CHAPTER 4

WHY STUDY TEACHERS?

"Its worlds that are opened up that are different than the ones students live in today."

- Minecraft teacher

Metaphors for Teacher Learners

In most fields of practice, there is a robust and interested audience for understanding how the top practitioners perceive and conduct their work. For instance, in business, we see shelves filled with biographies and memoirs from top CEO's; in medicine, leading doctors publish new methods and potential cures to the rest of the community; in politics, new campaigning tactics are debriefed by insiders and arm chair commentators for months following an election. But what of educators? How do we approach teacher learning?

Teachers as Employees

If teachers are employees, shouldn't we be able to tell them to use digital technology in the classroom and they obey? Reform should be easy to initiate, but it is not. Many ask why this is the case, and logically pursue 'primers' on more effective professional development (Desimone, 2011) strategies. These are based on researched 'best practices' found in successful districts. Others document and define successful learning phenomena, like communities of practice (Cox, 2005), and seek to expand them through mandated participation. These approaches are 'top down' in essence. They propose that teachers serve districts, and districts have historically guided teacher practice. So, when we present new ideas, teachers should embrace them because it is their job.

This assumes that with the right inputs, teachers will react consistently to the 'best' ideas. When they do not, this research logically starts to identify 'barriers'[1] to teacher adoption

[1] Rogers, P. L. (2000). Barriers to adopting emerging technologies in education. *Journal of Educational Computing Research, 22*(4), 455-472.

like fidelity, 'resistance', toxic cultures, lack of resources, laziness, or other wrenches in the machine - all are well documented[2] by those that research *employees*. This approach places a premium on convincing or compelling new practices and has often led to concerted efforts to unify teacher evaluation, curriculum, and standardized tests to place pressure on teachers to 'change' for the better. However, when it comes to teaching digital literacies, integrating reading or math across the curriculum, or data-driven decision making, low adoption rates seem to confound centralized planning. Teacher 'employees' can list a variety of reasons why technology is not getting used (barriers) and they prove very resilient to new ideas.

Say you want to change classroom practices. If the teacher is an *employee*, you should not have to study what they do at home, informal learning, or influences. Why would you? As an employee, they should comply with what you tell them to do! The problem, then, is in clearly telling them what to do - via in-service training. It makes more sense that you study and perfect PD deliveries that provide the best results or gets the most teachers 'on board' with your program. This has been the path of many reform efforts that have come and gone the last few decades - but these efforts have ultimately not shown large scale adoption. Despite the overwhelming focus on employees, teachers remain an elusive bunch.

Teachers as Conservants

What if teachers were better understood as independent actors that have agency in order to protect the teaching and learning process? What if schools are supposed to be tough to change? Other scholars point out the inherent *conservative* nature of educational practice (Postman, 1979). They point out that the entire education system, in the United States, was intentionally designed as a 'loosely coupled system' (Elmore, 2000) that serves to insulate classrooms from the whims and fads of changing workplaces and politics. Education is too important to allow teachers to be overly pressured by powerful outside lobbies, so teachers are the *conservators* of a great institution - and rightly so. Despite pop culture excitement for innovation or proponents of new technology, when a teacher closes their classroom door, they can essentially do what they feel is effective and have a moral obligation to innovate or conserve as appropriate. This allows top practitioners to practice for decades and quietly deliver innovative and outstanding lessons despite tidal reform efforts washing by.

This understanding of teacher practice does allow for much more patience over time, and can adequately explain slower or stalled adoption of new ideas in education. For a new idea to take root, it has to be shown worthy of adoption, over a *generation* of teachers, and leaders need to consider how to convince, not dictate. If not, districts can buy costly new technology, that largely goes unused in practice (Cuban, 2009), and not be able to force

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[2] Wachira, P., & Keengwe, J. (2011). Technology integration barriers: Urban school mathematics teachers perspectives. *Journal of Science Education and Technology, 20*(1), 17-25.

teachers to use it. The conserving view of teachers provides for understanding why teachers may choose not to adopt new practice, but provides less direction for understanding why some do. It is worth noting, still, that teachers have authority over their day-to-day practice, and that this provides a precious protection for education to not be dominated by industry, politics, or fads.

If teachers are primarily *conservators*, then it makes sense for change agents to investigate essentially different system designs that allow teachers far less control over classrooms. So, automated online settings, removal of tenure protections, common core curriculums, and/or a more centralized systems of accountability and pressure for teachers should result in transformed learning systems that produce better change - but they do not. In fact, it is increasingly obvious that increasing pressure on schools is not having measurable impact on student learning.

