The STEAM Journal

Volume 4
Issue 1 *Metaphorical Cities*

Article 12

December 2019

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Recommended Citation

Hunter-Doniger, Tracey (2019) "STEAM Education Afterschool and Summer Learning," *The STEAM Journal*: Vol. 4: Iss. 1, Article 12. DOI: 10.5642/steam.20190401.12
Available at: https://scholarship.claremont.edu/steam/vol4/iss1/12

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STEAM is a bi-annual journal published by the Claremont Colleges Library | ISSN 2327-2074 | http://scholarship.claremont.edu/steam

STEAM Education Afterschool and Summer Learning

Abstract

This article discusses the potential of STEAM education in afterschool and summer learning programs. The author suggests artistic methods and pedagogies that can be implemented in the programs, such as TAB (teaching artistic abilities), art infusion, and Studio Thinking. Challenges are brought forward and essential factors are suggested for STEAM programs. This article outlines STEAM afterschool and summer programs as spaces that invite, encourage and provide a safe learning environment where the students have more freedom to explore and get a deeper understanding of the arts and other disciplines.

Keywords

STEAM, TAB, art infusion, Studio Habits, afterschool and summer

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Cover Page Footnote

N/A

This article is available in The STEAM Journal: https://scholarship.claremont.edu/steam/vol4/iss1/12

STEAM Education Afterschool and Summer Learning

Tracey Hunter-Doniger

"I have no hesitation in saying we need to add the letter A, and it should be STEAM… An education devoid of art is an empty, half-brain kind of education" – Howard Gardener (2014)

There is a growing body of evidence regarding the positive educational outcomes that come from learning in non- traditional settings, "Expanded learning programs can assist and support children and youth with opportunities to learn and grow so they can succeed educationally and lead productive lives," (Peterson, 2013 p. 439; Wells, 2002). Creating inspiring learning environments is essential to the learning process (Wells, 2002). There is a need for alternative learning experiences, especially provided that so many students' educational needs are not being met (Hetland, Winner, Veenema, & Sheridan, 2013). Educators have an obligation to serve all students equally and to the best of our abilities. Focusing on rote memorization ultimately devalues the power of the learning process to produce meaningful and creative intellectual skills (Hunter-Doniger, 2016). Hetland (2013) argues that there must be a shift in the role of education away from gaining knowledge and toward the process of acquiring understanding. STEAM (science, technology, engineering, art, and math) can shift the paradigm and engage learners. Furthermore by tapping into and investing in non-traditional education environments such as afterschool and summer learning, STEAM education can give young people the power to participate in the world with an open mind that is aware, confident, and understanding (Peterson, 2013).

STEAM Education

The National Arts Education Association (NAEA) defines STEAM as a pedagogical approach to infusing the arts and design concepts, and techniques into the STEM instructional

learning (2014). STEAM education empowers the arts and NAEA suggests that this approach values all STEAM disciplines equally, is implemented through a wide variety of approaches, encourages creativity and innovation, and acknowledges the rigor found in the arts. (NAEA, 2014). This approach allows the learner to be engaged and understand that disciplines across the curriculum are interwoven and, at times rely on skills applied in other areas. As stated in a 2008 United States Department of Education survey on afterschool art programs, "…the arts are an extension of being human, both process and product. Working with the arts allows students to use all of themselves and to trust themselves to explore and express the information of the senses. Additionally, it helps them transform that information to communicate their understandings, even in traditional academic modes." (p. 44). When designing a high quality STEAM afterschool and summer programs it is important to consider philosophical underpinnings and pedagogical methods such as Studio Thinking, TAB (teaching artistic behavior) and arts infusion. These theories and methodologies provide a platform that maintain value in the arts but also leaves space for the non-arts areas as well.

