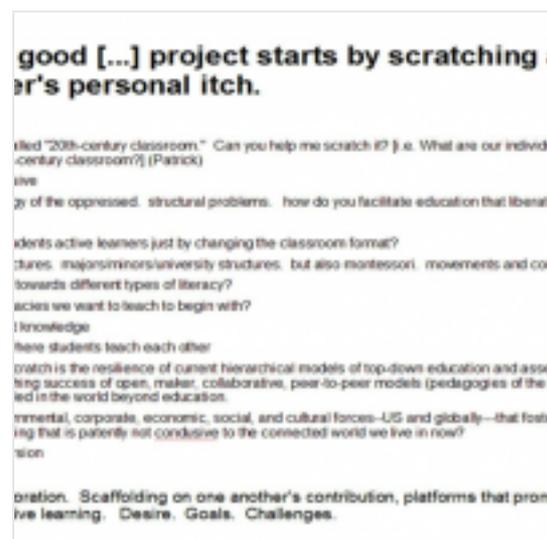
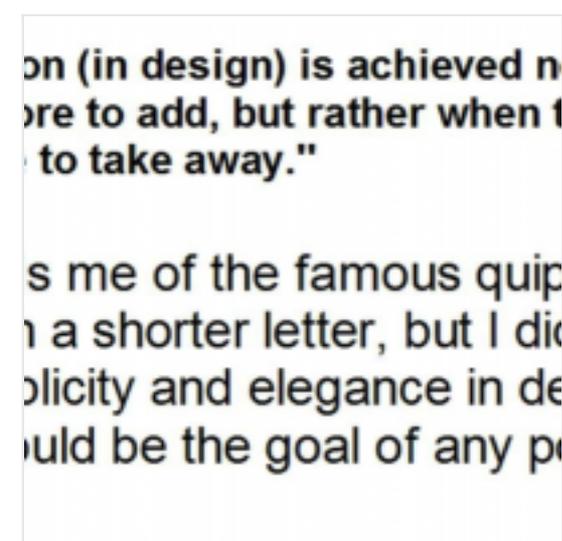


# Chapter Two: From Open Programming to Open Learning: The Cathedral, the Bazaar, and the Open Classroom

As mentioned in Chapter One, we wanted our class to be a community—a group of learners with shared interests who participated actively in defining the course of our own education. To stay connected to one another throughout the week, we turned to social media and Google Docs as a way to collaborate asynchronously outside of the classroom. One of the first questions raised was what hashtag to use, and the group eventually agreed on “#Duke21C”, which linked our conversation to other Duke classes while also abbreviating the specific title of our class: 21st Century Literacies: Digital Knowledge, Digital Humanities. Each week, a different student or group of students chose a topic and facilitated discussion around that topic. We (Barry and Elizabeth) chose to focus on “The Cathedral and the Bazaar” in the context of open learning.



**Figure 3:** Annotated slide # 1.



**Figure 4:** Annotated slide # 13.

One factor leading to boredom and lack of energy in the traditional classroom is the way that learning is

perceived by students as a passive activity—a thing that happens to them. What they learn and how they learn is decided by someone else, without considering what they care about or what they want to learn. Part of the idea of opening a class comes from giving students the opportunity to influence the course, and when they exert this influence, they inevitably effect some change to the course that they can take ownership of. In #Duke21C, one of the first concerns raised by a student was the question of which hashtag would be used on Twitter for the class backchannel. Suggestions were made and another student's suggestion became the official choice. Yet another student suggested that the final class project be an e-book, which led to the creation of the *Field Notes*.

The students who made these suggestions used Twitter extensively outside of the in-person meetings because they took ownership of the fact that they influenced the course. This gave them a reason to participate in the backchannel and in the course. When students are invested enough in a class to suggest changes to it, and those suggestions are taken seriously, it reinforces their reason to be invested in the course. Raymond argues that inviting customers to contribute to the development process gives developers insights that help make products better. We argue that this principle holds true even when the customers are students, the developers are teachers, and the products are educational experiences.

Why? We want our students to feel confident about their ability to engage in conversations—or areas of research, or professions—that interest them. Regardless of the subject matter we teach, a primary goal is preparing students to jump in to cooperative working environments, contributing what knowledge they have and locating new information that can help the group as a whole become more productive. In other words, we believe that just like their teachers, 21st century students have a vested interest in becoming facilitators and collaborators. Open source style classrooms offer them the opportunity to practice these “soft” skills that become critically important later in life. To make this work, both teachers and students must learn to champion good ideas that they themselves did not originate—as Raymond puts it, “[The next best thing to having good ideas is recognizing good ideas from \[others\]](#).” Similarly, openness requires knowing not only what to write, but what to rewrite and reuse. Here, the knack is to assess the project at hand with an eye towards what you might be able to contribute. The next step is to identify what else you could do to help the group succeed—which might involve gathering new information, mediating minor disputes, generating new ideas, or all of the above.

## **Learning to Improvise**

In principle, this process bears strong resemblances to improvisational comedy. We argue that the ability to improvise in a constructive and collaborative way is a 21st century literacy. In improv, this ability is cultivated by following what's known as the “yes-and” rule. Stephen Colbert described the rule in a [commencement speech](#) he gave at Knox College:

You have to be aware of what the other performer is offering you, so that you can agree and add to it. [...]

By following each other's lead, neither of you [is] really in control. It's more of a mutual discovery than a solo adventure.