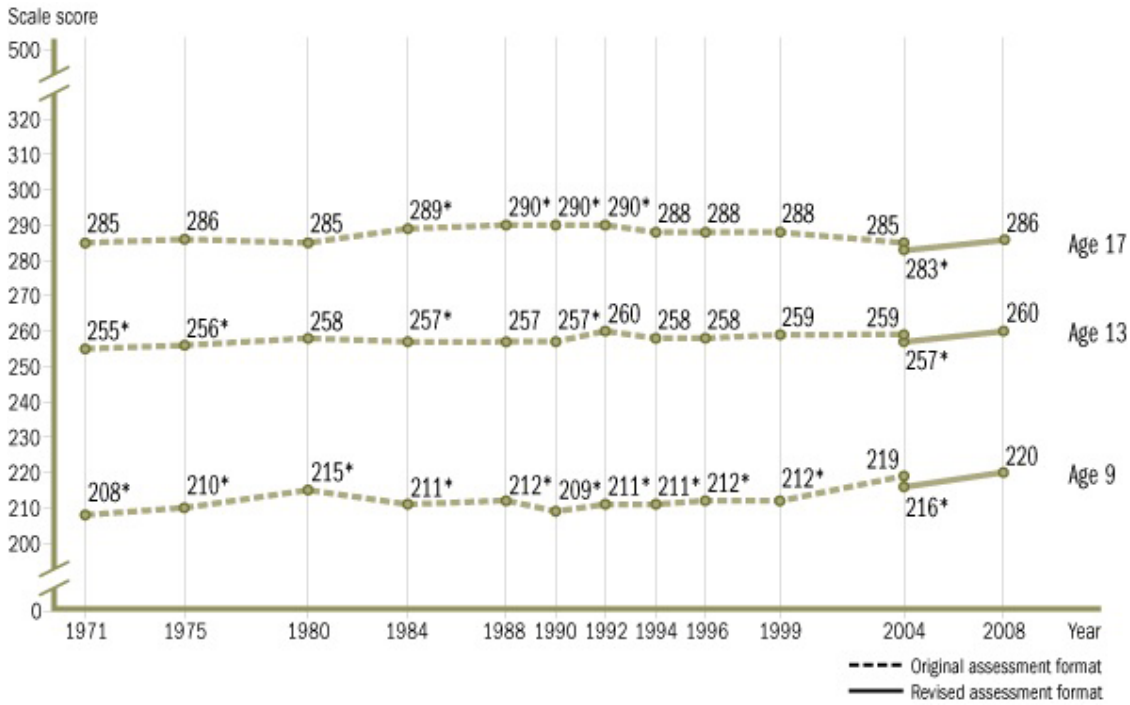

Image 1: Trend in NAEP reading average scores for 9-, 13-, and 17-year-old students

This is a hot button issue, I know, and you may resonate with one of these two approaches to influencing schools. My point is that to direct teachers or to undermine their independence may not have a measurable impact on either teachers adoption of new practices or on student learning overall.