Studio Thinking; the Eight Habits of Mind is a pedagogical and theoretical framework designed by visual art practitioners, scholars and researchers. Studio Thinking consists of eight dispositions that artists use to create (Hetland, et. al., 2013). These dispositions have been found to be favorable for critical thinking and positive learning across all disciplines. These include, development of craft, engage and persist, envision, express, observe, reflect, stretch and explore, and understand community (Hetland, et. al., 2013). The studies that eventually led to the Studio Thinking framework provided evidence that the eight habits of mind offer a language for critical thinking that extends across every subject area (Hetland et. al., 2013; Rankine-Landers, 2015).

Studio thinking is based in traditional pedagogical practices. Another pedagogical style to be considered is a child-centered approach.

TAB is a choice based child-centered approach to teaching art. TAB provides student choice in learning and enables students to experience working as an artist through genuine learning opportunities and responsive instruction. Within this pedagogical structure students are given options for responding to their own ideas and interests while making art providing multiple modes of learning for the diverse needs of students (n.a., 2016). This puts the students in the driver's seat as they decide the path and process they will take to come to and communicate their ideas. Teachers work as facilitators and provide opportunities for learning, teach necessary skills and assist in guiding children to solutions. TAB puts the emphasis on content and experience, rather than management and standardized assessment (Parks, 1992). This method of teaching can be achieved through centers giving students the freedom to work at their own pace with individual inquiry making the learning personal.

Arts Infusion is a method used to experience the collaborative benefits of working in multiple disciplines and applying creative solutions to difficult problems. The term art infusion is often used interchangeably with art integration. The Kennedy Center defines arts integration as "an approach to teaching in which students construct and demonstrate understanding through an art form. Students engage in a creative process which connects an art for and another subject areas and meets evolving objectives in both." (Silverstein, Layne, 2010, p 1). It is important to distinguish the difference between arts integration and art infusion. While in both, cross-curricular learning can happen, in arts integration the arts are used as an entry point to learn with and about other subjects, with the arts as the vehicle of learning and art infusion is teaching subjects including the arts concurrently with equal importance (USDOE, 2008, Hunter-Doniger & Sydow, 2016). A

STEAM education program should strive to employ arts infusion. Whether implementing Studio Habits, TAB, art infusion, or any combination, the arts must be foundational in the planning process.

Challenges in Building STEAM Afterschool and Summer Programs

STEAM afterschool and summer learning programs have the potential to benefit learners, however, the following seven challenges must be considered in order to provide successful STEAM programs.

- *Logistics*- Funding, staff turnover, bussing, hours, and facilities are ongoing challenges that face any afterschool and summer learning program. (Reisner, White, Russell, & Birmingham, 2004).
- *Curriculum:* Often the arts are given the charge to assist in the learning gap in areas such as reading, language arts, science and math through engaging lessons. This type of programming tends to use the arts as a prop and focus on the "academic standard" rather than the arts standards. Studies provide evidence that this method does assist in the engagement and offer correlated links to learning in other areas through art (Hetland et.al, 2013). This, in turn, has decreased the value of the arts as a viable subject area to stand on its own. "The arts are used to achieve a multitude of human purposes: to present issues and ideas, to teach or persuade, to entertain, to decorate or please. Becoming literate in the arts helps students understand and do these things better." (USDOE, 2008, p. 42). Ultimately, the arts should not be used as curricular props to entertain while learning non-arts subjects, but valuable partners in learning.
- *Personnel:* Frequently unskilled and untrained people take jobs in the afterschool or summer learning spaces for minimum wage (Reisner, White, Russell, & Birmingham,

2004). The leader/teacher MUST be highly qualified and receive specific training to provide appropriate services.

