The New Educator, 3:179–197, 2007

ISSN: 1547-688X print/1549-9243 online
DOI: 10.1080/15476880701484048

Routledge
Taylor & Francis Group

Rethinking Professional Development: Building a Culture of Teacher Learning

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This article describes a case study of an educational organization, the Big Picture Company, trying to implement a highly unusual school design. It offers a close look at its professional development strategies and how its comprehensive program helps create a culture where teachers can, and do, learn. I detail five professional development strategies Big Picture employs to build communities of practice: Mentoring: The buddy system; Networking: Extending the community; Observation days: Two-way feedback in action; Case studies: Group learning to tap into the collective knowledge base; and Workshops: Learning from experienced teachers and honing individual skills.

Imagine a school where the course list does not offer classes in math, science, or history—a school where the core curriculum fades into the background and each student's passion is pushed to the foreground. At this unique school instead of attending classes, students identify and work at internships two days a week, and teachers (or advisors as they are known) develop individualized learning plans that seek to coax out the complexities of students' work. In doing so, teachers at The Metropolitan Regional Career and Technical High School (The Met), created by the Big Picture Company in Providence, Rhode Island must constantly work to expand the learning experience. Advisors begin with a student-chosen focus and push students to discover, and hopefully master, a more universal curriculum. At the core of an outwardly workman-like and practical course of education is Big Picture's unwavering belief that the search for depth in any topic will lead, necessarily, into learning a breadth of skills and topics. While the merits of such a radical school design are open to debate, it is certainly an unusual and difficult plan to execute because of the immense challenges it places on its teaching staff. Without the

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traditional content foundations to build upon, advisors must, like the advice of a wizened Star Wars character, "unlearn what they have learned."

As foundations continue to fund the start-up, conversion, and replication of small high school designs across the country, the prominence of innovative small schools is increasing. The Big Picture Company, the organization at the head of the Met and about thirty schools around the country, is one of several organizations changing the landscape of school designs.[1] But often these schools reflect the local contexts or the particular visions of their founders and original teachers. Why, then, should we look to an alternative high school for a general model of successful professional practices? How can their work resonate with the work of teachers, administrators, and professional development workers in more conventional schools? In this article, I offer a close look at the professional development strategies of one such innovative group of schools, the Big Picture schools, and show how it creates a comprehensive program that will allow it to execute its school design.

THE BIG PICTURE COMPANY

Being a teacher at a Big Picture high school is not your average teaching experience. In these schools, each advisor serves as the primary instructor for a group of students—usually about 15—for four years. Because Big Picture espouses a philosophy that students can achieve the desired breath in learning through digging deeply into a particular area of interest, advisors must guide students through the quest for deep understanding of a topic, a search that will require practical usage of a diverse skill set that could span statistics to historical research. In addition to working with students to develop individualized "Learning Plans," the advisor helps each student design a year-end project. This project is based on the student's internship work, which demonstrates aptitude in discipline area guidelines. Big Picture calls these the Learning Goals and uses questions to help frame them:

- Communication: How do I take in and express ideas?
- Social reasoning: What are other peoples' impressions on this?
- Empirical reasoning: How do I prove it?
- Quantitative reasoning: How do I measure, compare, or represent it?
- Personal qualities: What do I bring to this process?

The advisors' job description means that advisors need an extensive body of general knowledge, enough to guide students in everything from

[1]**The Big Picture Company refers to the larger umbrella organization and the Met, the group of schools in Providence. For the sake of clarity I refer to all the schools in Providence as Big Picture schools.**

math to writing related to a myriad of subjects. Because students choose their own areas of focus, many times advisors will know less about a particular topic than the student. Given the multiplicity of tasks Big Picture teachers confront, they must become adept at navigating a process that forces them to be professionally nimble and, like most effective teachers, intellectually curious. Even veteran teachers who become Big Picture advisors describe the experience as feeling like a new teacher. In order to succeed, then, instead of creating a professional development program that seeks to support new teachers in learning how to teach, Big Picture concentrates on creating a culture where teachers can, and do, learn.

