

Part 3 - Professional Action Inquiry Research Project

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Professional Background

As teacher librarian for the past five years in the same middle school, I felt confident in my ability to create learning environments in our library learning commons makerspace that met the interests and skill sets of our learners. The students and staff had developed learning partnerships and a community where all were teachers and learners. We regularly engaged in dialogue about our successes and challenges in the space to identify what would continue to serve us best to promote and activate meaningful and relevant learning experiences.

All this came to an abrupt end when I transitioned from my former school to a newly constructed school in the fall of 2016. In a dilemma I had not faced before, I was at a loss as to how I should proceed to outfit a new library learning commons makerspace. The challenges I faced in September were two-fold: 1) I did not know the learners (students and staff) at all, and therefore had no idea how to outfit a new makerspace to best suit our population; and 2) as a teacher librarian who had spent most of her career in a middle school setting, I was now faced with designing learning experiences for students in kindergarten through grade eight. While I could reflect on previous practices and experiences at the middle school level, I had no experience to inform future instructional practices for our learners in the primary and junior panels.

The knowledge gained from my readings into pedagogical documentation was really the turning point and the epiphany in my professional development this year. Armed with my experience and previous familiarity running a makerspace for middle school learners, I was beginning to come to grips with the new tools I would need to use in order to observe, and “listen carefully” to making experiences with ALL our students in order to determine how we could best support their interests and skillsets in a new makerspace environment. The goals for this research project were to use pedagogical documentation in the makerspace as a means to:

- develop new learning partnerships with teachers and students in order to get to know learners
- document learning in the space to honour and value the role of the student in the continued direction of the space
- reflect upon the impact making has on student experiences in the makerspace and how an educator’s actions shape - directly, or indirectly - learning in this environment
- provide opportunities for students and staff to visibly share thinking processes and new learning with others
- generate discussion about teaching and learning practices in the makerspace, and subsequently generate dialogue related to how making can be transferred to impact teaching and learning in the classroom

- foster a “maker mindset” and culture of learning in the school

Taking inspiration from the literature review summary assessing the impact that pedagogical documentation could have on teaching and learning practices in the makerspace, I decided to document our learning and the processes we undertook in the makerspace through the creation of a website in the hope that this could potentially serve as a valuable resource for other educators interested in developing makerspaces of their own. This website serves to develop a community of collaborative learners and serves as a means to use documentation as a powerful tool for supporting three forms of accountability a) accountability to self, (b) accountability to each other, and (c) accountability to the larger community. (Krechevsky, Rivard & Burton, 2010, p 65)

Over a span of four months, documentation was accrued to create a website that featured personal observations, blog posts, and curated social media stories that highlight photographs and videos of learning in the makerspace. The website visibly illustrates a) how I have been a “diligent student of my own teaching”, (Krechevsky, Rivard & Burton, 2010, p 66) b) how our staff is beginning to contribute to each others’ learning and growth to form a school identity as a “*community that learns*”, (Krechevsky, Rivard & Burton, 2010, p 67) and c) how sharing outside our immediate environments extends learning experiences to wider audiences and contributes to the collective knowledge about how students learn (Krechevsky, Rivard & Burton, 2010).

Professional Learning Project Website

This section of the chapter presents key components of a website created that served as a personal learning tool during the pedagogical documentation process and a potential resource or guide for educators interested in developing this approach to inform and develop professional teaching and learning practices in their own makerspace environments. The website can be accessed using the following site <https://sites.google.com/pdsb.net/visiblepedagogymakerspace/>.

Key areas of the website outline:

- contexts for making delivered through the “Making with the Forest of Reading” theme
- a step by step process guide to documenting and sharing learning in the makerspace
- a reflective blog documenting learning, successes and next steps at each stage of the pedagogical documentation process
- a curation of additional makerspace and pedagogical documentation resources to assist teachers interested in developing their own documentation processes

Summary

Personal Growth

In contemplation, this year has been one of the most challenging of my teaching career. I was challenged on many fronts. First, I had to establish a new library learning commons and makerspace from scratch. Secondly, I needed to make new connections and form learning partnerships with a different student population and staff. Lastly, I had to familiarize myself with best practices to establish maker activities for primary and junior students when I had only been accustomed to those in middle school settings.

The introduction to the pedagogical documentation approach to inform teaching and learning practices in the makerspace could not have come at a better time. At the beginning of the year, I was dismayed with my lack of knowledge in the primary and junior divisions. How was I going to be able to help our students succeed? Once my research began, the pressure eased as I developed an awareness of the tools I needed to equip myself with to understand learners. I continue, and still continue to feel more confident with my ability to familiarize myself with best practices that suit our students, their needs and interests in this environment.

Sharing documentation and making learning visible with staff has been a bone of contention. While there has been some successful sharing of learning through electronic means (as evidenced in our makerspace narrative, and the development of learning journals through Seesaw), these methods do not reach the majority of our staff. One of my biggest frustrations in the pedagogical process is that I simply cannot find time (or sometimes energy) to create documentation panels in the library learning commons to make learning visible and share the experiences and thinking processes of our students with each other. Creating documentation panels to invite discussion and dialogue about learning is common in our kindergarten classrooms, and in a few primary classrooms as a result of our collaboration, but it is virtually non-existent in the higher grades. When and if we can find the means to share and interpret student learning together, we will be able to drive school wide dialogue and discussion to interpret and construct authentic curriculum paths that are meaningful and relevant to our students.

