Case Study

Students Lead the Charge! Using Project-Based Learning with Pre-service Teachers to redesign a Curriculum Resource Center

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Abstract

Project-based learning (PBL) allows students to identify and find solutions to real-world problems using inquiry-based learning. While increasingly used in the K-12 classroom, PBL has not had widespread adoption in higher education. With the exception of Correll and Bornstein (2018), very little has been written about using PBL to redesign college and university Curriculum Resource Centers. However, because PBL is primarily a K-12 teaching pedagogy, it is the perfect fit to give pre-service teachers the active learning skills they will need for their future K-12 classrooms. The skills developed through project-based learning teach pre-service teachers to become independent and resourceful through learning how to develop their professional voices through inquiry. The authors of this article used PBL in conjunction with the Association of College and Research Libraries (ACRL) Guidelines for Curriculum Materials Centers (CMCs) and the three themes for PBL success in higher education identified by Lee et al. (2014) to work with a small class of upper-level elementary education pre-service teachers to redesign an academic library Curriculum Resource Center.

Keywords: Academic libraries; Project-based learning; curriculum materials centers; curriculum resource centers; cross-campus collaboration; pre-service teachers; higher education

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Introduction

In Spring 2019, an education liaison librarian and an elementary education faculty member used project-based learning (PBL) with a small of group of six upper-level undergraduate elementary education pre-service teachers to redesign an academic library Curriculum Resource Center. The existing center was transformed into a 21st century collaborative and active learning space to reflect current trends in both education and libraries. Project-based learning (PBL) is a student-centered teaching pedagogy which allows students to "learn by doing" (Krajcik and Blumenfeld, 2006). Students identify real-world problems which require them to investigate questions and formulate hypotheses in order to find solutions. This is a shift away from the traditional teaching of "superficial knowledge" to a model where students experience a deeper learning (Krajcik and Blumenfeld, 2006). The version of PBL used for this project is from PBLWorks, which is published by the Buck Institute for Education (2019). PBLWorks offers extensive resources for classroom teachers, including a list of seven essential project design elements. These include the following: framing the project around a meaningful problem, sustained inquiry, authenticity, student voice and choice, reflection, critique and revision, and public product (Buck Institute for Education, 2019). This process allows students to address a real-world challenge, which requires them to effectively communicate in teams to gather, analyze, and assess information to solve a problem.

While becoming increasingly common in the K-12 classroom, PBL is less common in college and university settings and requires additional work to be successfully implemented (Lee et al., 2014). In their study of faculty self-assessment of PBL integration in the higher education classroom, Lee et al. (2014) identified three themes as indicators of a successful higher education implementation: community partnerships, student engagement in PBL environments, and assessment practices. These benchmarks, in conjunction with the seven elements from PBLWorks, and the Association of College and Research Libraries (ACRL) Guidelines for Curriculum Materials Centers (CMCs) were used to redesign the Rhode Island College library's Curriculum Resource Center.

PBL activities as described in this article, fill an important gap in pre-service teacher education: the disconnect between the skills which are taught in many teacher education programs and the real-life experience needed for day-to-day classroom management. To maximize effective student involvement, students must be allowed to "lead the charge" by taking an active role in the planning, implementation, and assessment of projects that reflect real world challenges. This allows students to experience ownership and pride in their work and creates an effective learning environment. PBL works to support this type of learning by allowing for multiple solutions and more than one correct answer to any problem (Catalano, 2015).

Literature Review

While project-based learning is becoming more common in K-12 classrooms, its adoption in a higher education setting has been slower (Lee et al. ,2014). One of the reasons may be that effectively implementing project-based learning requires both teachers and students to restructure how learning occurs in the classroom, with the teacher shifting from an expert to a facilitator. This shift may conflict with the traditional

lecture model which is still dominant in many college and university classrooms. Ahlfeldt et al. (2005) demonstrate that PBL instruction is most effective with smaller sized, upper-level college classes. In their study of engaged teaching practices, they found that classes with more PBL directly connected with a higher engagement score. This gave us confidence that PBL would be effective with preservice teachers in a higher education setting. With the exception of Correll and Bornstein (2018), very little has been written about using project-based learning to redesign college and university Curriculum Resource Centers. Their implementation of PBL taught students how to implement the collaborative pedagogical theories into a real-world project by physically transforming their academic library's Curriculum Materials Center (Correll & Bornstein, 2018).