METHODS

The Case Study Approach

I began research on the Big Picture Company as a research assistant on a three-year project to study the scaling up of Big Picture schools around the country, eventually designing a separate research study geared towards its professional development program. This study was based on the following research questions:

1. What is Big Picture's philosophy about content knowledge and pedagogical content knowledge and what are the implications of this philosophy on its professional development?
2. How does Big Picture design its professional development program for this purpose?
3. How do teachers experience these designs and strategies?

To best understand these multiple layers of a professional development program I constructed a case study of the Big Picture Company. Embedded within a larger case study of the organization were five case studies of teachers at Big Picture schools in Rhode Island. I used the multiple case study approach as it allows me to "show different perspectives on the problem" (Creswell, 1998, p.62). Yin suggests that, "the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust" (Yin, 1994, p. 44–45). I hoped, through my study of the organization and of these five participants, to "capture the complexity, dynamics, and subtlety of human experiences and organization life . . . . to record and interpret the perspectives and experience of the people they are studying documenting their voices and their visions—their authority, knowledge, and wisdom" (Lightfoot, 1997, p. xv). This project did not look to represent all experiences in Big Picture's professional development, but rather to examine closely five cases of teachers, and the program itself,

to add to the growing understanding of professional development and school reform.

Setting

The Big Picture Company is located in Providence, Rhode Island. Currently Big Picture is in the process of scaling up around the country (McDonald, Klein & Riordan, 2004). However, this study focuses solely on the six original schools in Providence. The original Big Picture school is located in downtown Providence. In its first phase of expansion the organization built a school in the West End of Providence. In 2002 it completed building a campus made up of four small schools in South Providence, a neighborhood marked by crime and violence. Currently, the student body make up of the six Providence schools (approximately 700 students total) is as follows: 42% Hispanic, 24% Caucasian, 29% African American, 2% Native American, and 3% Asian (http://www.bigpicture.org/schools/profiles.htm). Big Picture schools boast high attendance rates (94% average over ten years) and high graduation rates (95% average over 10 years). More than half of students qualify for free or reduced lunch and a third come from homes where English is the second language. Most students are the first in their family to attend college (http://www.bigpicture.org/schools/profiles.htm).

Participants

My sample of five teacher participants was selected out of a possible pool of approximately 25–35 Big Picture advisors. Because the differences in teacher experience can be vast, I recruited only from the pool of teachers who had been with the organization for one or two years. This sample allowed me to see people on a gradation of early initiation into the ideas of the organization. The five principal teacher participants in my study had varied backgrounds. Table 1 illustrates the breakdown in terms of race, gender, prior teaching experience, age, and the year advisors were beginning at the Big Picture when my study began.

TABLE 1. Breakdown of Participants' Background

	Race			Gender		Prior Teaching		Age			Year at Big Picture		
Participants	W	L	AA	F	M	Y	N	20's	30's	40's	1	2	3
1. Sarah	X			X		X		X					X
2. Adam	X				X		X			X		X	
3. Dina		X		X			X	X				X	
4. Andres		X	X		X		X		X			X	
5. Michael	X				X	X				X	X		

Data Collection and Analysis

In order to understand the professional development experiences of the five participants I analyzed written documents, conducted extensive interviewing, and made numerous site visits. For details of this data collection see Table 2.

I collected, read, and analyzed significant documents identified by participants and the founders of the organization. These included curriculum materials, articles and books published by and about the organization, and other seminal documents, such as guides written for teachers, mentors, and parents. Data sources also included multiple, semi-structured interviews of the five participants, four principals, Big Picture co-founders, three staff members, two student mentors and a teacher who had left the school. I interviewed each teacher at least six times; three-one hour interviews and three half-hour to forty-five minute follow ups. In addition I observed each advisor at least once in his or her classroom and during three different professional development days and during summer weekend and week-long

