

The Classroom and the Computer Screen

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In our brave new world of screens and keyboards, teachers are finding novel ways to reach students. The term “classroom” is far more complicated than it once was. Presented with communication options that were unavailable only a few years ago, educators at all levels—from elementary teachers through doctoral supervisors—are casting off the brick-and-mortar settings that have framed their interactions with students for millennia. What are we to make of it all? Are there advantages to online education? Drawbacks? Are some forms of online education superior to others?¹

Those who promote online learning point to the internet’s uncanny ability to overcome the limitations of time and distance. They rightly note that today’s teachers and students need not be in the same town, region, or even in the same hemisphere, to interact with one another. They highlight opportunities that mark a recent chapter in what is actually a long history of communication technology, a history that began with clay tablets, then papyrus scrolls, and continued through the printing press, telegraph, telephone, radio, television, and now the internet. Each historical development, in its own way, helped users to overcome the constraints of time and distance, and educators have taken advantage at every stage. Proponents of online learning boast that, if your local teacher is an uninspiring half-wit, a master teacher could be as near as your laptop. Do you want to read the *Aeneid* in Latin, but nobody in your community has the chops to teach you how? No problem; you can find a Latin guru online. Some purveyors of online education will tell you that, because they can connect you to expert teachers just about anywhere on the planet, they deliver a better product than what you can find in your local school, where the pool of teaching talent is far more limited. Even better, they promise you an education that is more closely tailored to your beliefs and values.

These folks have a point. Baseball—that great cultural bellwether—illustrated this principle back in the 1950s. As television came of age, fans began watching big-league ballgames from the comfort of their living rooms instead of the hard bleachers at their

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town ballparks. This trend struck a blow to ticket sales in minor league ballparks across the nation.² Why buy a ticket to watch what's-his-name of the hometown Joplin Miners, when you can sit at home in your comfy chair and tune in to Joe DiMaggio of the New York Yankees? Today's online educators apply this principle to learning: if great literature were a fastball, wouldn't you rather learn Dante's *Divine Comedy* from the likes of DiMaggio than from what's-his-name from Joplin? Such reasoning would suggest that online classrooms beat out their brick-and-mortar counterparts. Indeed, this is why many students today (or their parents) choose an online education over a local school.

Despite television's capacity to draw audiences away from local minor league games, it could not wipe out the minor leagues altogether. Though many ball clubs—and entire leagues—folded in the 1950s, others still persist even today. For no video screen can capture the buzz of a crowd, the green expanse of a manicured field, the crack of a bat, or the smell of hot dogs and pretzels. Indeed, television broadcasts miss key aspects of the live experience, and most of us today acknowledge the tradeoffs. Does the internet introduce similar tradeoffs in education? If so, and given the important place of education in a student's preparation for life, we need to examine these tradeoffs closely. The first step is to identify principles that underlie sound teacher-student interaction, regardless of educational format. Once we settle these principles, we can then ask how the varieties of virtual teaching might translate into real student learning.

Sympathy and Fellowship

Augustine identified sympathy as a key to effective teacher-student interaction. What is sympathy? Consider how we give very little attention to everyday objects, but in the company of a little toddler, everyday objects become new to us. We may mindlessly

² See pertinent findings from congressional inquiries in the 1950s: United States Congress, Senate Committee on Interstate and Foreign Commerce, *Broadcasting and Televising Baseball Games: Hearings, Eighty-Third Congress, First Session, On S. 1396. May 6, 7, 8, 11, and 12, 1953* (Washington, DC: U.S. Govt. Printing Office, 1953); and United States Congress, House Committee on the Judiciary, Subcommittee No. 5, *Organized Professional Team Sports: Hearings Before the Antitrust Subcommittee, (Subcommittee No. 5), of the Committee On the Judiciary, House of Representatives, Eighty-Fifth Congress, First Session On H.R. 5307, H.R. 5319, H.R. 5383, H.R. 6876, H.R. 6877, H.R. 8023, H.R. 8124, Bills to Amend the Antitrust Laws to Protect Trade And Commerce Against Unlawful Restraints and Monopolies. June 17, 19, 20, 24, 25, 26, July 17, 18, 19, 24, 25, 31, August 1, 7, and 8, 1957* (Washington, DC: U.S. Govt. Printing Office, 1957).

walk past a fallen leaf lying on a sidewalk, but if a little child is with us—especially one who is dear to us—we find ourselves pausing at the leaf, lingering over it, and taking pains to arouse the little person’s wonder at it. The more the child takes interest, the more invested we become in both the child and the leaf. When we open the child’s eyes to the leaf, we open our own eyes to it in a fresh way. This is sympathetic love, the force that draws teachers and students to one another. This powerful force pushes teachers to deliver great lessons. Augustine explained the principle in his treatise on catechizing:

