As referenced in *Toward a Design Theory of Problem Solving*, "the central point of education is to teach people to think, to use their rational powers, to become better problem solvers" (Jonassen, 2000, 63). However, as educators continue to pursue this central point for students, it is habitually overlooked for themselves. Professional development opportunities can have many benefits, but to see sustainable change in practice and learning, collaborative inquiry shows more promise than loose, disjointed and inquiry free conferencing. According to Schnellert and Butler, authors of Collaborative Inquiry, "Bringing educators together in inquiry sustains attention to goals over time, fosters teachers' learning and practice development, and results in gains for students" (Schnellert & Butler, 2014). A major component to collaborative inquiry is the use of professional learning communities. As we see a variety of formats for these communities, such as traditional, online and hybrid, we are also seeing differing benefits from each. Watson identifies the thoughts of Bolam et al, by stating, "the effective PLC is one which has: the capacity to promote sustain and the learning of all professionals and other staff in the school community with the collective purpose of enhancing pupil learning" (Watson, 2014, 21). However, to ensure we see long term change in curriculum design and student engagement and achievement, key characteristics must be included. Owen explains, "PLC characteristics typically identified as successful in changing teacher beliefs and practices include collaborative work over an extended timeline, shared beliefs and vision, undertaking relevant practical activities, using an inquiry approach and learning focus, and guarding against insularity" (Owen, 2015, 58). Therefore, by examining Watson's and Blitz's articles, the Child Driven TedTalk and

using our knowledge of curriculum (i.e., conceptions, philosophies, designs), we can better understand the value of specific online professional learning communities (i.e., Jo Boaler's - youCubed.com) and the drawbacks, some of which differ from in-person PLCs.

Cate Watson clarifies the characteristics and benefits of functioning professional learning communities in the article, Effective Professional Learning Communities? As some of these characteristics appear obvious, it allows us to also compare these benefits to the lack of research supporting these same advantages using online PLCs later in this journal. Watson mentions (2014) PLCs must have an emphasis on 'student learning' often discussing reflecting opportunities, which leads to further and ongoing community dialogue about planning, instruction, and assessment to improve student learning. Student learning should always be at the forefront of decision making in education, it is the second half of this passage that jumps out at me. Clearly effective PLCs are beneficial for all involved, but makes me wonder, is this occurring in all varietals of PLCs? Some may say that within traditional, we see great collaboration, contributions, trust, dialogue, planning and co-planning next steps, and valuable reflection. However, as I have experienced this in the past for in-person collaboration, we must be reminded that hybrid and online PLCs may have some of these benefits too. But, to what extent and is it continuing to benefit educator learning? Additionally, one piece that stands out to me in Watson's article is the statement, "knowledge resides in social relations" (Watson, 2014, 20). As this statement relates to the key characteristics to effective PLCs, it also highlights the development of educator dialogue. There is obvious value in this to teacher and student development. However, does development of knowledge through social interaction occur with the same success if in differing venues (online, in person)? From my own experiences, I have

developed better understanding of planning, instruction and assessment, but also seen a direct influence on student engagement that eventually feels quite rewarding. And finally, one such term that I found intriguing in the article was 'learning-in-community'. Watson clarifies, "Learning-in-community emphasizes collaborative learning and the development of intersubjective meanings attached to practice" (Watson, 2014, 25). This statement resonated with me as it relates very much to the findings of effectiveness of online PLCs. It appears that the evidence and successes shown from in person PLCs relate greatly to the collaborative learning that occurs within them. However, I see a guiding relationship between this article and Blitz's, *Can Online Learning Communities Achieve the Goals of Traditional Learning Communities?* because it is often stated throughout this article that collaborative contributions may not actually occur as effectively online. However, as there appear to be some flaws in online communities, there also appears drawbacks to in-person PLCs. Watson mentions (2014) that collaboration occurring too often can lead to 'stifling individuals' and 'group think' type dysfunctionality.