TABLE 2. Data Collection Plan

Data Source	Description				Total
Interviews:		# of one hr interviews/ total interviews	# ½ hour interviews × # of participants	**Total hours**	45 transcribed interviews (approximately 850 pages): approximately 37 ½ hours total.
	Five participants	3/15 total interviews	3/15 total	**22 ½**	
	Four principals	1/4 total		**4**	
	Two co-founders	1/2 total		**2**	
	Two mentors	1/2 total		**2**	
	Former advisor	1/1 total		**1**	
	Three staff members	2/6 total		**6**	
	Total interviews	30	15	**37 ½**	
Document Review	Curriculum Materials, website, documentaries, internal case studies, and other seminal documents.				Approximately 500 pages reviewed.
Site visits	Rookie camp (10 days), Annual conference (3 days), August professional development (10 days), three monthly professional development sessions (3 days total), grade level meeting, school advisor meeting, and one classroom visit per participant (5 days total).				Approximately 31 days on-site and 90 pages of field notes

workshops. Site visits included the summer two week "rookie camp" for new advisors, the annual conference of all the schools from 2002–2004, the two weeks of professional development held in August 2003, three monthly professional development sessions during 2003–2004, grade level meetings, school advisor meetings, and classroom visits.

Analysis of data was grounded in qualitative methods. Researchers suggest the importance of entering "the field with a clear intellectual framework and guiding research questions" (Ely et al., 1991, p. 21). As I gathered data I began writing analytic memos to make sense of emerging themes. Analytic memos "help the analyst move easily from empirical data to a conceptual level, refining and expanding codes further, developing key categories and showing their relationships, and building towards a more integrated understanding of events, processes, and interactions in the case" (Miles & Huberman, 1994, p. 158–159). They are an integral part of the sense making process. Early analysis allowed me to develop categories for the themes I uncovered. As I continued to gather data and review transcripts and notes for new themes, I began to create codes that I would ultimately define in detail as data collection was completed and I turned to the writing process.

REVIEW OF LITERATURE

Professional Development

Traditional professional development has often ignored the particular needs of teachers or sought their input in their own professional growth. Even schools and organizations that argue for progressive education for children may treat professional development with a "banking" model of learning in mind. Jeannie Oakes, Karen Hunter Quartz, Steve Ryan & Martin Lipton (2000) find in their study of implementation of the Turning Points reform effort that while reforms "try to make teachers student centered and cognizant of learning as an interdisciplinary, socially constructed process . . . they rarely add an approach that is teacher—(as learner)—centered: they avoid interdisciplinary content, and they attempt to transmit rather than have teachers construct new knowledge" (p. 269). Other critiques of traditional professional development programs suggest that they do not acknowledge differences among teachers (Lieberman & Wood, 2001; Siskin, 1994), they do not take into account what teachers know about practice (Lampert & Ball, 1999), are rarely developmental (Ball & Cohen, 1999), are content free, and reinforce an "intellectual hierarchy" in their reliance on outsiders such as professors and consultants (McDonald, 1996). Big Picture's professional development program attempts to address all of these issues.

One of the challenges for educators has been discovering what constitutes effective professional development that supports teacher change;

researchers acknowledge "the field of research on teacher learning is relatively young" (Borko, 2004, p. 3). Even the No Child Left Behind (NCLB) Act of 2001 fails to define what it calls "high-quality professional development" (Borko, p. 3). Ball and Cohen (1999) emphasize the developmental or sustained nature of professional development over the "one shot workshop" model that has dominated the field. They also stress the importance of creating a "pedagogy of investigation" through developing "communities of practice" (p. 13). In this method, teachers come together to use what they call authentic materials from classrooms, in the form of videotapes and student work, to examine their practice in community.

A number of researchers have begun to identify important elements of a successful staff development program. Some of the important elements of effective staff development identified by Willis D. Hawley and Linda Valli (1999) are that good professional development should engage teachers in collaborative problem solving; should be continuous, supported, information rich; and should help teachers develop a theoretical understanding of the elements involved in the change or reform. Hawley and Valli's principles are premised on the idea of professional development as "learner centered" (p. 137) and connected to teachers' content area. They and others warn of the ineffectiveness of content free professional development and emphasize the importance of grounding learning in practice, which is, of course, related to content. Charles L. Thompson and John S. Zeuli (1999) believe that professional development organizations need to help teachers develop a "repertoire for practice that is consistent with the new understandings the teachers are building (Huberman, 1995)" (p. 356–357). In this way an expert or someone experienced in these ways of teaching, is modeling and helping teachers practice their new pedagogical strategies. This article attempts to add to the knowledge base about effective professional development, highlighting a case of professional development that embodies many of the suggested good practices above and does so through building a community of practice.

