

**Connecting Educators**  
*Exploring the Relationships Between  
Formal and Informal Learning Environments*

By  
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## *Acknowledgments*

First, I would like to thank my parents for being endlessly supportive and providing me with the opportunities and resources to pursue my education. I would also like to extend my gratitude to Elizabeth Safran for her encouragement and willingness to discuss my project throughout the entire year. Next, I would like to thank Anna Blythe for being my capstone companion, working with me every week to set attainable goals and continue making progress. Finally, I would like to thank the representatives who took the time to speak with me and helped to answer the questions that guided my project. Through this capstone project I have grown as a learner, and I am grateful to have had the opportunity to do so.

## *Introduction*

Forty years ago, representatives from around the world developed noble goals that intended to transform how students would learn about, and interact with, their environment. Over 325 participants attended an intergovernmental conference to define and better understand the role of Environmental Education (EE), resulting in the Tbilisi Declaration of 1977. Hungerford et al. (2005, 14) summarize how this vision called for “environmental education at all levels - local, national, regional, and international - and for all age groups both inside and outside the formal school system.” Farmer et al. (2007, 34) identify the three goals of EE as, “gain an understanding of their connection to the natural world and the underlying principles”, “understand their roles within the environment”, and learn “how they can become “catalyst for the changes” needed.” The internationally developed ideals for EE contrast the traditional goals of US education greatly, which “can be described as the mastery of many fragmented facts, concepts and simple generalizations organized loosely within discrete bodies or fields of study.” (Stevenson 2007, 146) According to Dewey, the traditional goals of education in the United States have primarily been to transfer basic skills and facts through rote methods. Currently, students are still expected to learn within the norms of dominant society and not necessarily push against it. (Herman et al. 2013)

Since the Tbilisi Declaration, the term EE has grown less prominent, as variations of this branch of education have been developed. Knapp (2000) reviewed the role of EE at the Thessaloniki Conference 20 years later, and found the term EE was “neutralized” to allow room for the growing “Education for Sustainability.” New variations of EE include “Education in Sustainability” and “Ecological Education.” This lack of a firm or

consistent definition for EE prevents it from being recognized or developed independently. Furthermore, the multidisciplinary nature of EE makes it difficult to be integrated into the structure of traditional school, and “environmental topics generally piggyback on established subject or courses.” (Disinger 2001, 6) Curricula for these branches of education have been developed but educators are seldom taught how to appropriately integrate the multidisciplinary and dynamic topics explored by EE. While EE tends to be an “add-on”, Knapp (2000, 33) explains “that for [environmental education] truly to be successful, it must be integrated into all subjects.” There is an important distinction between adding fragmented components of EE to other subjects, and integrating EE within every subject itself.

EE can be integrated into traditional schools through the use of informal learning environments. Informal learning environments have the ability to connect a student’s learning to tangible projects and individuals in their community. This compliments the underlying values of “an environmental education curriculum [which] should be interdisciplinary and focus on real practical problems.” (Stevenson 2007, 146) Since the Tbilisi declaration, EE and its variations all recognize the role of both formal and informal learning. Back in 1977, the declaration itself stated, “environmental education should be provided...in both formal and nonformal education.” (Hungerford et al. 2005, 13)

In this capstone, I strive to better understand two types of learning environments, formal and informal, and the interactions between them. I use the term *formal* learning to refer to traditional schooling in a classroom setting. Alternatively, scholars and educators have defined the term *informal* learning environment in many ways. Free-choice

learning, studied by Falk et al., is when the learner is in charge of his or her learning experience and pursuing it for the sake of learning. Another well-known theory developed by Gregory Smith (2002) is Place-Based Education, which aims to align course content with the learner's context. Within this capstone, *informal learning environment* refers to an organization that is physically outside the classroom where student learning takes place. More specifically, this learning experience is directly connected to, and organized through, the student's formal education.

Many studies have been conducted to understand how students learn in different environments. For example, Farmer et al. (2007) studied the persistence of student knowledge in EE after going on a field trip. Similarly, Loughland et al. (2003) studied how students develop an "object" conception versus a "relational" conception of the environment through informal learning experiences. This attention to the *student* experience in the literature led me to see a gap: What is the experience of formal and informal *educators* in fostering and initiating these learning experiences?

