing that could give us a new idea would be beneficial.
3	I would definitely consider it, yes. [laughs]
4	Absolutely. I'm constantly trying to do research and find out best practices on multi-generational learning.
5	I found some, but I also am looking for more, of course, I would use the research I find it to be effective and worth my time and my staff time, yes.
6	<p>No. Here is why, because I think we have strengths that already do this, the person that asked the question first in my mind would be the person who doesn't think it's going on or isn't helping in that learning. For them it would be if you feel that you don't do this, what if mentoring or what you need to be able to do this to strengthen the learning that goes on within the [inaudible 00:24:38]</p> <p>Chris: Okay, thank you.</p> <p>Helen: I think the other thing is when we finally mix the various experience from new people, there is always learning from the new people, mentoring from the people that have been here a little longer. There's that nice balance. I think it's for an organization that's starting out, that would be really great because they're making decisions, or let's I retire, and only new people exist here, that institutional history may not carry on without the best practices being written. In those cases, yes.</p>
7	
8	<p>Yes, it sounds like a great training to provide to a staff. We don't actually use that term that much. Family program is probably what we would refer to the concept of multi-generational learning or just the idea of meeting people where they are or something that's a common theme of addressing to the audience and we talked about that all the time. Using the term multi-generational learning, it's another way of saying those things.</p> <p>I think we do have a lot of training already that is geared towards interpreting to the audience and meeting that intermediate staff in the Maslow's hierarchy of needs aspect of that belonging. You've got to tailor that to each individual and each group. That's something that's preached across the board at our organizations and within the visitor services, environmental education programs in both the parks service and the fish and wildlife service.</p> <p>I think we're pretty familiar with that. I think any new framework in getting those messages and sharpening our saw there and do something that could be useful to us. As I mentioned, we're always looking for new training and reminders even of old ideas, those give us the platform to build on.</p>

9	<p>Anne: The resource being something like best practices or--?</p> <p>Chris: Yes. The best practices or a simple guide to adapt programs.</p> <p>Anne: Yes, that's good, we've use it.</p>
10	Absolutely.
11	Absolutely.
12	we would use it, I would like to learn more about how to address everyone on different levels and ages.
13	<p>Well, it's not. I would say I would use a resource like that because a lot of times, as an evaluation consultant or planning consultant or whatever, part of what you're trying to do is help people feel that a new way is possible, and so having a resource like that, you'd be able to say, "Here's the best practices." Even if it wasn't put out by the National Academy or someone like there's a published book or brochure or a website with best practices, along with something like that, I think that it would be helpful.</p> <p>It would probably be the sort of thing that I would use as evidence. Something like, "Well, I don't know. Parents don't want to do that, or that's usually complicated," or whatever. I think having something that isn't just me saying it can be helpful. I would say yes, if it was easy to find and wasn't put out by the National Academy, so it didn't cost \$80, I would definitely use a resource like that, where appropriate, working with clients, so definitely.</p>
14	Yes, as long as it was simple enough to be adaptable to a lot of different situations and took realistic constraints of museums in informal learning institutions into consideration. That's often times the problem that I found with templates from other places. It's either not replicable at my site or it requires resources that I don't have.
15	<p>Sure. Even something that was a little-- I think perhaps the crying need is for something that is a little more straightforward and approachable and doesn't require particularly entry level staff to [unintelligible 00:20:07] to literature, but is a sort of-- Here's an overview that summarizes in a really cogent way, what is well known about how multigenerations weren't together and here's some direct tips of the trade that you can implement to put these best practices into play.</p>

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