Communities of Practice

This study also illustrates the particular urgency for teachers to undergo this process in professional communities of practice, a need that is increasingly relevant for teachers in all schools. When schools are trying to make changes in teaching and learning, the surrounding community of teachers may be the best source of learning and support for new members. NCLB has increased pressure upon schools and teachers to create more equitable schools. In doing so the amount of "transparency" teachers are subjected to has increased; the search for the "weak link" has become more focused and concentrated. The task of responding to such pressure simply cannot be shouldered by a teacher alone.

John Seeley Brown and Paul Duguid (2002) describe observations of repairmen at work that dramatically influenced practice at the Xerox Corporation. They found that rather than seeking advice from superiors, Xerox repairmen looked to each other for help in understanding complex problems they encountered, problems not easily referenced in manuals. Despite training courses and manuals, there were few "predictable" problems that had easy solutions. Instead they turned to each other for help: "For them, knowledge comes more from fellow practitioners than from cross-functional connections" (p. 97). The authors found the repairmen met frequently in informal ways and "posed questions, raised problems, offered solutions, constructed answers, and discussed changes in their work, the machines, or customer relations. In this way, both directly and indirectly, they kept one another up to date with what they knew, what they learned, and what they did" (p. 102). They argue that this sort of conversation "continuously but almost imperceptibly adjusts a group's collective knowledge and individual members' awareness of each other" (p. 103). Seely Brown and others refer to this as a "community of practice."

The literature also suggests that professional communities of practice can offer valuable training for new members. Pete Hamil, the former editor of *The Daily News* and *The New York Post*, in his book *Downtown* reminisces about hours he spent in a local bar after his night shift ended:

> At the bar, in the company of older professionals, I received a good part of my professional education. They examined headlines, often with a bilious eye. They scrutinized stories, including my own. They issued fierce criticisms, savage, often hilarious indictments. They told me what I should never do again, and I tried hard not to repeat my latest published barbarism. I was never happier. (p. 132)

In an organization such as Big Picture, professional communities of practice can provide a means for "professional education."

The new focus on professional community begs the "so what" question. Why does it matter if schools create strong professional communities of practice? Wilson and Berne (1999) in their study on teacher learning and the acquisition of professional knowledge discovered the "urge" for community: "In every case of teacher ongoing learning . . . teachers were engaged in learning communities that allowed them to test, discuss, revise, and retry their ideas about children's mathematical thinking and its relationship to instruction" (p. 183). The two most significant features of these communities were that they were self sustaining and focused on students' thinking. Most importantly, "A wide range of statistical data supports the claim that school based professional learning communities improve teaching and learning" (McLaughlin & Talbert, 2006). Yet there is not a great deal of evidence about what strategies sustain and build these communities.

FINDINGS: PROFESSIONAL DEVELOPMENT AT BIG PICTURE

Like many small organizations, Big Picture once was able to rely on a tightly-knit professional community, centered around its founders, to help new advisors learn content and think about how to teach it. As it has grown, Big Picture has been prompted to formalize its professional development practices. Creating and sustaining a professional culture can be difficult, particularly as organizations expand. Big Picture has taken active steps to ensure advisors are nurturing and sustaining this culture. Its professional development program uses multiple strategies to help teachers learn and attempts to address some of the critiques of traditional professional development. I describe in detail five particular strategies that make up the bulk of an extensive professional development program that is designed to foster a community of practice geared towards teachers as learners. Although these practices are not new, nor distinct to Big Picture, taken as a whole they represent a comprehensive approach that is both continuous and balanced. These strategies seek to disseminate both directly and indirectly, and provide information and skills that are both philosophical and practical. They provide instruction as well as feedback. They build both a broader community as well as sponsor individual relationships. However, with the attempt to make formal the earlier informal community of practice comes challenges and, where applicable, I present some of the particular issues associated with each strategy in order to best illustrate the challenges others may face developing and integrating such programs. See Figure 1, "Professional developmental practices at Big Picture."

Mentoring: The Buddy System

Mentoring, both formal and informal, is a strategy that helps new teachers "see" and "hear" examples of what good teaching looks like. Big Picture employs a buddy system that pairs a rookie advisor with an experienced advisor and is loosely designed: Neither the times nor the content of sessions are prescribed.