Instead of viewing these two learning environments as separate entities, I approach them with the intention of exploring their structural relationship to each other. Research shows that informal learning experiences are more effective when they overlap with formal learning. However, Bozdoğan (2008, 2) acknowledges that, "though formal education and informal education are interlocked and complement each other, they are educational areas with totally different features" and the significance of both needs to be recognized.

I approached my project with a wide lens for what constitutes as the "environment." I chose to include an inclusive range of organizations in my research, not

just those that explicitly work with “nature” or “science”. In support of my decision to broadly define EE, Semerjian et al. (2014, 173) state that the current field of “environmental engineers and scientists is becoming increasingly multidisciplinary, and necessitates the integration of expertise from a wide range of fields.” My choice to include organizations from gardens to theaters reflects this multidisciplinary understanding of EE.

In order to explore the relationship between formal and informal learning environments, I sought to speak with representatives from a range of informal learning environments in Portland. Through these conversations, I also investigated the barriers that schoolteachers face when accessing and incorporating informal learning experiences. The framing question that guided my methodology was: To what extent are informal and formal learning environments independently influential on a student’s environmental education, and what potential do relationships between the two have to enhance this education? From this, my focus questions developed into: How do the organizations that constitute *informal* learning environments initiate and foster relationships with *formal* learning environments? I argue that in order to foster coherence between formal and informal education, a platform to increase the availability of information about informal learning environments, with specific attention to how their resources and opportunities connect to school curriculum, must be developed.

## *Methodology*

To begin answering my focus question, I selected organizations in each quadrant of Portland (NW, NE, SW, SE) to explore as case studies of informal learning environments. I initially found organizations through a Google map of Portland and used this platform to access their websites. When selecting an organization based on its website, I considered an “informal learning environment” to be anywhere outside the classroom where students can go to learn with their school. If an organization’s website had indicators of preexisting relationships with schools then they were included in my study. This was determined either through images with students and/or specific webpages for “education” or “teachers”. After selecting 16 organizations (four in each quadrant of Portland), I was able to establish interviews with representatives from six organizations varying greatly in structure and mission: The Oregon Zoo, Lan Su Chinese Gardens, Oregon Rail Heritage Center (ORHC), Portland Center Stage, A-WOL Aerial Dance, Multnomah County Library - School Corps.

The representatives I spoke with from each organization had various roles and titles. The representatives I spoke with from Lan Su, Portland Center Stage and the Oregon Zoo were the Director of Education, Education and Community Programs Associate, and School and Teacher Liaison respectively. The representatives I spoke with from A-WOL, School Corps, and the ORHC were the Office Manager, Lead Worker, and a Volunteer respectively. This range in titles indicated which organizations have an individual in the position of working with schoolteachers specifically, with the time and resources to develop their organization’s relationship with schools. School Corps was

different from the other organizations because its primary mission is to work with schools, and all employee positions are related to working with formal educators.

The interview questions I developed for these conversations inquired about the organization's structure, the frequency of formal interactions, how these relationships are established, and the range of activities they offer (see Appendix A for the specific questions). I also asked each representative how he or she understands the importance of these interactions for students, and how they would like to improve these interactions. Five interviews were conducted in person, while one was done over the phone. During my interview at the ORHC, Portland Center Stage, and School Corps I was also given a short tour of their location and resources. Depending on their degree of involvement with formal education, the duration of these interviews ranged from 15 to 30 minutes. I recorded the interviews so I would not be distracted from the conversation by taking notes. This allowed me to transcribe and then analyze the interviews through creating a concept map (c-map) of the main points shared in each conversation; Appendices B.1 – 6 contain these c-maps (refer to Figure 1 on the following page as an example.) Through comparing and contrasting these c-maps I was able to extract the key findings from my interviews collectively, which I will explore in the following section.