In the academic literature, Curriculum Resource Centers (CRCs) are often also referred to as Curriculum Materials Centers (CMCs). For the purposes of this article, Curriculum Resource Centers (CRCs) will be used to describe both terms. The purpose of these specialized collections is to "support teacher education programs within colleges and universities" (Kohrman, 2015, para. 2). Alteri (2012) gives an excellent overview of the historical contexts in which these collections have existed, from regularly being part of educational programs designed for teacher preparation in the nineteenth and early twentieth centuries, to struggling to stay open in college and university libraries in the 2000s.

Several scholars have surveyed the current conditions of CRCs in academic settings and their struggles to remain open. Kohrman (2015) found that the two main reasons CRCs in the state of Michigan closed were budget cuts and the repurposing of space. Locke (2007) identified similar issues, reduced budgets, use of space for other collections, and the expansion of computers and information commons. Both Kohrman (2015) and Locke (2007) also commented on the reduction of dedicated staff managing these collections and noted it as an indicator of reduced use. Locke noted that when there is not enough budget and staffing to keep collections current and relevant, they are used by students less.

As CRCs in academic library settings find themselves vulnerable, they must change with the times to meet the needs of 21st century libraries and education curricula. It is important for the CRCs to be a flexible and creative learning space for students. Students need multiple sources of expertise that are both academic and practitioner-based. With the proliferation of local, state, and national standards teachers face today, it is important that they have space to both "analyze curriculum materials before they enter the classroom" as well as "understand how these curriculum materials can aid them in meeting national standards" (Alteri, 2012, p.33). Dickinson et al. (2004) describe the importance of creating CRCs that both visually and environmentally resemble the types of school library media centers that teachers will encounter in the schools they will teach in after graduation.

Making these types of improvements can be a huge undertaking, and needs support from education faculty, university administration, the library director and library colleagues (Hoffman, 2018). Teel (2013) describes the campus and library partnerships and multi-phased implementation strategies which are needed to make large-scale and long term changes to a CRC in an academic library setting. Correl and Bernstein (2018) stress the importance of involving education students in the transformation process. They used PBL with undergraduate education students to transform their curriculum space,

updating furniture and technology and developing a new organization system for children's literature. There is not an extensive body of literature, beyond this article, on education and liaison librarians using PBL with undergraduate students to redesign CRCs in academic libraries.

Background

The Curriculum Resource Center (CRC) at Rhode Island College has a rich history. It was established in 1959 to serve the needs of elementary and secondary education students, teachers, and school administrators. It included professional books, curriculum guides, K-12 textbooks, audiovisual media, science laboratory equipment, visual aids, and special education teaching materials. These materials came from textbook and education publishers, as well as the United States Office of Education, state and local departments of education, and private institutions. Materials were originally located with a card catalog and by browsing the shelves. The CRC was always open to the public, as well as to the college community.

Figure 1: Curriculum Resource Center, 1970s [Photograph]. (ca. 1970s). James P. Adams Library Special Collections, Rhode Island

Note. In the 1970s and 1980s, the CRC was a robust and active place in which pre-service teachers studied and researched

The Curriculum Resource Center was originally located in a small space within the library building. Then in 1970 it moved to another building on campus, where the majority of education classes for pre-services teachers were held. During this time the CRC was considered a unit of the School of Education and Human Development. It had a variety of equipment which pre-service teachers would use in the classroom, including slide projectors, microfilm and microfiche machines, video equipment, and microcomputers. During its years in the School of Education building, the CRC flourished, as can be seen in Figure 1. In the mid 1980's there was a director, librarian, assistant librarian/cataloger, microcomputer consultant, secretary, three graduate assistants, and student aides

(Lapan, 1988). The CRC stayed in this building until 1995 when it was moved back into the library in order integrate the collections with the library's online catalog. The space in the School of Education building where the CRC had been located become a computer lab.