Part of the difficulty in learning to improvise is that like performers on stage, we are often afraid of embarrassing ourselves. Because of this, our first instinct may be to rehearse in private, or to hide a project away until we have perfected it to the point that we are proud about, or at least relatively comfortable with, letting other people see it. Most schooling proceeds in this way, as does most academic research, at least for the moment (although we are interested that scientists in particular are beginning to share their data and their preliminary results online before official publications are completed, allowing for others to draw on and expand their work). But in the workplace, our success regularly depends not only on our own work, but also on our ability to collaborate with others.

### **The Expert Blind Spot**

Open source advocates assert that their model produces more secure and effective software, as embarrassing (and even [malicious](#)) bugs can be remedied before being used by the world. When someone who is so familiar with their domain works on a project, they often can't see the forest through the trees, a phenomenon referred to as the "expert blind spot." The open model that encourages users to repair major security holes and minor typos creates a counterbalance for this blind spot.

Teachers often know their material so thoroughly that, despite their pedagogical training, they may find it difficult to place themselves in the situation of the students they are trying to relate to. With some coaxing, students can provide valuable insight into how effective a teacher's methods are, and potential ways to improve it. The student is the one who has most recently struggled with the material, and may be in a better situation to comment on the challenges their peers are facing than the teacher.

Throughout "The Cathedral and the Bazaar," the theme that is persistently repeated is that the success of software developed using the Bazaar model of open source comes from giving the users (or customers) a more active role in the development of the project. In education, students could well be considered primary users of the system. So, what does making education open and giving them a voice entail?

### **The Open Syllabus**

In many ways, #Duke21C was open source in the classroom applied to its logical extreme. Being a student in the course felt like beta-testing an unreleased piece of technology. Cathy demonstrated one way of getting around the expert blind spot when, two months before #Duke21C took place, she posted an [announcement on her blog](#) with a rough draft of the syllabus for the experimental course and a rough

idea of what we were going to do the first day. A month later, she followed up by posting [a more fleshed out plan](#) for the course, going so far as to strike out the entire first draft, leaving it online for others to see that the document was malleable and open to change.

What was to gain by releasing this syllabus before it was finalized? For starters, it served as an excellent way to advertise the course. In fact, this is how we—two students in another university—learned about the course in the first place. [Richard Lanham](#) and others have argued that attention is the currency of the information society. In this articulation, teachers, whether they like it or not, must compete with the Internet and many other distractions for students' attention. Openness offers an opportunity to allow students to negotiate what the course will be worth for them. People are more willing to pay that valuable attention to something that they perceive having ownership over; similarly, when they have a say in the course design process, students are more likely to devote their attention to the class.

By showing students a course plan in progress, and noting that it is subject to change and open for comment, teachers can allow students to begin taking responsibility for the course even before it begins. Release early, release often, and listen to your customers.

### **Other Examples of Open Classrooms**

The #Duke21C experience was a radical exercise in openness, but there are also more subtle ways that teachers can facilitate openness. For example, having students keep blogs or use social media in the classroom. I (talking as Barry for a moment) was teaching the lab component of a junior-level software engineering course at NC State University at the time. While most of the lab activities are prescribed in advance by the lead instructor, there are some labs that are simply marketed as “working days.” I knew from experience that an entire two-hour lab period marked “work” wouldn't actually be spent doing “work,” and after taking one such period to teach them about a piece of technology I thought was important, I opened the floor to suggestions from students: if they wanted me to address something different during one of these labs in the future, I would put a short presentation together and cover it. As a result, we discussed various topics on a few of the lab days reserved for working, even including a short discussion on how Bitcoin worked, and I was able to give students an opportunity to turn the class into something that they could use to further their own inquiry into topics they were interested in.

One of the biggest fears about working out in the open is the fear of having students' unpolished and unprofessional work rejected by the world. Steve Joordens, a professor at University of Toronto, gave his introductory psychology students the chance to participate in working on the poster child of openness, Wikipedia. When Wikipedia editors noticed this flurry of activity coming from a single institution, they complained that Joordens's project overwhelmed their quality control system, and that student contributions were riddled with errors (Hoffberger). In covering the story, news outlets often focused on

this controversy instead of the project itself (McQuigge). However, Joordens was able to work with the editors and convey his point, reaching an amicable compromise with the editors' concern for quality and reliability, and providing a shining example to his students about how to collaborate with others in the global sphere. Professors worry about the effect that rejection will have on students' self-esteem, and it can be scary at first. But having one's work critiqued by others with no personal connection to the student is an excellent learning experience. Joordens's assignment, for example, allowed students to write for real-world audiences in real-world contexts—an experience that too few other students are able to enjoy before joining the workforce.

## **Conclusion**

The lecture model, and traditional education more generally, assumes that control is a prerequisite for quality. Eric Raymond uses open source to demonstrate that this is not the case in the software world. The key question is whether Raymond's argument holds true in other sectors, especially education. Are education and software development sufficiently similar to assume that the principles of open source are transferable?

Raymond's essay shows that the essence of what makes the Bazaar model successful isn't the fact that making code publicly available magically makes it better. It's that *giving customers a say in the development process and recognizing them as valuable team members helps give the developers the insight to create the tools that their users need and want*. Even projects that aren't technically open source still market their tools in this way by having public beta tests to identify how users actually make use of their tools.

Opening the classroom doesn't necessarily mean that the whole world will join you. When we released our manifesto, very few people actually edited the document. It was open, but people not in the class were not really our users, and only a small number found a reason to buy in. When we shared our empty slide show with the class, our classmates took the invitation more in earnest since it was their class, and they were specifically the users that were going to be taking part in this experience. At the same time, it's also not unusual that some "strangers," including Giulia Forsythe, did take part, since "The Cathedral and the Bazaar" is a favorite work for many open source developers and advocates, who are likely to see any discussion of it as something that they should take part in. We suspect they may be willing to join your classroom, too.

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