[We teachers] often feel it very wearisome to go over repeatedly matters which are thoroughly familiar, and adapted (rather) to children. If this is the case with us, then we should endeavor to meet them with a brother’s, a father’s, and a mother’s love; and, if we are once united with them thus in heart, to us no less than to them will these things seem new. For so great is the power of a sympathetic disposition of mind, that, as they are affected while we are speaking, and we are affected while they are learning, we have our dwelling in each other; and thus, at one and the same time, they as it were in us speak what they hear, and we in them learn after a certain fashion what we teach.³

Augustine believed that effective education occurs when teachers and students “have their dwelling in one another.” Here lies the root of sympathy. The best teachers craft lessons that allow them to enjoy the material vicariously through their students. If students do not embrace the lesson for themselves, their teachers miss out on the vicarious enjoyment they seek. Good teachers will keep at it, searching for ways to make the lesson grip their students. Thus they read their students constantly, alert to signs of the lesson written upon them. This explains why good teachers place demands upon their students: because teachers cannot read students who are inert, they induce students to digest, perform and display what they are learning. Good teachers enjoy knowledge most when they re-experience it through their students’ discoveries. By means of a student’s performance, a lesson becomes new in the eyes of even the most learned and seasoned teacher. Here is sympathy at work.

In order to assess the fitness of any communication medium for educational use, we must consider its capacity for promoting sympathy between teachers and students. Does the medium allow teachers and students to read one another and then react? It

³ Augustine, “On the Catechizing of the Uninstructed,” in *St. Augustine: On the Holy Trinity, Doctrinal Treatises, Moral Treatises*, trans. S. D. F. Salmond, vol. 3, The Nicene and Post-Nicene Fathers, First Series (Grand Rapids, MI: Wm. B. Eerdmans Publishing Company, 1956), chap. 12.

must enable students to exhibit what they have internalized from the lesson. They should be able to re-create the lesson on their own steam and display the lesson their own way. The medium must allow students to lay their contribution before a teacher in order for the teacher to react—to adjust, clarify, improve and ultimately seal the lesson upon their students. A second question we need to ask is this: Does the medium allow students to observe how the teacher reacts to their work? Students learn better when they see that their own performance makes an observable difference in the way their teacher acts toward them. These two questions point to the fact that, in a sound education, students and teachers need to read one another and react. Any communications platform that inhibits this sympathetic interplay between teacher and student has, at most, only limited potential for facilitating effective lessons. As Augustine put it, such a platform squanders “the power of a sympathetic disposition of mind.”

The first principle of an ideal education, sympathy, addresses the teacher-student relationship. A second principle, the principle of fellowship, considers how students relate to one another. In an ideal education, students study in the company of other students. This principle acknowledges that both cooperation and competition are keys to learning. The fellowship of comrades-in-learning not only builds a student’s perseverance to push past obstacles, it also cultivates ambition that summons her to high achievement. The principle also recognizes how the presence of others provides a student with the traction she needs to assess herself. While there is value in one-on-one interaction between teachers and students, even the best private tutors cannot supply the competition and cooperation that students can experience within the fellowship of a cohort.

Quintilian, the great Roman teacher, promoted the principle of fellowship in education. He argued for the principle by exposing the shortcomings of an education delivered to one lonely student. This is the student who is cast away to his own educational island; he learns from his own private teacher, away from the company of fellow students. Quintilian called him “the pale student, the solitary and recluse,” and contrasted him with students privileged to study as part of a cohort. The practice of

withdrawing a student from the presence of other students “induces languor,” Quintilian warned,

and the mind becomes mildewed like things that are left in the dark, or else flies to the opposite extreme and becomes puffed up with empty conceit; for he who has no standard of comparison by which to judge his own powers will necessarily rate them too high. Again when the fruits of his study have to be displayed to the public gaze, our recluse is blinded by the sun’s glare, and finds everything new and unfamiliar, for though he has learnt what is required to be done in public, his learning is but the theory of a hermit.⁴

Quintilian understood that the fellowship of a cohort provides the comradery needed to ward off the dullness of learning alone. It also motivates a student to excel by driving him to outdo his peers, or at the very least, by working to keep up with them. Through fellowship with others, a student also sees a lesson through the eyes of other students, which provides depth and breadth to his understanding. More than that, because he identifies with the perspectives of the fellow students around him, he is moved by the praise and correction the others receive from the teacher. Quintilian nicely brought these points together when he explained why fellowship induces healthy ambition:

Further, at home he can only learn what is taught to himself, while at school he will learn what is taught others as well. He will hear many merits praised and many faults corrected every day: he will derive equal profit from hearing the indolence of a comrade rebuked or his industry commended. Such praise will incite him to emulation, he will think it a disgrace to be outdone by his contemporaries and a distinction to surpass his seniors. All such incentives provide a valuable stimulus, and though ambition may be a fault in itself, it is often the mother of virtues.⁵

This principle of fellowship, like the principle of sympathy, is fundamental to effective education.