As there were many statements in Watson's article that almost imply the ineffectiveness of online PLCs, Blitz's statements make me think more of the lack of documented benefits from online PLCs related to in-person communities, but does display some characteristics of improvement. Despite having a lack of evidence for these important components, there is some research indicating benefits of online communities. Blitz mentions, "the online environment frees teachers to collaborate without the typical time, space and pace constraints as traditional PLCs and lets teachers access and share knowledge rapidly and comprehensively" (Blitz, 2013, 7). Traditionally, teachers who met with their PLCs may have to

set aside evenings or release time throughout their weeks and months in addition to their busy teaching schedules. Although the benefits of this collaboration are shown, it is this commitment that poses a challenge to engage educators in PLC participation. Through the use of online formats, educators may access these opportunities while being in the comfort of one's own home. Blitz also identifies the benefits of critical reflection within online PLCs. He clarifies, "the online environment is also consistently found to be better at promoting self-reflection on learning and instruction practices than in the face-to-face environment" (Blitz, 2013, i). I see that online opportunities provide an environment where one is likely alone, comfortable, quietly reflecting while examining data and information, instead of engaging and actively listening to others' opinions and oral contemplation. This statement jumps out at me as I see a great benefit of critical reflection through post-dialogue. And finally, one of the benefits that is clear about online PLCs is the opportunity to engage in collaboration with a diverse mix of educators based on similar viewpoints, but differing locations, possibly international. Blitz states, "nearly two-thirds of the empirical reviews on online PLCs involve K-12 institutions and typically describe PLCs that bring together teachers from multiple schools or districts" (Blitz, 2013, 3). I found this quite interesting as I see how this can benefit educators with online PLCs. In traditional PLCs, Watson mentions the stifling of individual creativity and creates group-think dysfunctionality. Through online opportunities, teachers may enhance their knowledge and practice by learning more from globally varying viewpoints. Within schools and districts, it is entirely possible similar perspectives and experiences can lead to less innovation. Blitz also makes it clear there are many unsubstantiated beliefs about the benefits of online PLCs. One major neglect of PLCs in the online environment relates to logic models. According to Blitz, "the

absence of logic models impedes not only the translation of ideas and goals into practice but also the ability of researchers and practitioners to rigorously evaluate online PLCs and their impacts on teacher's development and students' learning and achievement" (Blitz, 2013, 3).

As my professional context is ever changing, I continue to look to differing professional learning communities to improve my practice and better support my learners. I mention "everchanging" because my role is one of leadership and classroom teaching but differs greatly from school to school. In one context, I will always strive to be an instructional leader, but this may appear differently depending on the climate of the learners. For instance, I have worked with communities in the past where action inquiry projects were utilized to better understand the social and emotional needs of learners. Surprisingly, through discovery of various surveys and other assessments, was that the need was more based on engaging, differentiated learning opportunities. However, in my current context, our learners are met with great need of social and emotional support. It is relating curriculum to this vital SEL that would be a wonderfully collaborative experience.

Therefore, I have explored many professional learning communities which align with my current philosophy of education but also the needs of my community of learners, staff included (i.e., Critical Thinking Consortium, Agency by Design, or portals related to Marian Small). As I narrowed my search, YouCubed by Jo Boaler came to mind. It was quite a coincidence that it was posted on our Module 4 course page.



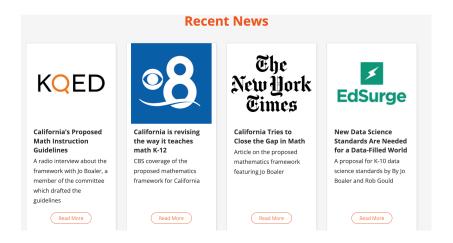
In the past, I have had the luxury of working closely with numeracy helping teachers, led workshops related to open-ended instruction, and engaged in district-based collaborative inquiry based on this theme. Additionally, I have read and utilized many of Jo Boaler's resources based Mathematical Mindsets, number routines and number talks, but also engaged in schoolwide book clubs of this ilk. This PLC is what looks to be a perfect fit.

Upon closer inspection of the website, it appears it is made up of many key categories based on ideas, tasks, data science, teaching big ideas, films, courses, evidence and news. The website even provides an opportunity to sign up for newly released resources and updates about engaging lessons and videos. Interestingly, this website also provides the opportunity to engage in collaborative experiences through three social media platforms: Facebook, Instagram and Twitter. I will attempt to engage in all three of these areas, however I have already seen some drawbacks to these portals.

As I am passionate about engaging in professional dialogue and learning, I am keen to contribute to this PLC. One key contribution that I may provide is my understanding of inquiry and its relationship the numeracy. As well, my innovative side enjoys combining open-ended learning with engaging, real-world numeracy tasks that connect greatly to the theme of this website. Furthermore, equity is so crucial to the sense of belonging within education. Engaging in collaboration within this PLC and Jo Boaler's work displayed on Twitter will be a welcomed opportunity to converse and reflect. My hope is this will contribute to my growth as an educator and administrator. For instance, it is possible the work with this PLC will contribute to student achievement in my class, but also school wide. What can this experience offer me in the vein of school-wide learning opportunities for staff and students? As I see developing one's

practice (planning, instruction and assessment) always valuable, whether a teacher or administer, I see great importance and the link to collaborative inquiry and professional learning communities. Owen states, "being supported by leaders while also building leadership capacity among the team is another key aspect" (Owen, 2015, 58) of professional learning communities. This statement relates to my roles two-fold. As an administrator I must support this form of collaboration but I also developing capacity among members to be effective.