In conclusion, I take solace in that fact that other practiced educators acknowledge that the process of learning how to use pedagogical documentation to inform teaching and learning practices is slow, requires time, and above all needs to become a mindset and a habit of practice (Kashin, 2017; Stacey 2015; Wien, 2011). From personal experience, pedagogical documentation *is* a process that is intimidating, and fraught with doubt about whether or not “I am doing it right”. The more I think I understand, the less I know. While it is becoming a mindset and stance towards learning, the complete process is not yet a habit of practice. Not all of my documentation is pedagogical yet. However, letting our inhibitions go to just keep going and “do it” are very important steps to finding deeper meaning. We are learning, and will continue to learn together as we go (Kashin, 2017).

Project Reflection

Throughout the analysis and action inquiry portions of this research I aimed to define and examine two educational practices: 1) makerspaces in education and 2) pedagogical documentation in order to investigate how their combined impact influence teaching and learning practices in our makerspace. As Skillen (2014) confirms,

it is not merely the act of constructing that is essential. Powerful things happen when that act of constructing mediates deep conversation with others. The very act of articulating ideas, sharing thoughts, confusions, ahas, questions, potential solutions makes knowledge building explicit. Sometimes words are spoken. Oftentimes facial expressions and body language communicate. We might draw diagrams or build prototypes. All these serve to make the thinking visible and, therefore, discussable—not only with others but for oneself. (Skillen, 2014, np)

The documentation and sharing of learning in our makerspace has indeed made learning visible and has kindled conversation about making across the curriculum, resulting in an impact on teaching and learning not only in the library learning commons makerspace, but across the school.

Firstly, documentation has provided the mirror we needed to visibly see the impact (Stacey, 2015) of our teaching practices in the makerspace. The practice of pedagogical documentation has attuned us to listen with all our senses (Rinaldi, 2001) in order to orchestrate future learning opportunities that are deemed worthwhile by our students. Following Fleming's (2014) directive, pedagogical documentation has certified that the needs and interests of our students are at the forefront of our makerspace planning and ensures that all future activities are relevant and meaningful to our learners.

Similar to previous studies on pedagogical documentation, (Buldu, 2010; Haynes, Cardno, & Craw, 2007; Krechevsky, Rivard, & Burton, 2010; Stacey, 2015; Wong, 2009) learning shared between teachers has definitely sparked conversation about teaching and learning opportunities that help us to improve intentional practice across grade levels. We use and share documentation to generate discussion about teaching and learning practices in the makerspace, and subsequently transfer making experiences to the classroom to positively impact student learning. Not all teachers have chosen to accompany me on this journey ... yet. However, for those who have, the documentation and interpretation of student learning in the makerspace has afforded us opportunities to reflect how our actions and responses to the voices of our students shape - directly, or indirectly - learning in our environments.

A culture of learning - sharing documentation though Twitter - has begun to emerge in our school. As it is sometimes difficult to find the time to conference with each other face to face, the shift in documenting and sharing of student learning electronically helps us see what is possible from all perspectives, what our students are capable of achieving and what direction we should go next at any time of the day. Sharing documentation in this forum has opened the door for new conversations about making across the curriculum with my staff. Documentation has given me the

momentum to say, “Have you seen when we did this in the makerspace? Would this work for your students?” and given teachers impetus to approach me and say, “I saw you did this....can you tell me more about it? It looks like students are really enjoying this. I really think my students would like to try it”. However, we must still be cautious when sharing documentation electronically (Stacey, 2015). Sometimes the sharing of documentation electronically can be *too* convenient and expedient and we can miss out on the value of the learning. As previously noted by Kashin (2017) documentation is a process that takes time - and not all documentation is pedagogical. In the process of sharing student learning electronically, I am often omitting the all important step of *reflection*. I often resort to posting just WHAT the students have done, not HOW they are learning or feeling. I must remember why I am producing this documentation in the first place to maintain the quality of the work.

Most importantly the practice of pedagogical documentation in our makerspace has developed new learning partnerships with teachers and students in order to get to know and empower our learners. These partnerships in turn, allow the dialogue and discussion necessary for us to reflect upon and interpret the role our learners have in defining not only the learning in this space, but consequently the development of learning opportunities and makerspaces across the school. In our makerspace, our students now see their voices as important and that their opinions matter. We are creating an identity for our school as a “community that learns” (Krechevsky, Rivard & Burton, 2010). We are becoming full partners in learning; co-teachers and co-learners. Our students’ voices are the most important and the driving force of learning.

Educational Implications

Makerspace environments have the ability to build a “broad repertoire of strategies” (Ontario Ministry of Education, 2016, p 33) to foster deep learning and to build new learning partnerships in constructive, innovative and inventive curriculums. The layered practice of using pedagogical documentation in this space affords teachers opportunities to make learning visible through multiple lenses, to deepen, extend and orchestrate learning experiences that are more relevant, purposeful and engaging for all stakeholders involved.

The practice of pedagogical documentation fulfills Fullan and Langworthy’s (2014) call for new models of learning partnerships to be employed amongst teachers and students. These partnerships activate and cultivate deep learning to inspire, and develop the 21st century competencies that the Ontario Ministry of Education is striving to achieve in its schools. It reinforces the essential role students have in their own education, deeming them curious, competent, capable, valuable, and rich in potential. The formation of learning partnerships, in turn, cannot help but have a profound impact on our abilities to facilitate curriculum that builds on student strengths and capabilities. The practices of using pedagogical documentation processes re-establish school as a place where students are encouraged to pursue personal interests and passions for inquiry, exploration, discovery and a sense of play toward learning. Pedagogical documentation brings our schools into a new era of learning where anything is possible and emphasizes students at the forefront of education, where they belong.

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