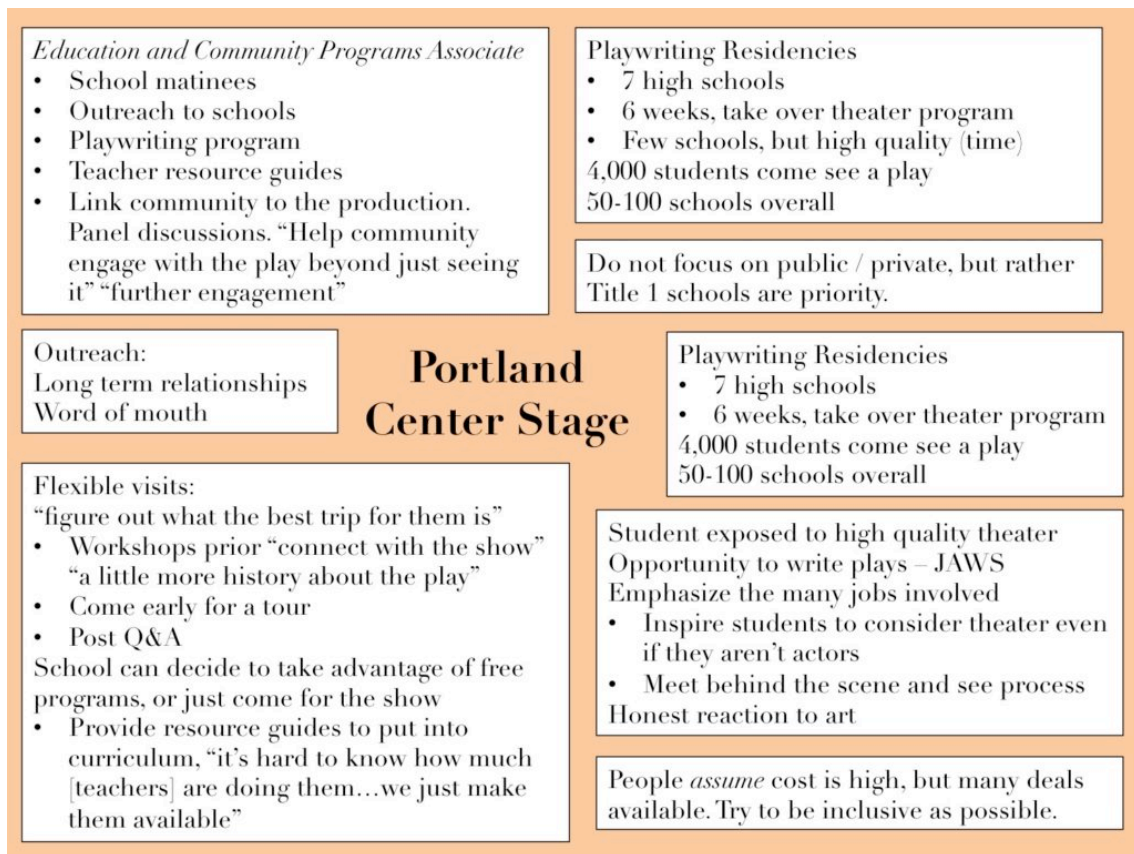


Figure 1: Concept map of the key ideas from my interview with the PCS.

### Results

Referenced by Herman et al. (2013, 1329), Dewey (1916) states: “there is a standing danger that the material of formal instruction will be merely the subject matter of schools, isolated from the subject matter of life-experience.” Dewey and Herman et al. all stress that informal learning should be framed in the context of lifelong learning beyond the classroom. When I asked the representatives questions such as, “*how do students benefit from these experiences?*” a majority expressed a desire for students to apply their learning experiences in the future. For example, the volunteer I spoke with at ORHC hoped to interest students in railroads so they might “follow them into the field,”

while the Oregon Zoo expressed that developing environmental literacy would, “hopefully inspire [students] to act on behalf of wildlife and the natural world.” Furthermore, the Portland Center Stage is constantly looking for ways students can, “engage with the play beyond just seeing it.”

Teachers face time constraints during the academic year, making it easy to default to one-time field trips without making connections to their classroom learning. Knapp (2007) refers to these one-time field trips as an episodic learning experience, and warns that it can prevent longitudinal learning. The representative from the Oregon Zoo, who described zoo field trips often becoming part of a “dog and pony” show, echoed this concern. She stated: “while I don't want to say that [one-time field trips are] not legitimate, it's not as enriching as a field trip to the zoo or a classroom program from the zoo that is embedded in the classroom curriculum...the more we become embedded in classroom curriculum, the bigger the rewards are for everybody.” While it can be beneficial for teachers to avoid episodic learning experiences, Anderson's (2006) research highlighted a range of intentions that teachers had, beyond complimenting the curriculum, for their field trips. A class outing does not always have to be deeply integrated into the curriculum for it to be valuable or memorable for the students, but an integrative approach can be beneficial to support coherence in a student's learning experience.