The best learning environment is one that supports these two principles: fellowship among students, and a sympathetic relationship between teacher and student. Of course, an education could lack such qualities for reasons other than the communication medium. Often poor teachers are to blame—teachers who lack either a capacity for sympathy or the imagination to design effective lessons. Too many brick-and-mortar classrooms are sites of poor education simply because teachers fail to utilize

⁴ Quintilian, *Institutio Oratoria: Books I-III*, trans. H. E. Butler, vol. 1, Loeb Classical Library (Cambridge, MA: Harvard University Press, 1980), I.ii.18-19.

⁵ Quintilian, *Institutio Oratoria*, I.ii.18-22.

the pedagogical opportunities at their disposal. Another culprit that curtails sympathy and fellowship might be an oppressive regime of badly-crafted regulations that hem in a teacher's freedom to practice his craft. Administrators, school boards, government officials and legislatures often overregulate today's classrooms and hinder the very education they purport to serve. Administrators who choose the path of least resistance would rather change out textbooks, scopes and sequences, and rubrics, instead of mentoring and correcting weak classroom teachers. They prefer neat and tidy curricular change because it is largely impersonal, and remain averse to managing teachers because such personal work demands wisdom and tact. These weak administrators use bureaucracy to compensate for their own inadequacy; they remain within the comfortable confines of their office desk, and reach into classrooms with the long arm of overly-detailed curricular demands. Capable administrators, by contrast, understand that teaching is a personal activity, so they will step into messy classrooms and mentor the novice teachers they oversee. But wherever we find teachers who are skilled in their craft, and where they are allowed the freedom to practice it, physical classroom spaces are proven venues for excellent education. How does online education measure up to physical classrooms?

Educating vs. Spectating

Some purveyors of online education offer their students a spectator experience, somewhat like the experience of watching televised baseball. They capture the voices of intelligent, articulate scholars on audio or video, and deliver the audio or video to a student's computer. This has some value; even Yogi Berra acknowledged that you can observe a lot by watching. Student-spectators can learn from watching videos about history, literature, science, mathematics, and a host of other subject areas—especially videos featuring great teachers. Some enterprising folks group many such videos into a series and refer to the resulting package as “a course.”

Such videos (and video courses) supply one key benefit that comes from communication technology: they capture faraway scholars and place their voices and images conveniently onto the computer screen in front of you. But these videos also reveal the limitations of video recordings. Any teacher whose performance is captured on video does not engage sympathetically with students who view the video. The

teacher's actions are recorded for playback on screen and speakers, and thus can never adjust for the student-viewer. The teacher's performance remains the same, regardless of whether it is played back for one student or for thousands. Student-viewers contribute nothing to the lesson; they are entirely passive. How could a prerecorded teacher even know if a viewer is paying any attention, let alone grasping the lesson? This teacher cannot read her students' responses to the lesson, much less adjust to those responses.

Any education that gives a central place to prerecorded videos—where playback is the primary mode of instructional delivery—is one that replaces teaching with performing to a camera, and treats students as unseen viewers. The relationship between a recorded performer and his unseen viewers does not provide the sympathetic interaction that is central to a sound education.

Admittedly, live classes in conventional brick-and-mortar settings can succumb to the same problem. For example, I have spent entire semesters in large lecture halls where hundreds of students assembled into an undifferentiated, faceless mass. Such impersonalism may suit a keynote address, but it fares poorly as the mainstay of a classroom routine. I have also experienced instructors who possess the charisma of a doorknob; they plodded through their well-worn notes with no apparent awareness that other humans are present. These examples show that the internet is not the only educational medium where sympathy and fellowship can be hindered

Even though video recordings, by themselves, cannot do the sympathetic work of great educating, they can serve as useful tools in the hands of effective teachers. A “live” teacher might assign prerecorded videos to her students as a precursor to meaningful interaction. This is the “flipped classroom” approach, where student-to-teacher and student-to-student interaction occurs *after* the students complete preparatory work on their own. Instructional videos supply fodder for the students' preparation. In so-called flipped classrooms, an effective teacher might utilize videos in much the same way she utilizes readings and problem sets. Here the performer—the person captured on the video—does not shoulder the burden of delivering the lesson, which is a burden that can never be carried by a recorded performance. That responsibility falls to the live teacher who assigns the video as a resource. Ideally, a live teacher will treat the video as a tool

that supports her own interaction with the student cohort, interaction that facilitates sympathy and fellowship.