One section that I found particularly interesting was at the bottom of the homepage with various links related to news articles from the New York Times, Washington Post, the Wall Street Journal, California's Math Instruction Guidelines, and Edutopia. As I examine closer, but have not fully engaged in contributions yet, I see interesting relationships with many of our original philosophies and conceptions of curriculum. In fact, one such example is that of Edutopia. The heading of this article states, "Are We Teaching the Math Kids Need?" One could pose the question, does this relate to systemic orientation of preparing the nation's workforce? But it is much more visible that this is not the intention of the heading. The intention appears to be linked to the premise of social reconstruction and self-actualization orientations. One could identify that with our ever-changing world with an unsettling, uncertain future, instruction should prepare our youth for essential numeracy competencies. Additionally, a heading such as this also suggests to the concept that numeracy should be taught in a manner that seeks their interests (learner-centered design) while also engages them in dynamic learning opportunities of choice.



Upon further review of the website, each drop down menu from this hub displays many characteristics that relate to the philosophies of progressivism and pragmatism. For instance, within these menus we see much focus around growth mindset, special education, ability grouping, and visual mathematics. From these menus, one can deduce the relationship with these philosophies. Pragmatism has a foundation of equality of learners, as well of active and interesting learning, and social and democratic learning. Additionally, one can see that through other tabs, there is great focus on teaching the whole child. In fact, there are sections specifically devoted to number talks, computational fluency, flexibility with numbers, open learning and evidence, and strategies of assessment for learning. The connection to a learner-centered design is noticeable. Even the emphasis on the use of success criteria and rubrics on this PLC shows the relationship to constructed-response assessment.

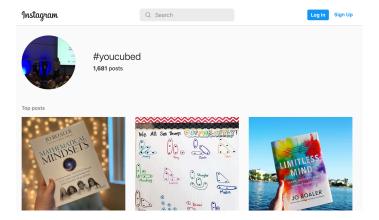


As I am incredibly eager to engage in professional learning through this valuable community, I have already observed some difficulties along my short journey. First, as I have immediately signed up to be a member of the website, it requests information (i.e., District, Job title, etc.). As this is important for filtering for my particular context and is quite appreciated, I have really received nothing as of now related professional learning. In fact, I registered almost two weeks ago and have received not even a confirmation of my registration.

Therefore, I have pursued the other social media options connected to this website as it appears there are many sub communities within these platforms. As I delve a little deeper into the Facebook portal, I see similar headings (i.e., groups, reviews, videos). As groups would be an essential option for this professional learning community, it once again appears flawed. There is only one group identified in this platform focusing on Algebra discussion. Although interesting, my key area of intrigue lies in open-ended learning and number routines.



Upon further examination of the Instagram community, it is clear this is mostly based on images of evidence-based resources and numeracy strategies. Again, this is not sufficient while attempting to patriciate in a community with a rather narrow focus. Simon Breakspear and his emphasis on Teaching Sprints identifies the importance of narrowing the focus on inquiry within PLCs. He utilizes the metaphor of narrowing inquiry from boulder to pebble to sand while refining one's inquiry. This experience feels much the same.



And finally, while examining the Twitter option, I now see greater opportunity for a professional learning community. As I am hesitant to utilize Twitter as my main portal for an online PLC, I can see value in the themes and connections to my professional knowledge and context of practice. For instance, one of the first threads available is a link based on "Do you want to see all the people and organizations that support equity in mathematics education?" This could not be more relevant to my own viewpoints, practice, and particular context of

learning in schools but also in administration. One such quote highlighted by Jo Boaler in this thread is based on, "It is not our job to rescue students from thinking." It's always a pleasure hearing students say, "this makes my brain hurt".



As there appears to be some obstacles along the way, the great number of options within this website make participating within the PLC that much more accessible. As mentioned earlier and stated by Blitz, flexibility can be seen as one of the proven benefits of online professional learning communities. This channel displays that quite visibly.

As we examine and contribute with the YouCubed professional learning community while utilizing our knowledge of curriculum, I feel the benefits while interacting with this PLC will become much more clear. It will be interesting to experience the drawbacks and relate those to my in-person collaborative experiences.

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