Facilitating an effective informal learning experience has been attributed to active preparation by the schoolteacher at three stages of the experience: prior, during, and post. (Bozdoğan 2008) All the representatives I spoke with were eager to work with teachers to establish learning expectations prior to a field trip. The Portland Center Stage works with

teachers to establish “what the best trip for them is.” The ORHC also expressed flexibility, and can “pick and choose who gives tours” depending on the school group. Similarly, Lan Su adapts its tours and activities to the teacher’s curriculum. Lan Su, the Oregon Zoo, and Portland Center Stage all provide teachers with lesson plans and activities to carry out before visiting, that are available on their websites. Many of these organizations have post visit activities and online resources for teachers to access after a field trip as well. A willingness to develop a trip with the schoolteachers at multiple stages was remarkably consistent between the representatives from the various organizations I spoke with.

While formal educators are constrained in their availability, their participation is necessary to fully integrate informal learning experiences with classroom learning. I found all six of my interviewees to hold a surprisingly consistent view of teacher availability: “too busy”. While my interviews cannot necessarily be generalized, formal educators do have many restrictions on their time and freedom with class schedule. Lohman (2000, 7) identifies four inhibitors that teachers face: “lack of time for learning, lack of proximity to learning resources, lack of meaningful rewards for learning, and limited decision-making power in school management.” Like most of the individuals I spoke with, the representative at the ORHC emphasized how their resources and opportunities “got to fit the curriculum.” There is an understanding that teachers have assessments and curriculum to comply with, and these informal learning experiences need to fit into these requirements. I found the organizations that employed an individual working specifically towards their relationship with schools had more developed interactions with, and resources for, school groups. Because schoolteachers do

not have plenteous time, employees at informal learning environments who can focus on initiating these relationships appeared highly beneficial.

### *Outcome*

This paper is accompanied by a practical component that has the potential to be implemented by Portland schoolteachers: an online resource that aims to make essential information about informal learning environments accessible to formal educators. Presented through a website, I have created profiles for 13 organizations that are broken into three sections: Logistics, Resources and Opportunities, and Curriculum Connections. The last section, which presents direct connections between the available resources and curriculum, is particularly important in easing the pressure of standards that need to be met. Informal educators expressed great willingness to host learning experiences for school groups; straightforward communication through an online platform would help to channel this eagerness. This website is currently still a prototype, and has the potential to be developed further. To encourage the growth of this online resource, the website includes a detailed unpaid internship descriptions that outlines the necessary tasks to achieve this goal, and could be implemented by Portland schools.

This online resource also compliments the multidisciplinary approach of EE. Although the organizations don't all explicitly teach EE or science, the resources described within each organization profile are connected to science curriculum. My choice to include a broad selection of organizations encourages educators to view environmental education to include the many informal learning environments that surround their students.

The intention of this paper is to provide background information and outline the research that argues for the importance of an online resource to be utilized by schoolteachers in Portland. Hopefully a prepared internship will encourage schools to employ an individual who can carry this website prototype further, in order to foster relationships between Portland organizations and schools, as well as model a multidisciplinary approach to EE.

### *Discussion*

My results and alternative outcome address a disconnect that exists between educational resources and opportunities available at informal learning environments, and the extent to which they are distributed to and utilized by schoolteachers. While developing the relationships between schoolteachers and educators at informal learning environments is beneficial, it is essential that the student experiences and perceptions be addressed. While schools can facilitate interactive field trips for their students, this does not guarantee that every student will have the same experience. Furthermore, these informal learning opportunities may only be available to students through their school and would not be possible or even desired in other cases.

The representatives I spoke with regrettably mentioned cost as the primary limitation to accessing their resources. Kirchberg's (1998, 12) research on the entrance fees of museums found, "people in the lowest income bracket regard entrance fees as a barrier almost five times as much as people in the highest income bracket." All my focus organizations have discount opportunities in order to make their resources and opportunities more economically feasible. For example, the ORHC is entirely donation based and while they suggest \$5 per student, the volunteer I spoke with stressed their

flexibility with price: “whatever you can do, come on over, we want to host you.” All these organizations were willing to assist with the cost through offering discounts, primarily to Title 1 schools.