Varieties of Interactive Learning

Some purveyors of online education understand that prerecorded videos offer no human interaction. They may address the disengagement between recorded performer and viewer by stepping up the demands they place upon students. They require students to do more than simply watch; they prompt students to answer questions, solve puzzles or play games. Some online video courses include quizzes and tests, and do not allow students to advance to the next screen until they input the proper responses. Computers can also tally students' responses and generate a report of their progress. Because such courses demand student input, many refer to them as "interactive." But interactive with what? With a human teacher? A computer program? A well-designed program or a poorly-designed one?

Some interactive courses are designed well; others are not. In too many cases, interactive features are mere gimmicks to make sure students are awake. I once reviewed an online humanities lesson on Renaissance art that illustrates this very problem. (The lesson's producer promoted it as a sample of a supposedly great curriculum.) The lesson began with several minutes of prerecorded information, and then displayed a mess of jigsaw-shaped pieces with an instruction for students to select and arrange the pieces using a mouse. The puzzle pieces, when arranged properly, formed a famous Renaissance painting. What was the educational purpose of this task? The student, by completing the task, came away with no better grasp of the history of the painting, its painter, its context, its subject, nor of the artist's use of color, space, or perspective. So far as I could tell, the purpose of this task was simply to give the student a task. This example shows how some educators have capitalized on new computer technology to come up with new forms of pointless busywork. The lesson may have been "interactive" in some sense, but it displayed poor pedagogy. Poor teachers have been assigning pointless busywork in conventional classroom settings for generations; now some of today's online educators have joined their ranks. Unfortunately, some customers of online education rightly criticize the busywork that can degrade a conventional classroom, yet they cast aside their better judgment whenever video

monitors and graphics are involved. Poor pedagogy does not become good pedagogy simply because it is delivered through a computer.

Other interactive courses are better. They drill students by quizzing them on key terms and concepts. Well-designed questions can add clarity and focus to the lesson, and they can reinforce concepts through review. Most of these tasks are computerized versions of worksheets, though by clever graphic design and creative formatting, online providers can mask their fundamental similarity to old-fashioned paper worksheets. Besides their clever design, these quizzes have an additional advantage over paper worksheets in their capacity for providing immediate feedback: a computer program can immediately inform a student whether he answered a question correctly or incorrectly. These interactive courses, when designed with well-crafted prompts, overcome the problem of student passivity that besets video courses of the performer-spectator type. They can be especially helpful for the type of learning that calls for drill and memorization.

The downside to this sort of interactive lesson—even the better-designed ones—is that the interaction they boast of is robotic and impersonal. These lessons still lack the living presence of a teacher (or computer programmer) who invests in the success of particular students known to him. Promoters of these automated courses expose their lack of meaningful teacher-student interaction when they advertise that students can progress *at their own pace*. Such courses are “self-paced” only because students and teachers will never interact with one another, leaving no need to set deadlines or coordinate calendars. Self-paced courses do fit with a profitable business model. Those who build them can make a one-time investment in a teacher (and programmers) to create lessons on the front end; then they sell their canned product to buyers without having to bother with the teacher ever again. They can grow their student enrollment without growing their faculty. The tradeoff comes at education’s expense, for canned courses—automated and “self-paced” courses—do not foster either sympathy or fellowship. Sympathy and fellowship are qualities of human interaction, but not of robotic interaction.

While canned lessons deliver a weak education by themselves, they might serve as helpful components that skilled teachers fashion into great lessons. For example, in flipped-classroom settings, students might complete a self-paced lesson in preparation

for a later activity that demands interaction with the teacher and with other students. Here, automated interactive lessons function much like conventional reading assignments or problem sets: they direct a student's preparatory work outside of class, work that sets the stage for personal interactions in class. Canned, automated lessons—like conventional textbooks and worksheets—might play a peripheral role in a decent education, but no sound education features them as a mainstay. Wherever canned lessons play a central role, they push sympathy and fellowship out to the margins. Thus teaching and learning are compromised.