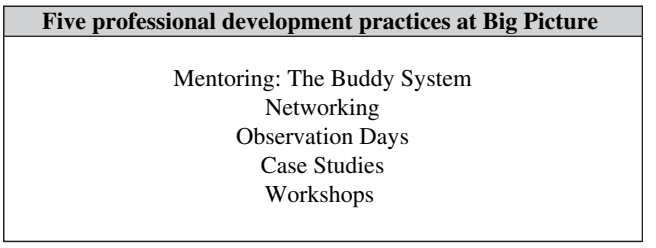

FIGURE 1. Professional development practices at Big Picture.

Sarah,[2] a teacher participant in this study, identified her buddy teacher as an important source of support in her first year at Big Picture: "What's been most influential have been the informal conversations, sharing of materials and talking with my mentor." Early on he would meet with her regularly before school started answering all her questions. In addition he offered Sarah materials that he had written up from his ninth grade year and helped her figure out how to use those materials. He also brought their advisories together and paired up his older students with her new ones, which "took a lot of burden off of me because there were things that he generally planned where his students were helping my students." Beyond the early weeks, "He . . . [was] really good about checking in with me every week to see how things were going." She said that the culture of Big Picture schools encouraged both formal and informal mentoring between more and less experienced advisors, and that one of the strengths of Big Picture professional development was, "the experienced staff mentoring younger staff" although she called that process "informal."

The buddy system helps develop a strong personal and professional connection to a particular advisor with more experience. Unlike many schools where teachers may forge personal connections, close professional connections are rarely fostered in the minutes between classes, the lunchroom, and administrator run department meetings. Sarah serves as an example of the potential success of formal mentoring, particularly when it is part of a larger culture that fosters such interactions. Mentoring, for Sarah and a number of other advisors I interviewed, formed a significant means of formally and informally helping them build their knowledge base and strategies for teaching, one of the elements of a community of practice described earlier. Sarah also took mentoring seriously and provided mentoring not only to her official buddy, during the year of this research, but to all younger advisors. One such advisor, Andres, credited her with learning how to become a tenth grade advisor. In formal meetings and informal conversations he "picked" Sarah's brain and credited her with having documented all of her work about the year. He planned to do the same kind of documentation for the newest advisor in his school coming up in the ranks.

The buddy system also sends an important message to new advisors; it reinforces a culture where new staff are expected to learn from more experienced advisors. However, the scale up of Big Picture schools, both in Providence where they had recently grown from two to six schools, and around the country, brought strains on the availability of good mentors. Many of the senior level teachers Sarah had worked with had gone on to become principals, coaches for the new Big Picture schools around the country, or work for the Big Picture organization. With these strains came uneven mentoring

[2] **I have protected the identity of my participants by using pseudonyms for their names and masking any other identifying details.**

and some participants I spoke with had much less consistent experiences of mentoring than Sarah did. And yet in schools that so radically redefine traditional modes of teaching and learning, mentoring is not just a supportive professional development practice but an essential one.

Networking: Extending the Community

Big Picture has created many designs to encourage senior advisors to pass down expertise to newer advisors and "across" to other advisors with similar experience. As Big Picture in Providence has grown from one school to six schools in three different locations, it has become more difficult to share across schools, and Big Picture has facilitated sharing by creating networking events. Networking is premised on the idea that making connections between people allows for more efficient and widespread sharing of information (Barbarosi, 2002). As Big Picture successfully fosters connections between more people across sites, it is able to disseminate ideas through larger numbers and keep those ideas from only being shared through one central "hub."

Big Picture hosts an annual conference, known as the Big Bang, for staff and advisors from around the country. During this weekend in August, advisors lead the majority of the workshops. The conference provides a space for advisors and staff to come together to discuss and develop their work. At the 2004 conference, in one session, titled "Making Meaningful Learning Plans," an 11th grade advisor shared some of her experiences, strategies, and materials. She began by giving concrete advice about incorporating Learning Goals into student Learning Plans: "It's helpful to do the Learning Plan meeting in the beginning and figure out how I'm going to meet my Learning Goals. It gets you thinking differently, more about Learning Goals than about other stuff." Advisors shared ideas on how to focus effectively on the Learning Goals from the beginning of a student's year and how to go about the process of managing learning within the Big Picture design.

