Laura Fleming's *Worlds of Making: Best Practices for Establishing a Makerspace for Your School*

Ivory Almoguera-Romero
ALS teacher, Valeriano E. Fugoso Memorial Elementary School
MLIS candidate, UP School of Library and Information Studies

RESOURCE REVIEW

Book review of

Fleming, L. (2015). *Worlds of making: Best practices for establishing a makerspace for your school.* Sage Publishing.

INTRODUCTION

Laura Fleming's book guides educators in making their makerspace based on the assigned budget. It narrates the strategies and steps from its inception until the actual implementation. According to Fleming (2015), makerspace is "a place where learners have the opportunity to explore their interests, to tinker, create, invent, and build using the widest variety of tools and materials" (p. 19). The book primarily focuses on the background and context of the German Maker Movement in the '90s, together with John Dewey's theories of education. The author gives an overview of the Maker Movement in general and its effects on education. The book further focuses on the library makerspace since most of the movement's activities were held in libraries. The author also mentions the importance of creating your own "maker culture" wherever you are. Fleming advises those planning to set up their makerspace to include ways to cope in experiencing lack of physically usable space. The book also answers the common questions asked in setting up a makerspace. It focuses on the imagination, planning, creation, and execution of the ideas to manage your makerspace.

Main Arguments

In her book, Fleming shares about her own experiences as a school librarian and how she transformed her library into a working makerspace. She offers practical advice for the curious minds of her audiences in attempt to create their makerspace. Her book is designed to provide "the nuts and bolts of imagining, planning, creating, and managing your makerspace" (Fleming, 2015, p. 14). Conversely, the author discusses practical strategies and examples to help the readers create their makerspace. It includes creating an action plan, creating a marker culture, aligning maker activities to personal standards, enhancing student learning through hands-on experiences, showcasing the students' creations, and acting as a catalyst for future change.

In this specific edition, Fleming describes the essential parts of making a school makerspace without much information that can be altered in future use, such as equipment costs and suppliers. Instead, it focuses on creating a maker culture based on school setting wherein it will start on a budget friendly cost and will depend on how much the administration of the institution will release for funding.

In planning the makerspace, Fleming theorizes that collaboration and networking are essential factors in contemporary makerspaces. It includes a series of consultations to different global makerspaces to adapt ways and ideas on how to effectively establish your own. It is also important to adapt themes from mentors and associates to see a wide range of makerspace developments. Available technologies, materials, and resources should also be deemed leverage to the uniqueness of the planning methods in building a makerspace. Overall, she pushes for more action that drives fundamental changes rather than the actual planning of the makerspace.

In setting up the makerspace, Fleming reiterates the beneficial use of consulting the students before execution. It is critical to integrate the ideas of the beneficiaries of the makerspace to make the same successfully. Interestingly, she also proposes that the maker culture embodies the opportunity to innovate and experiment through do-it-yourself (DIY) projects.

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Furthermore, the concept of making is being used as a platform to encourage students to go beyond the traditional classroom setting in learning and make something out of their own hands. Yet, she also points out that setting up a makerspace is a relatively new and foreign concept to the students and the teachers and would require more than passion and inspiration to be effective. She also mentions that tinkering and making effectively encourage a cooperative, iterative aspect, where student-centered projects can prepare students for real-world encounters in careers and college.

Fleming adds that in the makerspace, students could create, tinker, and invent concepts related to the circuitry. Students can develop creativity which can enhance their ability to create a solution to certain present problems. Fleming also talks about how makerspace can help students develop the 21st century skills that they essentially need. Through hands-on learning opportunities, students can develop critical thinking and creativity. The author further defines a maker as a movement of people devoted to making things for the real world. Creating a makerspace is a way that will enable students to develop engaging learning environments that are both challenging and rewarding and an avenue to develop their creativity and build upon it. According to Fleming, it should feature a variety of tools and equipment and include student-generated ideas on how to use it.

Reflections

The evolution of makerspaces started from the phenomenon called the "maker movement," as discussed in Fleming's book. It is characterized by community-building and collaboration of workers' impact in making things in a single space. The hallmark of the movement is DIY feature. It has gradually been implemented in schools, libraries, and museums as part of educational innovations. For the library sector, the concept of makerspace is not peculiar. It has long been implemented in the library to recognize its educational purposes and promote shared knowledge and open access to information. This created an avenue for makerspace to utilize such for collaboration, partnership, and creation.

Fleming's book shows how the maker movement is gradually transforming education in a general sense. The growing activities within the different communities, libraries, schools, and even the online platforms championed the movement. The use of new tools and the advancement of technology in 3D printing, robotics, and programming languages are being normalized in modern times. The movement also creates affordable or accessible versions of these innovations by sharing tools and ideas online for a vibrant and collaborative community of global solutions. In this instance, the widespread advancements in creating personal makerspace in schools or offices are evident in the education sector.