However, the notion that low costs or free admittance will automatically increase accessibility is a complicated one. Emily Dawson (2014, 996) conducted a study on the exclusive nature of museums and informal science education (ISE) institutions in the UK. The participants in this study were from minority groups who, for many reasons, were not inclined to visit museums or ISE organizations regularly. Although the ISE organizations she used for her study were technically free admissions, the participants were well aware of hidden costs such as transportation and food. Dawson also noted the assumption of “prohibitively expensive entrance fees” that was held by the participants. Her findings are congruent my conversation with the representative from Portland Center Stage (PCS) who explained how many people look at the ticket prices on their website and will exclude PCS as an option although there are many discounts and free performances available, especially for school groups.

Not all informal learners will feel equally welcomed in ISE organizations, museums or gardens. When I spoke with the representative from Lan Su, she mentioned that often the gardens are “out of their range of *interest* as well as economic [means]” which implies that there is a prestigious reputation associated with certain informal learning environments. Although these organizations attempt to offer cost reductions, the stigma surrounding some informal learning hinder students or individuals to initially approach or consider visiting the organization. Participants in Dawson’s research noted, “ISE institutions were seen as places where “there’s not going to be anyone like [them]

there,” such that visiting was understood as “wrong.”” While entrance fees may not be prohibitive, the majority of those who visit informal learning environments create an image for what an “ideal” visitor look like. (Dawson 2014, 989) School trips may be an opportunity to introduce students to the informal learning environments available to them. However, Dawson (2014) warns against this assumption that introducing students will automatically increase the likelihood of them returning. The participants in her study did not express a likeliness to return even after being introduced to the ISE institutions available to them over the span of a year.

This exclusion extends beyond informal learning environments, and occurs within field of science education. Fenichel et al. (2010, 120) explains, “learning to participate in science — that is, developing the necessary knowledge and skills, as well as adopting the norms and practices associated with doing science — is difficult for many people.” Like with learning in museums and ISE organizations, science education in the US assumes that the students are coming in with an understanding of science that coincides with the dominant culture, and does not cater well towards minority students outside the “norm”. (Monhardt 2000) Additionally, “women are under-represented in science, technology, engineering and mathematics (STEM) majors and careers in most industrialized countries around the world.” (Blickenstaff 2005, 369) The sciences can be excluding of female and minority students due to the lack of representation and assumed prerequisite that exist in this field.

The focus of this paper is on the relationship that exists between formal and informal learning environments. However, my conversations with two representatives implied that the *perceived* high cost and prestige associated with informal learning

environments are more significant barriers than the cost itself. All the representatives I spoke with expressed an eagerness to work with all students, and aimed to make their organizations accessible to as many learners as possible. Improving the relationships between these organizations and schoolteachers can help to bring more students into their informal learning environments, but this cannot occur alone. As I have explored above, informal learning experiences have the potential to compliment in-class learning and provide engaging learning opportunities. An understanding of the systemic factors that influence a student's learning in these informal learning environments must be understood before culturally appropriate opportunities to learn beyond the classroom can be available to all students.