Over time, usage of the CRC has declined. While it is difficult to determine the exact cause, there are a number of possibilities. One is a reduction in the number of staff tied to the collection. In the 1970s and 1980s, there were generally 4 full time staff working with the CRC on acquisitions, outreach, instruction, processing of materials, and funding. The salary lines for these staff came from the School of Education, not the library, and the CRC librarian was a faculty member in the School of Education. When the CRC moved back to the library, the librarian, assistant librarian/cataloger and secretary retired. Due to budget restrictions, these positions were not filled, and the role of managing the CRC went to liaison librarians who wore many hats. Another possible reason for the decline in use is the fact that the collections are no longer inside the building where education classes are being taught. Faculty and students now have to walk over to the library to access materials that had once been down the hall from their classrooms.

Locke (2007) points out that when a CRC moves out of an active teaching space and into the library, the focus of the collection use changes "from being an active teaching and learning area that replicate[s] classroom and school library spaces, to being simply another library collection distant from the students' learning environment" (p.194). Faculty will not likely bring their students into the collections as much as they would if the resources were near their classrooms. In the early 1990's over 30 orientation classes per year were taught in the CRC. By 2018, only 4-5 classes were taught in the CRC.

As a result of these changes, the space where the collection was housed became a study area and the materials were only occasionally used. The Emerging Technologies Librarian took over responsibility of the CRC in 2015, when he became the liaison to the School of Education at the college. By this time, the majority of education students no longer knew of the CRC's existence. The few library instruction classes which were taught using the collections were generally with long-time faculty who remembered the CRC when it was in the School of Education building. Outreach efforts via departmental meetings and liaison emails were performed periodically, but interest was low. The space was clearly no longer relevant to 21st century pre-service teachers. Unsure of how to proceed, the librarian began gradually performing inventories and deselection of outdated materials in the collection. However, not having an education background, he was unsure of how to proceed further with collection development and how to purchase new items with a limited budget.

In 2018 an elementary education faculty member evaluated the existing CRC collections and broached the idea of a collaboration with the education liaison librarian, involving an upcoming elementary education class (ELED 420), scheduled to be taught in the Spring 2019 semester. The purpose of the collaboration was to redesign the Curriculum Resource Center using PBL pedagogy, creating a 21st century collaborative working space with updated materials for pre-service teachers. This project took place with a group of 6 upper-level elementary education pre-service teachers.

Methodology

Because PBL has not been widely adopted in a higher education setting, a number of different approaches were employed to successfully use this pedagogy. In order to successfully frame the inquiry needed to drive the project, the seven essential project design elements from PBLWorks were used (Buck Institute for Education, 2019). Because PBLWorks is designed for a K-12 setting, additional frameworks to use in conjunction with these standards were identified.

In their study of faculty self-assessment of PBL integration in the higher education classroom, Lee et al. (2014) identified three themes which are indicators of a successful implementation. These are community partnerships, student engagement in PBL environments, and assessment practices. These themes were used as a basis for the assessment of the collaborative project to redesign the Rhode Island College library's Curriculum Resource Center.

Community Partnerships: The community partner for this project was the college library. The college library is the heart of the campus and a gathering place for elementary education students, as well as others. The education liaison librarian served as the link between the class, their professor, the library director, and library staff.

Student Engagement in PBL Environments: Student engagement was measured through direct observation by the education liaison librarian and elementary education faculty member while students were working in the CRC evaluating materials. They listened to students discuss the evaluation criteria they felt were most important, and gave guidance and advice as needed. Student engagement was also measured using Reflection Checkpoint Journals, described below.

Assessment: Students kept Reflection Checkpoint Journals throughout the semester which were used as a form of authentic assessment to measure the success of the PBL implementation. See the Appendix.

Data Collection

Student reflection is an important part of all PBL pedagogies. For this project, reflective journals were used to collect data on the elementary education pre-service teachers' experience of PBL. Bashan and Holsblat (2017) point out that reflective journals can provide information on student teachers' ability to deal with challenges and to form a sense of belonging when working in a team. During this project, elementary education pre-service teachers used their journals to express feelings on what they were proud of, what they were struggling with and how they dealt with it, what was frustrating, what they were still curious about, and how they had both helped and hindered others during the collaborative process. These journals helped students adjust to their redefined roles in the classroom, and their professor moved from an expert on a podium to a facilitator working beside them.