- *Meeting the Needs of Underserved Populations:* Many afterschool and summer programs assist children of underserved populations. The lack of support can lead to other issues. Many of the instructors for afterschool programs are ill equipped to handle social and emotional issues that accompany students who live in poverty. Often children who have the fewest resources are the ones who need it most but do not receive it. (Kraehe, & Acuff, 2013).
- *Pedagogical Differences*: With the pressure of standardize tests teachers all disciplines are trying to do their best to preserve the integrity of the content of their subject area (Hunter-Doniger, & Sydow, 2016). This has created a façade for the need to compete for importance on the educational hierarchy and has created a territorial atmosphere for time, funding, resources and facility space. (Reisner, White, Russell, & Birmingham, 2004).
- *Time*: A high quality afterschool and summer learning program takes time for proper and continuous training of all teachers, to design a worthwhile curriculum, to implement the lessons, and to evaluate program. (Peterson, 2013)
- *Stakeholder buy-in:* The STEAM afterschool and summer mindset has to have 100% buy-in from parents, students, ALL teachers, administrators, superintendents, community members, and policy makers. (Hunter-Doniger, & Berlinsky, 2017)

Essential for STEAM Afterschool and Summer Programs

In order to overcome the challenges, STEAM afterschool and summer programs must provide four essential factors to the learning experience, 1) a quality arts curriculum, 2) instructors trained in artistic pedagogies, 3) a supportive learning environment, and 4) a program evaluation.

Quality Arts Curriculum

The curriculum planned for afterschool and summer learning should follow the theoretical underpinnings of arts education, such as, Studio Thinking, STEAM, TAB and/or arts integration. The lessons, projects, or planned activities should spark intrinsic learning and give space for students to dig deeper an inquire at an individual level. Within the curriculum artistic skills must be taught to provide a foundational knowledge to build. Ideally, the curriculum and pedagogical method should skew from traditional educational practices to engage the students rather than "more of the same" style of learning experiences. Additionally, the arts should be valued, not as a prop but as a viable, and equal contributor to a child's educational process.

Instructors Trained in Artistic Pedagogies

In order for STEAM afterschool and summer learning programs to be successful the instructors must be properly trained in artistic pedagogies and theories. This includes professional development for students at all developmental levels. Techniques of materials, mediums, methods, and instruments must be fully understood by the teacher before lessons are taught. The professional development should go well beyond seasonal craft projects that merely occupy time; it must maintain the integrity and the rigor of the arts and the arts standards. These instructors must also be trained how to manage a classroom, and accommodate the needs of the children (emotionally and educationally). Lastly, the instructors must be paid a decent wage so they are willingly retained in the position which with maintain consistency within the program for the learners.

Supportive Learning Environment

The environment and space of STEAM afterschool and summer learning programs must meet the needs of the students. Resources such as child psychologists and school counselors need

to be on staff and available. An afterschool administrator should also be available to handle discipline, support the staff and be the liaison to parents. The structure of the classroom should promote a non-threatening learning environment that allows students to explore finding answers. Students who disrupt the learning environment will be not be allowed to continue to hinder the learning process. Within this supportive learning structure groups should be no larger than sixteen students total permitting freedom to move.

Evaluation

The evaluation process should reflect the uniqueness of STEAM afterschool and summer learning programs. First and foremost, the assessment should be used for improvement of the program and not punitive. Traditional testing will not suffice in an afterschool or summer learning environment. Factors beyond test scores are equally important and should be highlighted such as enjoying the learning process and becoming intrinsically motivated to expand the level of knowledge. Standardize instructor evaluations completed by an external reviewer would not be ideal either. Rather than a hire an external reviewer, a trainer/evaluator should be established for the program. For example, the trainer for the instructors would also be the supervisor and evaluator working through the program from start to finish.

Conclusion

This article outlines STEAM afterschool and summer programs as spaces that invite, encourage and provide a safe learning environment where the students have more freedom to explore and get a deeper understanding of the arts and other disciplines. The arts give students a deeper frame of reference to comprehend how and why they enjoy learning (Hunter-Doniger & Sydow, 2016). The blending of the subject areas mirror real life in that it is not defined as a single subject but a natural combination of learned skills that need to be practiced and investigated. Done

well, STEAM education is an environment where the more the student is engaged they more intrinsically they want to learn. In doing so, STEAM afterschool and summer programs can provide an exceptional, all-encompassing experience for learning.

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