Regarding the book's discussion, analysis, and findings, its overall content is good but not as engaging as any other book with the exact contents of library methods class. The presentation of different ideas is backed up with evidence offered from the various studies and research conducted to aid analysis. However, the evidence presented seems to be lacking in practical applications to be used as an example to create a makerspace. This should have been the book's focus since it is geared to explain setting up a makerspace step by step, not through theoretical assumptions, but the practical application as should have been seen in the author's experiences. The book is also sourced from a global perspective of makerspace creators but was shorthanded in helpful discussions based on the author's knowledge.

The book can be of benefit for Filipino librarians or educators in general, who are interested in starting their makerspaces. However, budget constraints and lack of justification on its usage will also delay its conception. In the Philippines, as the educational system broadens and through the implementation of the K to 12 curriculum programs, increasing interest in STEM majors is apparent (Almerino Jr., 2020). To fulfill the goals of common core standards in schools and International Society for Technology in Education (ISTE) standards for the 21st century learning and teaching goals, the increased initiative to more vital school spaces is seen. As pointed out in the book, libraries provide an excellent venue for makerspaces. However, in the Philippines, little importance is given to this idea because the mainstream use of libraries is only limited to its supplemental use in education. Furthermore, budget constraints and lack of law-making initiatives also contribute to the unpopularity of makerspaces in libraries.

The ideas presented in the book about makerspaces in Philippine libraries are generic and not utterly discussed thoroughly. Therefore, the book can be improved in terms of a sequential discussion in the evolution of the makerspace ideas in libraries and not

just compiling theories and concepts from different book reviews to provide an argument.

Conclusion and Some Recommendations

As a teacher working in the Alternative Learning System (ALS) sector of the Philippines, I witnessed that my students are quite interested in and excited for our school library makerspace. This made them curious and fascinated in making one for themselves. The students improve their 4C's skills (i.e., communication, collaboration, critical thinking, creativity) since they are developing more effective communication with their peers, collaboration, critical thinking, curiosity, and creativity as to what theme and equipment they will put into their makerspace that will make them more invested on learning. Then, with the encouragement of their teachers or educators, this experience serves as an inspiration for students to turn their ideas into reality in their makerspace.

If I were to come up with another version of the book, I would write according to Fleming's format but in a more direct way. The book is exhaustive in terms of comprehending simple steps in making a makerspace. In the same context, I would write a better version with more takeaways on creating a makerspace, rather than narrating and comparing certain areas with theories and other ideas. I would also include more examples from the writer's personal experience in the field of making one and the practical usage of a makerspace to encourage more schools to provide a budget and a plan for its construction. It would also be better to include firsthand experiences in the discussions and the difficulties encountered from planning to execution. It should also incorporate ways or solutions to overcome those challenges encountered while working on the project, so that readers can keep it in mind in case they encounter the same problems or errors within the process of making. In addition, it will be helpful to include the lessons learned from such challenges and on how to be reasonable and patient in dealing with them. It would be best to exclude too many sources and limit discussions on the practicality of the methods presented and discussed in the book. Furthermore, it would be beneficial for the readers to see how the theories included in the book are seen and applied on the actual processes of making a makerspace. An exploration of the sustainability of the makerspace in education, libraries, and museums to assess its effectiveness can also be added. Alternative ideas are also good points to be looked at, such as the different ways of integrating a makerspace without creating one. This can be discussed to provide the readers with a pros and cons analysis in creating their makerspace, and to also enlighten and guide those readers that are still second guessing in terms of starting their makerspace. The practical aspects, therefore, must be deepened to provide a clearer picture of the steps to be made in creating a makerspace. Finally, as the concept and operationalization of makerspace continuously grows, there are still and will always be challenges on how to make the "perfect" makerspace, but Fleming's book already provides a substantial introduction to how to make one.

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AUTHOR BIOGRAPHY

Ivory Almoguera-Romero is an ALS teacher at Valeriano E. Fugoso Memorial Elementary School. She graduated at Pamantasan Lungsod ng Maynila, having finished Bachelor of Secondary Education Major in Social Science, batch 2005. Before she taught at Valeriano E. Fugoso Memorial Elementary School, she started teaching in 2006 at Manila Cathedral School, then afterward she taught in public school as a grade school teacher at Cecilio Apostol Elementary School in 2010. She had her master in University of the Philippines, Diliman; master in School of Library and Information Studies. Ivory also loves watching K-drama series and she's also a dog and cat lover. She's looking forward to making an animal shelter in the future to accommodate stray cats and dogs. She's happily married to her loving husband, Mr. Sean Jay B. Romero. Ivory's motto is: "The person who is peaceful, is the richest person in the world."

Email: *izetee19@gmail.com*

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