Making the Library Connection: ACRL Guidelines for Curriculum Materials Centers (CMCs):

It was difficult to identify a framework which could encompass the needs of project-based learning but also produce outcomes that could be mapped to 21st century library standards. A middle ground was found through the ACRL Guidelines for

Curriculum Materials Centers (CMCs). The guidelines describe the administration, services, collections, and access for curriculum materials centers in university and college settings. These guidelines were shared with the elementary education students and together with the elementary education faculty member and the education liaison librarian, the ACRL CMC Guideline topics of *Collections* and *Facilities/Space* were selected.

The ACRL CMC Guidelines identify the following areas as important for a useful CMC Collection: selection of materials; a collection development policy; organization in accordance with national standards and practices; physical location of collections; size; collections formats (print and digital); and funding levels to match the number of pre-service teachers enrolled at the institution (*Guidelines for Curriculum Materials Centers*, 2017). The ACRL CMC Guidelines also identify the following areas as important for a useful CMC facility/space: location, hours, size, seating, maintenance, classroom, and technology.

PBL Implementation using ACRL CMC Guidelines

Following the seven essential project design elements process, a meaningful problem was identified, allowing for sustained inquiry and authenticity. The ACRL CMC guidelines were used to create an overarching project-based learning question which would be addressed through student engagement with the library as their "community partner". This was done by evaluating the existing Curriculum Resource Center space and collections, followed by an in-person discussion. The final version of the question was: "*How can we work with the library to redesign the Curriculum Resource Center collections and space so that it reflects 21st century pre-service education teacher needs, while reflecting diversity, equity, and inclusion?*"

Using the ACRL CMC Guidelines as a framework, the pre-service teachers addressed the *Collections* piece by reviewing every book, kit, and visual aid in the curriculum collection, making recommendations for what should be de-selected, and what should be purchased. They addressed the *Facilities/Space* piece by working with a local elementary school art teacher, technology education teacher, and a third-grade class to design and create a canvas mural to give warmth to the Curriculum Resource Center space. They then invited their peers, elementary education faculty members, local elementary school collaborators, and the library director and staff to a "grand reopening" of the Curriculum Resource Center, which they renamed "The Curriculum Corner" to reflect its space in the library building. This served as the public product identified in the design elements from the PBLWorks website.

ACRL CMC Guideline: Collections

The top issue identified by the elementary education class was the outdatedness of many of the books in the CRC collection. Hoffman (2018) notes that to perform effective collection development, it is important to understand the education curriculum as it is taught at one's institution, as well as state standards and certification requirements. One of the challenges the librarian faced when taking over responsibility of the CRC in 2015 was a lack of training in education standards and curriculum development. Therefore, the collaboration with the elementary education faculty member and her elementary education class was significant. Together they were able to identify student needs, while

the librarian acted as a liaison between the faculty member, her class, and the library director and library staff.

The elementary education students went through the collection book by book, kit by kit, and made piles of items that they felt needed to be replaced, updated, or removed. Students felt there was not enough diversity in the collection, nor was there "curb appeal". They felt that for their peers to use this collection, it needed to look more like a bookstore than an old-fashioned library. Additionally, they recommended more titles that exemplified the themes of diversity, equity, and inclusion.

The evaluation criteria used by the class included the following:
1. Item age and its copyright date
2. Physical condition
3. "Classic" or "Not a Classic"
4. Perpetuation of stereotypes
5. For textbooks: Common Core / Next Generation Science Standards alignment

The library was able to remove and update many of the books and kits identified by the elementary education class. The library was also able to order an initial list of new collection development recommendations, including new picture and chapter books, curricular books, and kits.

The librarian learned a great deal from observing the elementary education students interact with the existing materials on the Curriculum Resource Center shelves. At times, the students displayed bewilderment and distaste at what they picked up off the shelves. It was clearly not a space they felt was for them, and in many ways it was not. It was a space designed for students of the past. The materials in it no longer served as what Davis and Krajcik (2005) described as "cognitive tools that help teachers add new ideas and make connections between ideas" (p. 10).

The challenge for the future will be to create an ongoing collection development policy which continues to keep the collection current. This policy should include best practices on how to collect the following items identified in the ACRL CMC Guidelines: textbooks, curriculum guides, children's and young adult literature, professional and reference materials, instructional materials, tests, and web resources that are in compliance with state and national education standards (*Guidelines for Curriculum Materials Centers*, 2017). This policy will serve as a pathway for collection decisions moving forward.