One of the challenges Big Picture faces in networking is finding multiple opportunities to do so. Beyond the annual meeting there were other, less successful, attempts of networking using on-line forums. Most advisors I spoke with found the task of learning to teach at Big Picture extremely time consuming and it may be that it is difficult to motivate teachers to engage in on-line communities given how challenging their job is. This was particularly true at the Big Picture schools in Rhode Island where teachers also had many other teachers around them to turn to. However, Big Picture is continuing to try to find ways to use technology for both networking and professional development.

This is because networking teachers is an important way of spreading ideas and culture between Big Picture schools. Because few other schools and organizations do similar work to Big Picture, advisors found networking

to be extremely helpful in both developing their craft and alleviating the potential isolation that many new teachers face. Networking encourages informal learning, especially around strategies that foster effective student learning. Sharing strategies and keeping open communication lines allow an organization to align philosophy and practice.

Observation Days: Two-Way Feedback in Action

Observation Days engage an advisor as both teacher and learner. Observation days send an advisor to a different school to observe another advisor's class (usually for a morning or afternoon). Later that advisor is observed herself, although not necessarily by the person she observed.

One advisor, Adam, told me he brought back a school-wide strategy from his observation. After spending a day shadowing a group of teachers at another school, he was "blown away" by how they were able to implement silent reading: "We had tried to do silent reading and our kids were far too cuckoo for it to work. They just ended up being in a fight every day for twenty minutes and no one did any silent reading and we just stopped trying." After observing the power of silent reading done effectively at a different school, Adam returned to his school and told the staff "I just really want to do this and I want to keep on doing it until it happens." Although they had already experienced failure with silent reading, his observation in another school where it was working effectively renewed his belief in its importance and possibility. By the time he relayed this story to me his school had achieved far more success with silent reading.

Not all advisors had experiences that sparked school-wide change. Another advisor, Andres, viewed observation days as one of the more powerful of BP's professional development designs. These were important to him because they took him out of his school to get "fresh ideas." During one observation day Andres was observed by one of the most experienced Big Picture advisors. Later, he observed a new advisor that he had coached during rookie camp earlier in the summer and was provided with a specific feedback sheet that helped structure their conversation in a way that Andres found useful. The structure of the observation day allowed him to learn from a more experienced advisor with an outside pair of eyes, and to share some of his own experience with somebody less experienced.

Andres and Adam recounted their experiences differently. While each described the day as one where they learned from their peers, this strategy influenced advisors and their schools differently. Through my interviewing it became clear that good "fit," meaning that both parties could learn from and share their knowledge with the other, was very important. When there were instances of poor fit, it was largely when a senior level advisor was paired with a very inexperienced advisor and there were fewer opportunities for shared learning. Sarah, for example was often placed with new advisors

because she was considered a strong advisor and mentor and she had fewer opportunities to learn from more experienced advisors. However, when the "fit" was right these were among the most effective professional development strategies used by Big Picture. The two-way feedback system reminded advisors that they had much to learn from those who had both more and less experience than them.

Case Studies: Group Learning to Tap into Collective Knowledge Base

Throughout any number of the professional development sessions—August staff development, monthly staff development, advisor meetings, grade meetings, and others—one of the most frequently used means of building teacher knowledge and skill embedded within those larger designs is that of *case studies*. Case studies take many forms, including oral and written, and serve multiple purposes, from developing advisor knowledge of Learning Goals to helping advisors cope with classroom management issues. Some come in the form of written case studies, usually found in the materials, which generally describe exemplary project designs that effectively address Learning Goals and ask questions that force the students to go deeper into the topic of their projects. When asked how advisors learn how to use the Learning Goals and incorporate them into projects one principal replied, "Tuesdays [Advisor meeting day] the teachers sit down together, they talk about projects, they break down the projects so they get to hear, it's kind of like listening to the older staff and seeing the different work they're doing and they're like 'oh, that's how it is.' I think it's just by seeing models and talking about different kids." Another principal said that being "able to extract . . . learning opportunities out of potential projects and internships is a real art form in itself and it develops skills. So speaking to how we do that, there's a couple of ways. One, we use case studies within staff meetings to do that, 'here's my student, here's my situation, help me out.'" In doing so, advisors are able to build on each other's knowledge, activating a collective knowledge.