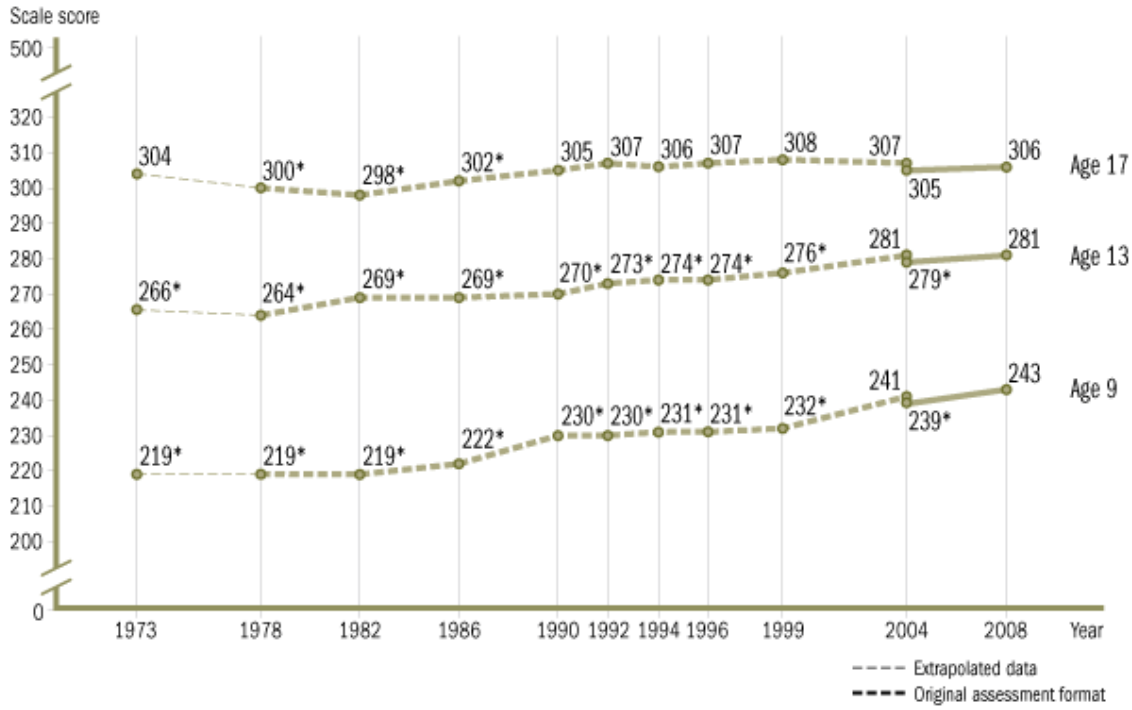

Image 2: Trend in NAEP mathematics average scores for 9-, 13-, and 17-year-old students

These approaches both come with bodies of valid research, but look at existing realities, with a particular focus and set of assumptions. One continues to improve on top-down professional development (PD), and the other documents the reality of its ineffectiveness and acts accordingly. Frankly, I can see the benefit and appeal of both approaches. Yet, these two approaches ultimately lead to frustration over actual teacher adoption rates, flat lined test scores, and wonder why disarming teacher independence has not led to the reform they envision. They provide a narrative that teachers are not changing, yet, from my experience, teachers do change.

Neither approach to understanding teacher learning accounts for how quickly digital slideshows were adopted by teachers - as a core tool in classrooms. Why were these taken up so quickly without directives by the conserving teachers? There are many such examples of technology adoption. Few teachers, for instance, needed workshops on how to use a word processor, or the internet itself, yet thousands of teachers use these tools every day. Video clips effectively and appropriately support teacher lectures and add layers of media to previously audio-dominated practice. This change was an internally driven, widespread, bottom-up, change in practice. Transformation of classroom pedagogical practice may not be as radical as anticipated, but it is also not a benign change when students use, say, digital editors over slate boards. So, if top-down 'training' was not a documented historical impetus for these changes, and teachers still managed to change over time, what did account for mainstream adoption of these tools? What approaches to teacher learning do account for

equally interesting realities that teachers sometimes innovate, create, discover, and adopt new classroom practices?

Teachers as Designers

What if we consider the teacher as an artist, or a designer? Some accept that generally teachers *do* adopt new tools and can do so within a short period of time. Consider recent research that documents the teacher as a whole person. They show that teacher beliefs are central to the conversation of technology use and changed practice, (i.e. Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012), and that their networks, in and out of the workplace, are essential to their practices (Byrk, A. S., Gomez, L. M. , & Grunow, 2010). These researchers more accurately frame teachers as professional actors within a community of local expertise. For a professional designer, rather than an employee, the decision to change practice is not a lightly made one; it is a locally considered, bottom-up, validation process, using multiple resources to inform practice (Dikkers, 2012). Teachers are essentially independent designers that are unavoidably scanning and searching for improved practices all of the time, but are rooted in designs that have worked in the past. Notably, this approach understands why general core curriculum guides may be welcomed, but specific daily lesson guides are consistently changed or ignored.

This lens treats the teacher as *designer* - a designer with years of developing a thin patience for those that don't understand effective classroom design. Consider that most teachers make micro-changes each time they teach a lesson because they inherently experience student reactions, performances, motivations, disciplines, enthusiasms, and informally collect feedback on lessons each and every hour. They are informed by each iteration to: 1) sustain, 2) tweak, or 3) start over on their designs for each class. Why don't we see sweeping adoption of reforms? Primarily because they are not in conversation with this process. Why do we see teachers embrace some technologies widely? Because some technologies make the design of teaching and learning easier, across subjects, and serve teachers as a blank slate to design as they are inspired.

If teachers are *designers*, (or Teacher-crafters), we can assume that new ideas may not be adopted wholly, but are tested incrementally outside of class, at home, or in small 'free day' activities, before being used as a supplement or single lesson. If this is the case, it is easy to see that formal 'in-service' training really is not all that relevant. Designers want to bounce ideas off of their trusted friends and colleagues before they put work into them. This does not mean that they are 'resistant' to change, it means they are always changing. They are both empowered to ignore top-down training, but not necessarily oriented toward 'conserving' past practice. Quite the opposite actually, a *designer* is naturally seeking the next great idea, new angles, and, as tactics grow expected, the designer seeks to capture student attention with new material. Sometimes teachers like to create something that is their own and see how students react to it. This process is what I call "Teachercraft"; an ongoing

process of identifying, validating, experimenting, and appropriating new experiences into the classroom. Using Minecraft then is only a particular kind of Teachercraft.