ACRL CMC Guideline: Facilities/Space

Analysis of the Curriculum Resource Center collections overlapped with the topic of Facilities/Space. One issue identified by the students was the physical organization of collection on the shelves. Lesson plan books, textbooks, and non-fiction books appropriate for a K-12 reading level were interfiled together on narrow shelves, the ends of which faced the user when they first entered the Curriculum Resource Center. Children's literature, both picture books and juvenile literature (chapter books) were interfiled together on the same shelves after the non-fiction titles. The elementary education students identified this organization as confusing. They felt the collections were not easily browsable and did not fit the needs of pre-service teachers, who need to be able to locate books based on reading levels. The class wanted the juvenile and picture books to be separate collections on the shelves. Additionally, they wanted books on the

shelves to be organized bookstore style, by general topic, instead of by the LC Call Number system. Unfortunately, it was determined (based on library staffing and time constraints) that it would be too time consuming to re-catalog and reprocess all picture books and separate them from the juvenile books, and then also incorporate related non-fiction titles that were organized by reading level.

Figure 2: The empty CRC shelves prior to the work of the elementary education class

Fortunately, an alternative solution was developed in the form of book displays by theme which could incorporate both picture and juvenile books together on the same shelf, along with appropriate K-12 non-fiction titles. The elementary education students used additional shelving which was standing empty in another part of the CRC, shown in Figure 2. They developed several book displays, including an Earth Day display, award winning picture books, award winning chapter books, Spanish-language books, and art, history, and science related book displays. Displays were also made for large-print "big books" designed for reading to preschool, kindergarten, and first graders. These displays shown in Figure 3 were a great success and the students were pleased with them as an alternative solution to re-cataloging and re-processing the collections.

Figure 3: Theses same CRC shelves after the work of the elementary education class

Once the displays were created, concerns were expressed by library faculty and staff about the time required to check multiple places when finding a book for a patron and pulling interlibrary loan requests. To alleviate this problem, the librarian worked with the library director to create a new shelving location in the catalog called "CRC Display". A laptop with the library's OCLC WorldShare Management System ILS loaded onto was then used to manually change the shelving location of each item that was on display, so that the shelving location of these books could be easily identified in the catalog. The librarian also worked with the education faculty member to develop a system for updating and changing out display items moving forward so that future elementary education classes could create displays based on themes they felt were most important to pre-service teachers. Taking the time to work out these processes opened new channels of communication between library faculty and staff and the elementary education class, so that both sides felt comfortable with the changes taking place.

Figure 4: The computer space in the CRC prior to the work of the elementary education class

The elementary education class felt that as the purpose of the Curriculum Resource Center was to promote the teaching of children, it was important to feature artwork made by children in the space. One of the best outcomes of the collaboration between the elementary education class and the library was a mural created by third grade students from a local elementary school to decorate the empty space above the computer terminals seen in Figure 4. The elementary education faculty member introduced the elementary education students to the art teacher and technology education teacher at this school. Together, they worked with a class of third grade students who were studying the work of artists Cy Twombly and Jean-Michel Basquiat. They created a piece of artwork for the redesigned Curriculum Center, based on the graffiti-like and calligraphic styles of these artists. The artwork was created in the elementary school art classroom (see Figure 5) and was hung in the Curriculum Resource Center in the college library over a bay of computers (see Figure 6). In addition to the artwork, new computer tables and chairs were ordered to modernize the space.

Figure 5: The 3rd grade art class and elementary education students creating an art mural on cloth canvas

Figure 6: The finished mural created by the 3rd grade art class and elementary education students with the updated tables and chairs