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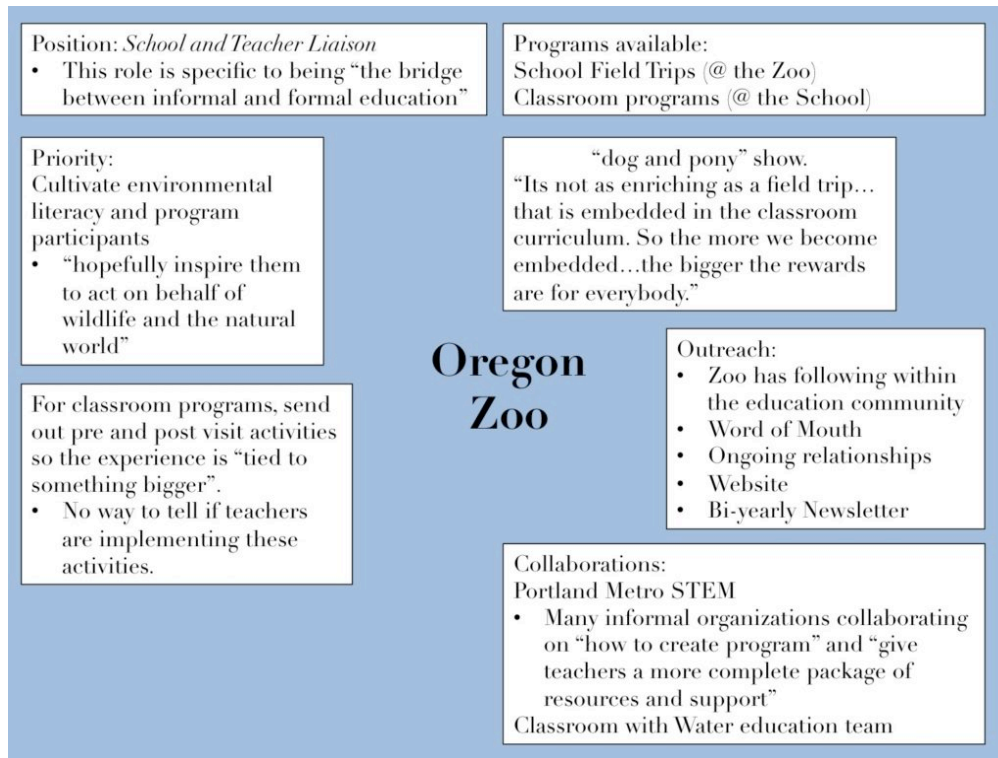
## Appendix A

### 1. Interview Questions

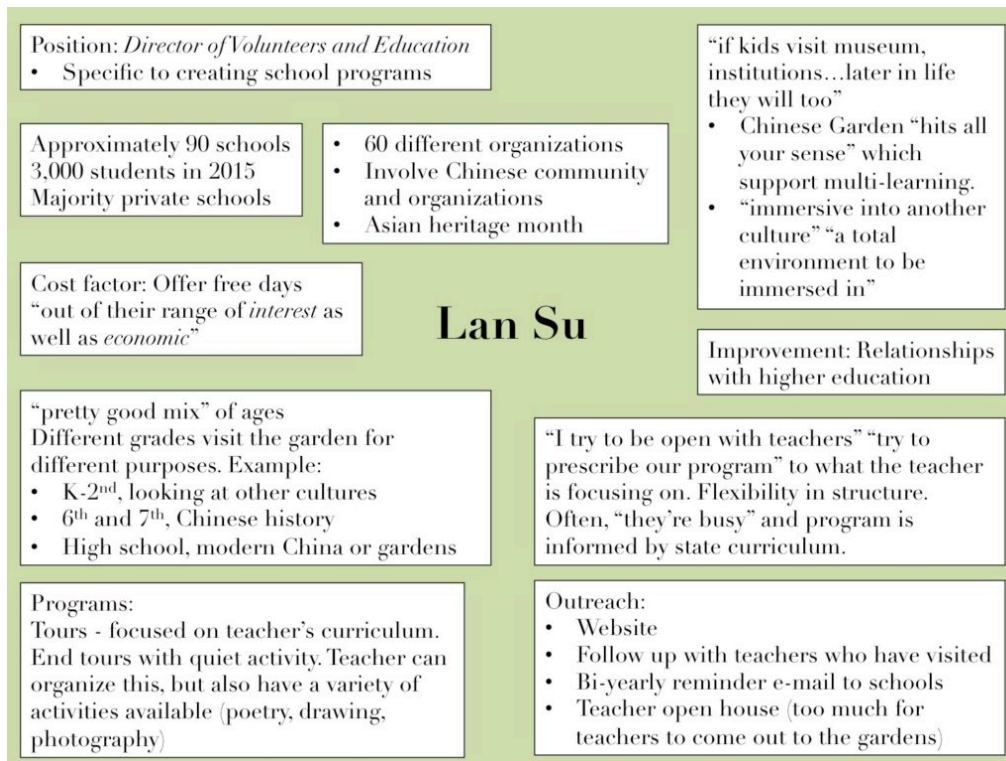
- a. Can you tell me a bit about yourself and your involvement / role in this informal learning environment?
- b. How many schools do you interact with? (Both public and private)
- c. What is the frequency of these interactions?
- d. What is the nature of these interactions? (Field trips, guest speakers, etc.)
- e. On average, how are these connections made? How do formal learning environments learn about your organizations?
- f. How do you feel your organization benefits from these interactions?
- g. How do you think formal learning environments / students benefit from these interactions?
- h. What other groups of people utilize your organizations?
- i. What factors may prevent people from accessing your informal environment? Cost? Hours? Location?
- j. What other organizations do you work with or are a part of?
- k. Would you like to improve upon you relationships with formal learning environments? How so? What are the limitations to this?