Why Look at Teachercraft?

If teachers are *designers*, this opens up a new line of questions about how teachers learn and adopt new ideas into their classroom. Why look at teachers? Because in any design field, we should study the innovative designers. For example, if we want to study Impressionism, we do not waste time defining and teaching only the single 'best' Impressionist (via in-service training); nor do we document how they didn't conform to the conventions of the larger French art culture, (and suggest they should have been controlled better); instead we look at each of them as a community of practice and draw actual practice across different styles - understanding what Impressionism is broadly. In the end, we become better educated on the movement of artist-designers.

This is why studying a group of teachers can inform other *designers*, but it may not provide single answers that can be mainstreamed. This book does not provide a bullet point list of how to teach, it does not define a single answer on what innovation is, but it does show a movement of design.

The moment we try to tell an artist the 'right' way to practice, the good artists will keep the profession fresh, new, and give us original material. This can be mistakenly interpreted as 'conserving' or 'resistance'. More accurately, I propose this is the teacher's search for ongoing engagement of an audience that needs original material. In fact, a number of teachers we interviewed for this book have already started looking for the 'next thing' after Minecraft. They are artists, constantly in motion, seeking to get reaction from their students that matches their own enthusiasm for their subject material.

This is why we show common learning tactics, common wisdom and technique, and the common adoption of Minecraft across teachers, but we cannot present a 'best practice' for use of Minecraft in the classroom. A student of the teaching craft, should examine *many* teachers and see each different style as a color contributing to a larger picture of teaching - a movement. Constructivism, for instance, is not 'right', nor is didactic instruction 'wrong', they have both inspired, engaged, and taught children effectively in the hands of *designing* teachers that learn and try new practices. Mastery involves using many tactics, styles, influences, and in time developing your own practice.

If teachers are designers, we should be able to see common tools of the trade, but not common usage of them. We should expect teachers to develop over time, have phases of practice, band together to inform their current interests, and try new things just because the old ones are stale. If teachers are designers, we should be able to ask why they use or do not

use classroom technologies and expect robust stories, or narratives, around their decision making process - in truth, there should be a process of design in place.

I assume that teachers are designers. This research carefully examines this process and documents it across cases. If we have the correct theoretical framework, we would expect to see a complex process for evaluating new ideas, a staged experimental process prior to full blown use of Minecraft, and we should expect to see teachers sharing their breakthroughs with refined and complex methods for watching their 'audience' (students), as designers are ultimately interested in how others respond to their design to instruct further iterations on that design.

The next few chapters allow a deeper look at teachers that have already been down the road of trying Minecraft. I will argue that they fit the model of 'designer' as anticipated and the entirety of their communication, across cases, is that of designers, not employees or conservants. Together they paint a picture of what technology adoption looks like in practice for designers. These teachers are, of course, exemplary cases and unique in the profession, but they present evidence that exemplary teachers think of themselves primarily as designers.

Finding Minecraft Teachers

Very quickly[3], with the help of existing Minecraft networks and mailing lists[4], I was able to begin to find and identify teachers that use Minecraft for teaching and learning. As teachers contacted me, I began to filter cases by asking them to share how they used Minecraft in the classroom via e-mail.

Most of the teachers had tried using Minecraft or were just preparing to use it, but I was particularly interested in talking to teachers that were already using Minecraft for: 1) a second (or more) class rotation, 2) across a variety of ages, contexts, and subject areas, and 3) were original in their usage of Minecraft. Thus, of the many educators that responded, seventeen of them stood out as a purposeful sample for learning experience, diversity, and innovation.

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[3] A formal overview of the study, participant selection, methodology, and analysis will be published separately.

[4] Thank you Joel Levin, GLS, and Mojang!