The elementary education students also wanted the space to be interactive. They wanted school supplies to be available as well as interactive learning tools. Security for these items was a concern. The library director and staff felt that leaving school supplies out in the Curriculum Resource Center, which is largely unmonitored throughout the day, would result in items being stolen. A solution to this was to create school supply kits that

could be checked out of the library's Reserve Desk (on the floor below the CRC). Signs were made advertising these kits in the CRC and describing how to obtain them.
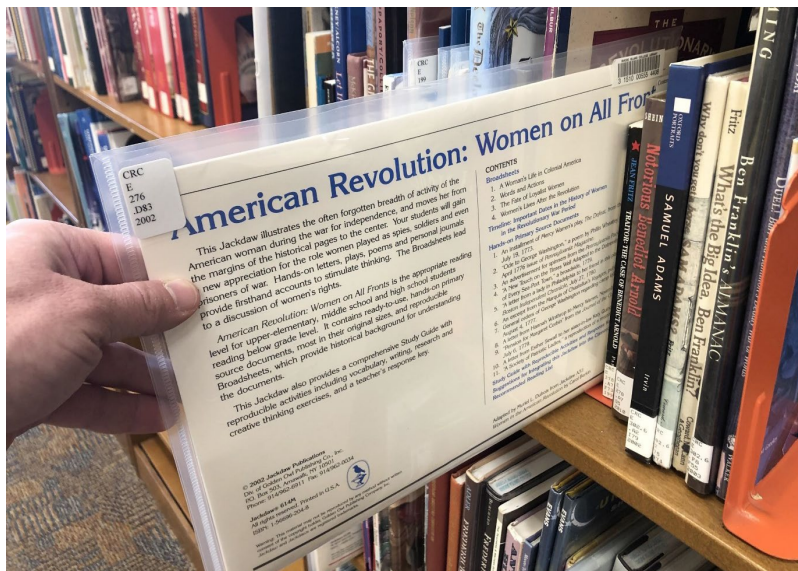
The elementary education students were surprised to find that some interactive learning tools, such as algebra tiles, geoboards, and flash cards were already in the Curriculum Resource Center, but they were shelved in cardboard boxes at the back of the CRC where no one could see them. Students went through these boxes, removed outdated items and worked with their faculty member to submit a list of newer items. Figure 7 shows the redesigned kits, with the items placed in clear plastic containers so that they were more visible. When new items came in, they were also placed in clear plastic containers. This made it easy for students to easily see the interactive learning materials the library had for them.

Figure 7: Example kit that was removed from a cardboard box and placed in a clear plastic bin

Additional work was also done with the Jackdaw primary source collections in the CRC. Jackdaw is a publisher of primary source materials which include historical primary source documents, as well as large photographs from historical time periods, broadsheet essays and timelines. The library has many of these themed collections which are of varying sizes from 9" x 14" to 10" x 16". They were not uniformly cataloged. Some were cataloged as kits and others as visual files or books. Circulation on all was low. To increase usage, all of the smaller Jackdaw collections were removed from the shelves, put into clear plastic sleeves, and had their shelving location changed to that of CRC book. Figure 8 demonstrates how these clear plastic sleeves were then interfiled with the other CRC nonfiction books of the same call number to increase their visibility and use.

Figure 8: Example Jackdaw collection which was repacked in a clear plastic sleeve and interfiled

With all of the changes being made in the CRC, the elementary education class felt that the name of the Curriculum Resource Center was outdated and no longer reflected the 21st century student. Working with the librarian, and the library director, the name "Curriculum

Figure 9: Chalkboard Wall in the CRC
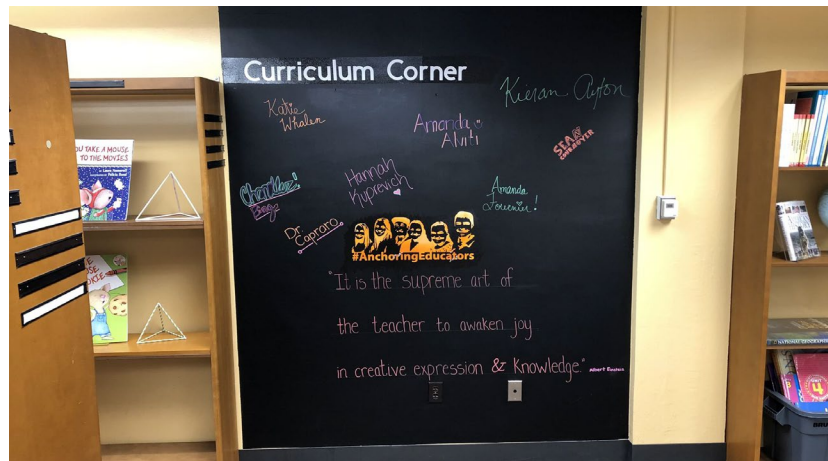
Corner: Anchoring Educators" was chosen as a new name to reflect the new space. The word "anchoring" was used because the anchor is one of the symbols of the college and is in the name of the campus's weekly, student-run newspaper. To create a classroom feel, one of the walls was painted with chalkboard paint and the new name, along with the names of the elementary education students were written on it as shown in Figure 9.