At a 10th grade level meeting before the beginning of their second years, advisors came together to talk about the challenges of a tenth grade advisory. They discussed expectations for their students and strategies for developing more rigorous projects that challenge their students. After a more general discussion one advisor presented a "case" of a student who was very interested in the modeling industry but had mostly been functioning as a secretary at her internship. People began to throw out ideas: "For Quantitative Reasoning you could look at the differences between what models make and agencies make; how the money is allocated." "You could look at the ethics of modeling" "She could also look at eating and calorie intake. What are the average dimensions of people?" "You could have her doing a survey of business' and different ads that people respond to."

Furiously the advisor wrote down the thoughts, stopping now and then to ask questions of the other advisors. At the end of the session the advisor was able to walk away with tangible ideas about how to build learning goals into the student's project and what kinds of activities might correlate to the student's passion.

The practice of using case studies highlights teachers learning in community. One important aspect of teacher communities of practice is the focus on children's thinking and case studies provide the opportunities for such work. Much of the formal and informal professional development happens around stories of a student's project and the advisor's struggles to pull the learning out of it. These case studies situate and contextualize the work that other advisors are doing; the strategies used for one case are directly relevant to those of other advisors. They also provide a way to initiate newer staff into the culture and demonstrate through example as well as particularly through meetings that allow them to present their own case studies. Most significantly, it builds on the collective knowledge amassed by groups of teachers, a base vastly expanded from that of the individual teacher.

As is often the case, the depth and range of case studies varied. One advisor told me that while the staff wanted to look at student work more frequently in their weekly meetings, they often focused on classroom management cases. The difference in classroom structure and design in Big Picture schools often meant that even experienced teachers had trouble with classroom management in their first year as a Big Picture advisor, as the design encourages a great deal of independent work. Therefore, new Big Picture advisors' concerns were often quite different from those of even sophomore level advisors; freshman advisors were still trying to "figure it all out"—make sense of the design and manage their students. To a large degree the amount of time focused on depth and rigor of student work seemed to depend on the number of senior level advisors in the building who were less concerned with issues of classroom management and more focused on student learning through projects.

Workshops: Learning from Experienced Teachers and Honing Individual Skills

Big Picture hosts workshops throughout the year at different professional development events. These workshops offer "direct instruction" particularly in the areas of literacy and numeracy. Topics range from theoretical understandings of quantitative reasoning, to activities that have advisors "learning by doing," engaging in the very activities they will then use with their students. For many advisors, such activities help them begin to understand what students might experience in doing the activity, what pitfalls they might encounter, and what strategies might be helpful in getting them to move beyond their struggles. These sessions focused on honing specific skills.

At one workshop an activity spurred advisors to discuss and construct an understanding of Quantitative Reasoning as separate from mathematics. The workshop leader handed out slips of paper that contain statements such as "finding out how many blades of grass are on a football field," "counting people entering a sandwich shop," and equations of graphed lines like "y = 3x + 4." The group was asked to place each piece of paper on the math/QR continuum. The leader then spearheaded a discussion of how advisors chose to organize their slips of paper—what they believed to be more "Quantitative Reasoning-like" and what was more "math-like." His goal in the discussion was to help advisors see that "Quantitative Reasoning is math for achieving a greater goal" and that many of the activities, such as counting people entering a sandwich shop, can build Quantitative Reasoning skills depending on the purpose behind it.

In a related activity, the workshop leader pushed advisors to think about the different ways of representing problems. In one, advisors looked at different ways of writing equations for the same problem. The leader of the session asked, "My friend buys a CD for 6 dollars and sells it to me for 9. How much do I have to sell it to make the same profit?" A number of people answered 12. He then wrote down the following equation: y–9 = 9–6. "In math there's only one right way to get it." Next, the workshop leader passed out three schemes for budgets, put people into mixed groups and had them focus in on 1 out of 3 budgets. He listed some questions to answer about each budget:

1. Why is this budget important to the project? [How is it authentic? How is it content that comes out of real life work?]
2. What skills do you see embedded?
3. Describe the student for whom this would be a good project?
4. How could this project go deeper?