## Appendix B

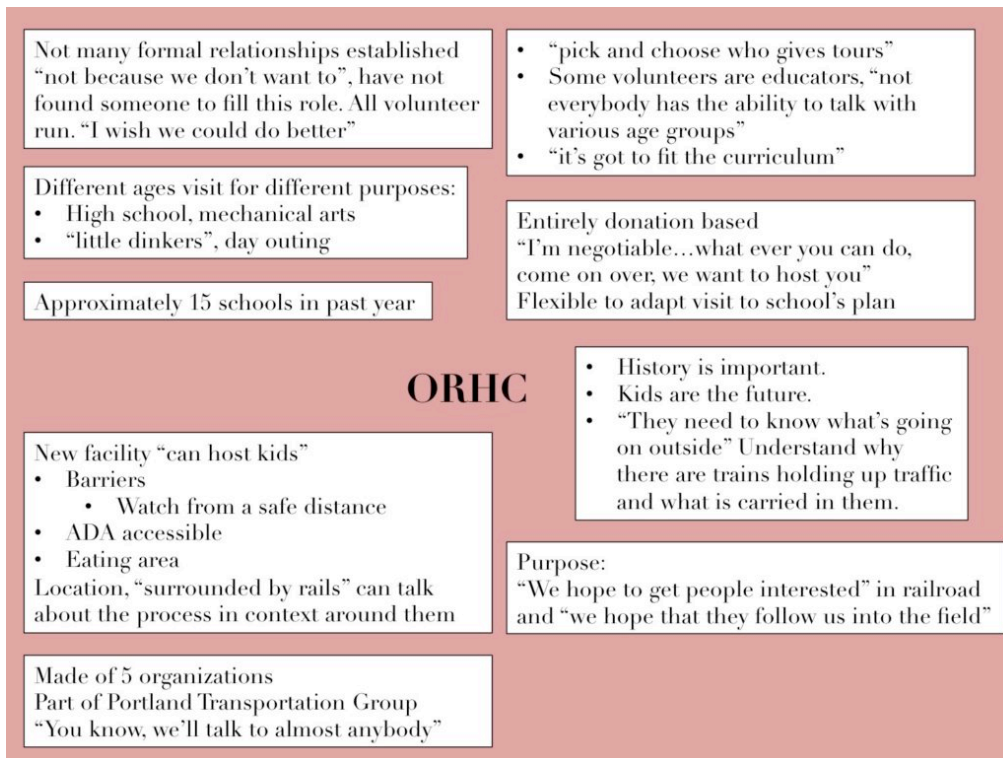
### 1. Concept map of the key ideas from my interview with the Oregon Zoo.