At the end of the semester, a grand reopening celebration was held in the newly rebranded Curriculum Corner. Students from the local elementary school who participated in the creation of the artwork were invited, along with faculty and students from the School of Education and library faculty and staff who had participated in the project.

Analysis

Student Reflective Journals

At the end of the semester-long project, the students' reflective journals were analyzed. These journals revealed the complexities of the teamwork that is part of PBL and the personally rewarding experiences students felt from the hands-on process. The journal questions are included in the Appendix.

The reflective journals used prompts to explore the PBLWorks "Student Voice and Choice" design element. This element assesses whether students feel a sense of ownership for the project they are completing. It specifically addresses whether students feel their voices are being heard and measures their ability to use their judgement to solve problems (Buck Institute for Education, 2019). Keeping this in mind, the prompts asked students to identify areas of satisfaction and areas of struggle. Within this framework, students were also asked to reflect on what they were curious about and how their decisions were helping and/or hindering others.

The reflective journal entries were coded based on the prompts students were given. Example entries are given below, sorted by Areas of Satisfaction and Areas of Struggle.

Areas of Satisfaction

"I am most proud of that we are actually making progress and changing things for the better. An idea is one thing, but doing it is another."

"I am really proud of the way things turned out…Along the way, I started to have a little bit of doubt and feel we may not be making an impact. For a while, everything was kinda a mess and in shambles. However, things really came together…I am glad we had this opportunity."

"This project was also a really cool way to learn about what the library has to offer, collaborate and engage in 21st century skills, and learn about free resources. It was also an interesting way to learn about PBL using hands-on experiences."

"…our mark that we have made and left is here and will continue to grow as our time continues here at RIC."

Areas of Struggle

"It is…a little frustrating to work collaboratively on the same section [of the Curriculum Corner] w/ someone because different people have different systems and I don't think everyone is willing to take suggestions."

"I feel like I am hindering others by working at a slower pace BUT personally I think others are rushing through and not checking the books carefully."

"I am struggling with the approach to changing the atmosphere…in terms of impacting the aesthetic of the classroom."

"The aspect I am struggling with is making some tough calls when deciding which books/resources are worth keeping. I will often get [classmate's name]'s opinion if I am on the fence."

Reflection is a critical skill for preservice teachers to learn. Husu, Toom, and Patrikainen (2008) state that forms of guided reflection help student teachers "question their practices, identify social and cultural constraints or facilitators, and also vision their work into the future" (p. 49). Our elementary education students' reflective journal quotes revealed how they learned to take ownership of their project and make judgement calls on what to keep in the collection and what to remove, in order to create a space that met their needs and reflected diversity, equity, and inclusion. They found having this level of control sometimes exhilarating and sometimes unsettling. However, this dynamic pushed them to successfully redesign the library's CRC for the future.

One identified limitation of this case study is that there were only a couple of reflective journaling activities over the course of the entire semester. In the future, it may be useful to have students write more frequent, weekly reflections so that challenges can be addressed as they arise, and then assessed immediately through follow-up journal entries.

Engagement with the Library as a Community Partner

Throughout the redesign of the Curriculum Resource Center it was of paramount importance to collaborate with library faculty and staff. Miller and Meyer (2008) describe the organizational leadership needed to transform Curriculum Centers. This includes setting high expectations, removing communication barriers, and increasing organizational flexibility. These precepts were followed for this project. The library director was continuously consulted concerning the ordering of new furniture and rearrangement of existing furniture, the hanging of the artwork made by the third-grade students, and how much money could be spent on new books and kits. Acquisitions, cataloging, and processing staff in the library were responsible for the permanent removal of outdated materials from the collection, the updating of materials that were elected to

be kept, and the ordering and processing of new materials that were recommended for the collection. The library facilities supervisor assisted in moving furniture and shifting collections on the shelves. Library faculty gave input on which materials were to be kept and which were to be discarded.