Finally, time during this workshop was dedicated to advisors working on their own or in pairs to developing budget activities for their classrooms. For many advisors struggling to integrate Quantitative Reasoning these kinds of workshops were invaluable. However, as always, the needs of many are not the needs of all and some advisors felt these workshops were less useful for them. One of the ways Big Picture managed this challenge was by limiting the number of direct instruction workshops held and by using advisor input both before and after these workshops in designing them.

Big Picture workshops attempt to provide "direct instruction" or attention to specific needs of advisors. For many advisors, literacy and numeracy are of major concern and believed to be the province of all advisors. Particular knowledge and strategies for building literacy and numeracy need more direct attention than case studies can often provide. Learning happens in a

community of teachers but is directed by someone with particular expertise used to guide advisors in learning content and developing strategies.

IMPLICATIONS: WHY WE SHOULD CARE

Ideally, successful professional development is reflected in the success of student learning. At the recent National Education Summit on High Schools, Bill Gates acknowledged Big Picture and its schools, stating, "There is mounting evidence that [their] new design works . . . These are the kind of results you can get when you design high schools to prepare every student for college . . . The Met now has the lowest dropout rate and the highest college placement rate of any high school in the state" (National Education Summit on High Schools, 2005). Further, the Education Alliance at Brown University reports: "Beginning with its first graduating class in 2000 and continuing today, The Met has a 100% acceptance rate to college. More than 70% of those students are the first in their family to go on to higher education" (Educational Alliance at Brown University, n.d.). While not mainstream, Big Picture "is making important contributions to the knowledge base on how young people learn . . . there is a need for that kind of diversity, not only for the kids, but also because we can learn from it" (Hendrie, 2004). While there are many factors that contribute to a school's success, undoubtedly advisors are an integral component of each student—and schools'—performance. Many schools and districts include elements of Big Picture professional development program in their design. Particularly, mentoring and the buddy-system are growing in popularity. A recent example is the move on the part of the Canadian province of Ontario to provide a year-long buddy system for new teachers (Brown, 2005). Under this program they will have opportunities to observe designated mentor teachers in the classroom. Similarly, in New York, research has found a new mentoring program there is "boosting [teacher] quality and helping stem the number [of new teachers] who leave" (Keller, 2006).

There are significant challenges Big Picture faces in both building and sustaining its professional development work, particularly in the area of human resources. While there are no new schools planned for Providence, there are still schools growing around the country and a dire need for experienced Big Picture teachers. Even as the organization gets better at making explicit what "makes" a Big Picture school, its unique school design requires people with real experience making that design a reality as a part of professional development. Currently while four of the five participants in this study are still working within the organization, only one has returned to the classroom after seeing her first group of students graduate. Many advisors after spending four years with their students do not feel ready to turn back around and begin again and as there is such need for coaches and principals across

the country they can take on other roles and still stay in the organization. However, in order to sustain a high level of teacher community it is important to have experienced teachers stay on beyond the first four years. Managing this challenge is essential to the long term success of the organization.

With its high level of student achievement as a backdrop, Big Picture provides a glimpse into an environment where success is invariably linked to the continued success of its professional development program. All of its teaching staff have had to make the transformation of learning how to become advisors. Professional cultures are often tricky and elusive; Big Picture has tried to create a culture of teacher learning where learning happens in multiple contexts, and has implemented strategies in order to nurture that culture. These strategies bring teachers of different experiences together to interact in a variety of ways for different purposes. Mentoring emphasizes the individual connections between more and less experienced teachers; networking brings them outside of their individual contexts to cross "pollinate" knowledge and strategies; observation days open up classrooms; case studies bring teachers together to bring their collected experience and knowledge to bear on particular classroom challenges; and finally, workshops offer teachers opportunities to build necessary content and skills needed for their work. Communities of practice and cultures of teacher learning may develop on their own, but need structures to support them and to help them grow; what matters is how the strategies combine to help create a culture of teacher learning. Big Picture's work offers a unique window into how cultures are built and sustained.

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