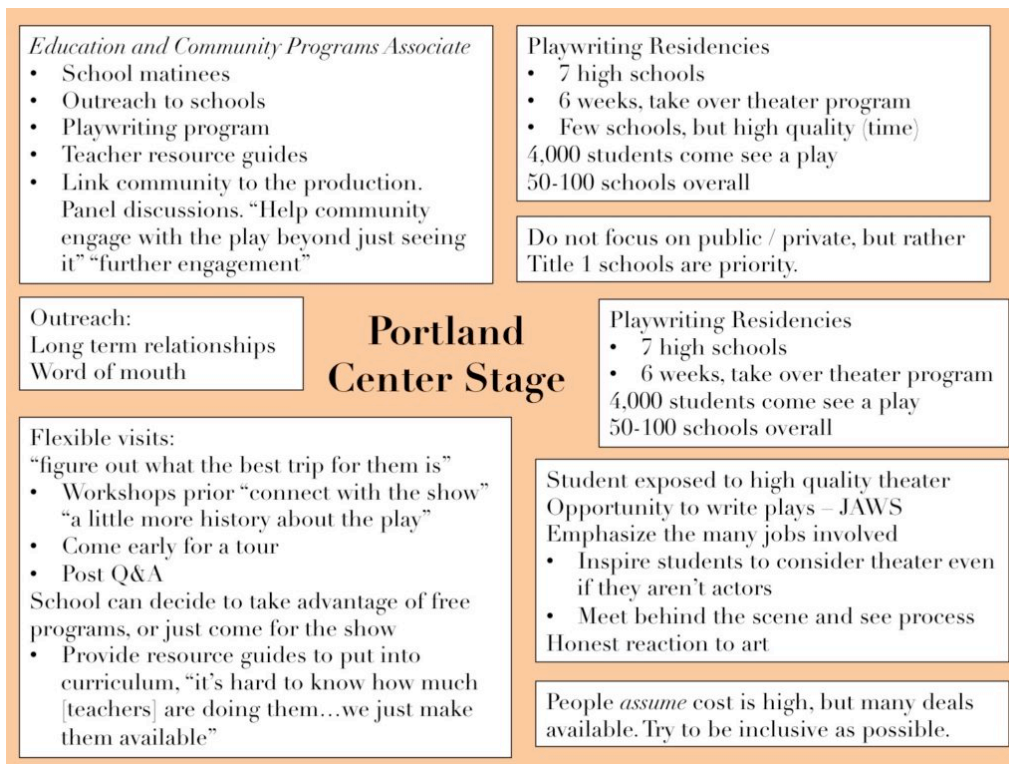
### 2. Concept map of the key ideas from my interview with Lan Su.



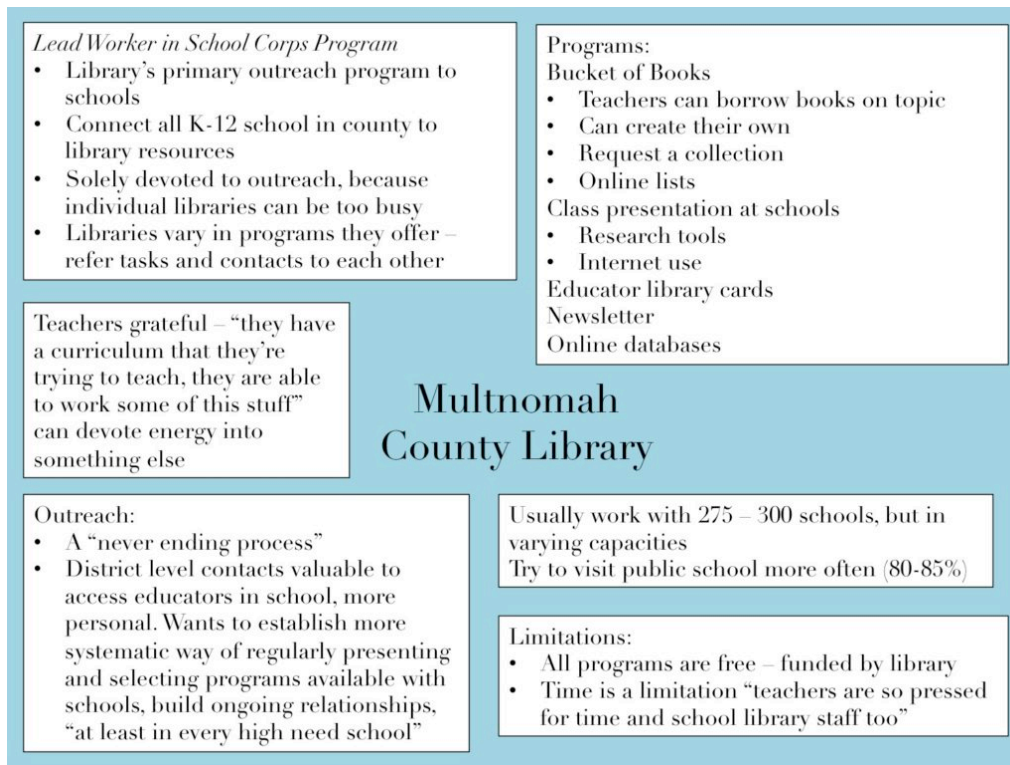
3. Concept map of the key ideas from my interview with the ORHC.



4. Concept map of the key ideas from my interview with the PCS.



5. Concept map of the key ideas from my interview with School Corp.



6. Concept map of the key ideas from my interview with A-WOL.