One of the challenges experienced by everyone working in the library was the piles of books and kits which accumulated in the CRC area as the elementary education students evaluated the collection. The anxiety that could have been caused by this was minimized because the faculty member and the students had built trusting relationships with the library director and staff. They did not make demands about what they thought needed to be done, but instead did the work themselves whenever possible. This work ranged from cleaning dusty bookshelves, to shifting books, to filling in spaces on the shelves. Using PBL, the students truly breathed new life into the Curriculum Resource Center though their hard work, and their display of dedication meant a lot to the librarian, the library director, and the library staff.

Conclusion

Success for this project was measured in several ways. The first and foremost was student engagement. The elementary education students were engaged in every aspect of this project, from articulating the problem, identifying strategies to address it, and implementing these strategies with their professor, the education liaison librarian, and the library director and staff. This engagement caused the students to view the Curriculum Resource Center as their space. Students felt ownership of this project because they looked upon the CRC as a mirror of their future K-5 classroom. They learned real-life skills they could use once they graduated and were managing elementary classrooms of their own. A second measure of success was a tangible, redesigned library collection and space which future pre-service teachers can use and which the library director and staff can be proud of and promote to the campus community. A third measure of success was increased collaboration between the college's School of Education and the academic library. Due to positive word of mouth from the grand reopening celebration at the end of the semester, the liaison librarian was invited to attend more elementary education departmental meetings and began working with other faculty in the department to further build the Curriculum Resource Center collection.

The authors' partnership has been a success, but there is still much work to be done. This includes creating revised mission and vision statements, and a collection development policy which reflects issues relating to diversity, equity, and inclusion that the elementary education students identified in their collection analysis. Griffin and the ACRL EBSS Curriculum Materials Committee (2018) provide best practices for academic libraries to follow when creating these policies in *A Guide to Writing CMC Collection Development Policies*. This comprehensive document provides templates and examples for creating a conceptual framework that defines the collection scope and selection and maintenance processes for long-term success. This guide will be used to write future CRC development policies at our institution.

More work also needs to be done to increase the usage of the Curriculum Resource Center. This includes performing additional outreach to the School of Education to develop new connections with faculty who teach pre-service teachers. Brisco (2012) emphasizes the need to collaborate with education faculty to keep abreast

of the changes made to the education curriculum. This improves the perceptions of both education faculty and pre-service teachers. One way in which this could be accomplished is through an advisory board composed of the librarian, the elementary education faculty member, and other faculty and student members from the School of Education. Farthing and Gregor (2012) recommend School of Education advisory committees composed of one faculty member from each of the education departments as a means to improve collection development, library instruction, and integration into face-to-face and online courses.

   Targeted promotion of the Curriculum Resource Center collections also needs to be made to pre-service teachers. This could be done through increased collaboration with School of Education faculty who could promote the Curriculum Resource Center in their classes. Integration with faculty, students, and administration is essential for success and the authors look forward to spearheading these future collaborations together.

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Appendix: Journal Reflection Checkpoints

(Taken from the ELED 420 Syllabus)

John Dewey, whose ideas continue to inform our thinking about PBL, wrote, "We do not learn from experience. We learn from reflecting on experience." Throughout a project, students – and the teacher – should reflect on what they're learning, how they're learning, and why they're learning. Reflection can occur informally, as part of classroom culture and dialogue, but should also be an explicit part of project journals, scheduled formative assessment, discussions at project checkpoints, and public presentations of student work.

Reflection on the content knowledge and understanding gained helps students solidify what they have learned and think about how it might apply elsewhere, beyond the project. Reflection on success skill development helps students internalize what the skills mean and set goals for further growth. Reflection on the project itself – how it was designed and implemented – helps students decide how they might approach their next project, and helps teachers improve the quality of their PBL practice.

Questions to answer:
- Reflect on your project so far: What are you most proud of?
- Where are you struggling? How are you dealing with it?
- What about your thinking or your work has brought you the most satisfaction?
- What is frustrating?
- What are you curious about?
- How are you helping others? How are you hindering others?
- What other thoughts do you have?