Participant Educators Using Minecraft for Learning

COUNTRY	SCHOOL	YEARS XP	LEVEL	SUBJECT	GENDER	USE OF MINECRAFT?
Denmark	Alternative	9	HS	English	M	Island
NC, USA	Rural	14	K12	IT	M	State Sites/Open
Australia	Rural	8	HS	Science/Math	M	Community
NY, USA	Urban	10	E/MS	Computer	M	Various
MD, USA	Urban	8	MS	Computer	M	Hunger Games
VT, USA	Rural	19	MS	SocialStudies/ Language Arts	M	Various
Kuwait	Private/Suburb	4	MS	Social Studies	M	World of Humanities
NC, USA	Rural	6	MS	Art	F	Force/Velocity
Australia	Urban	30	K12	Extra-Curr.	F	Sandbox/Free Play
WA, USA	Suburb	-	ES	Extra-Curr.	M	Civics/Free Play
NY, USA	Private/Urban	17	MS	IT	M	Building Ziggurats
Canada	Urban	21	MS	SS/Math/Lang.	M	Math
NJ, USA	Suburb	10	ES	Extra-Curr.	M	Sandbox/Free Play
NJ, USA	Private/Urban	-	ES	Extra-Curr.	F	Sandbox/Free Play
Canada	Urban	5	ES	Language Arts	M	Writing
Canada	Suburb	16	ES	Library	F	Writing
Canada	Urban	10	ES	Library	F	Writing

Thankfully teachers are, in my experience, a sharing, helpful, and generous lot. All seventeen were willing to participate[5] in the full interview process and be identified along with their comments. Most can be found online if you want to compare notes with them too.

[5] A small data point that suggests they are neither resistant or stagnant.

Gathering Teacher Stories

With a review board approval and volunteers identified, it was time to talk. I chose to use a narrative analysis approach - used in a previous study of award winning teachers (Dikkers, 2012). This study is an effort to reflect the work of identity psychologist, Dan McAdams, who uses narrative analysis methods to unpack a participants sense of identity, self, and their perception of relevant events. As people develop a sense of self, they remember key narratives, or a 'life story', marked by selected milestones. McAdams shows this expertly in his interview capturing G.W. Bush's (2011) perception of his redemptive self, as data. When people tell stories, they are already selecting stories, from endless non-relevant experiences to expertly filtered relevant ones.

> "The story spells out how you believe you have developed over time and where you think your life is going… Furthermore, much of what we remember relates to our current situation and *future* goals. If I plan to become a physician, I may have very clear memories of learning science and helping people when I was a child."
> (McAdams, 2006, pgs 86-88).

… or, if I am being interviewed about how I can use Minecraft in the classroom, I remember vivid memories of learning Minecraft and share pertinent stories that convey a professional self to the interviewer that is interested in Minecraft.

After preliminary questions and demographic information, I asked participants about their MC use:

- Why you were attracted to MC and how did you begin to use it?
- Talk about your first use of it with kids.
- What results you have seen, and what do you see as the potential of MC for learning?
- What advice do you have for using Minecraft effectively with learners?

These questions were followed up with probing questions to gain clarity on story points. Interviews lasted about forty-five minutes to an hour. I transcribed audio to text and participants were able to read over the interviews and correct, change, or edit any of the content to make sure it read like they meant it. On two occasions, participants used this post-confirmation process to add details.

Though I am not as interested in the self-generating identity of these teachers, I am interested in what they see as key to their development. Their expertise makes their opinions relevant and their stories of learning useful - especially if we see any indication that there are

patterns. Across cases, these 'Minecraft stories' may help us to identify both professional development and classroom designs that help you use Minecraft in the classroom. Using narrative analysis provides a method, slightly adopted, to study teacher growth and self-perception of professional development.

Organizing Teacher Stories

After the interviews were concluded, myself and interested graduate students began to read and review the transcriptions and sought out common stories. We proceeded with three reviews, or phases, of analysis:

Phase 1 - Review and theme building

Phase 2 - Coding data and sorting

Phase 3 - Cross-case analysis

Phase one analysis was to start asking questions of the data to see if there were direct themes. The data pointed to key story elements across teachers. Teachers explained: 1) How they learned about new media technologies; 2) How they validated the use of Minecraft; 3) Design trials and testing efforts they made when they first tried Minecraft; 4) How they refined ideas; and 5) Perceptions of 'best' practices that may work for other teachers.

Phase two used phase one themes to re-read all of the interviews and coded them for stories that answered the questions. We gathered all stories for each theme and built descriptive lists of 'answers' given by teachers, compared lists, and began to make cross-case narratives to be tested in phase three.

Phase three reviewed all data according to themes and looked for patterns and common threads across cases. We also attempted to create common language around the prevalent stories to share them as findings. Coding efforts were to document these stories and accurately 'let the teachers speak for themselves'.

This work is not conclusive, or an indicator of larger populations of teachers, nor should it be. Similar to ethnography, the goal here is to fully understand how these particular teachers learn, grow, and have opinions about using Minecraft. Why look at other teachers? Because they are expert designers and each choice can inspire other designers. This work looks at effective practicing professionals because the work itself is a form of art. The rest of this book, then, is a kind of gallery.

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