Another way online educators inhibit sympathy and fellowship is by relegating the interactive elements of a course to a hireling. Such a course might feature a master whose teaching performance has been captured on video. (The higher the master's celebrity profile, the more useful he is for marketing the course). Yet students never interact with moving images of this master; they deal instead with a faceless course administrator or a hired grader, someone tasked to mark and tally the students' submissions. Too often these administrators are interchangeable employees, and they act less like teachers and more like semi-skilled laborers on a factory assembly line. Many online schools, including colleges and universities, design courses to operate this way. They capture a seasoned scholar on video, add tasks for students to complete, and then hand over all human interaction to a teaching assistant (or to a team of assistants). Such courses, like assembly lines, can be efficient to manage and yet they make poor settings for the cultivation of sympathy and fellowship. The value of these courses varies widely; they should not be measured by the mastery of the teacher who appears on video, but rather by the competence of the course assistant along with the regularity and quality of his interaction with students.

Some manifestations of online education genuinely succeed in fostering sympathy and fellowship. These principles are active wherever teachers and students actually engage one another—where students react to teachers, teachers react to students, and students react to one another. Today's communication technology facilitates such interaction using video feeds, voice connections, chat boxes and discussion boards. Effective teachers know how to utilize this technology well: they design lessons that require students to respond to the teacher and to one another, and then the teacher intervenes with corrections, adjustments and refinements. Finally, such

lessons allow students to display their improved understanding—understanding that follows upon both their teacher’s interventions and responses from their fellow students. These lessons foster true learning.

The principles of sympathy and fellowship undergird all effective lessons, but in their application they never reduce to one simple lesson formula. Just as brick-and-mortar classrooms can accommodate a variety of effective teaching methods, so can online media. Professionals have categorized the various online lesson formats into two basic kinds, synchronous and asynchronous, differentiating them by whether or not interaction occurs in real time. Synchronous lessons require teacher and students to gather online at the same time, whereas asynchronous lessons do not. Both kinds have advantages and disadvantages, and those considering online education should weigh the tradeoffs.

The advantage of synchronous lessons lies with the immediacy of real-time interaction, which allows for quick adjustments, clarifications and refinements as people engage one another. Synchronicity also allows for spontaneous human moments—flashes of surprise and wit that rely on quick timing as a teacher and students play off one another. Such banter fosters sympathy and fellowship, which is an asset to this type of lesson. The drawback to synchronous lessons is their fixed scheduling: they require teacher and students in different circumstances (and time zones!) to harmonize their schedules. This is less a concern for younger students than for those pursuing college degrees online. Mature students—especially graduate students—rely on the flexibility of online education, flexibility that minimizes disruptions to their important routines of work, family and community.

Asynchronous lessons have the advantage not only of flexibility, but also of greater leisure which allows for depth of reflection and robust involvement from every individual in a class. They allow teachers and students a little time to absorb concepts and collect their thoughts before they react to one another, and also to exercise care in how they express their ideas. Asynchronous lessons allow the mutually-supporting actions of reading, reflecting and post-writing to reinforce one another in the learning process. Also, because asynchronous lessons are not hemmed in by the time constraints of a class session, they allow conversations to reach fruition rather than being cut short by the end of a class session. These same time constraints also tend to limit each

individual from getting his full say, whereas asynchronous lessons allow robust participation from every student. Thus, what asynchronous lessons lack in classroom banter they can make up for with more thorough reflection and better participation from each individual.

Synchronous and asynchronous online lessons are different, but these differences do not point to a general conclusion that one approach is inherently superior to the other. Some situations may favor one or the other, so those considering an online education should weigh the tradeoffs in light of their own circumstances. Nonetheless, both approaches can support meaningful interaction that is essential for sympathy and fellowship to flourish.

Teaching and Learning Online

When computer technology facilitates human interaction, rather than getting in the way of human interaction, its prospects for education are promising. Indeed, teachers and students today can enjoy a decent education online, for technology has a capacity to facilitate a measure of sympathy and fellowship. Yet this capacity—promising as it is—remains hemmed in by the limitations of fiber-optic wires, dish antennas, wireless routers and video monitors. Physical classroom spaces do not share these limitations. They can capture the embodied charisma of a teacher, the brisk hum of group productivity, the intensity of ideas forthrightly expressed, the surprise of knowledge freshly gained, the shared experience of pains and rewards that accompany academic discipline, and the personal idiosyncrasies of every individual present. These ingredients produce the sympathy and fellowship of a great education. Nothing can ever match a living and present human body. Thus, online classrooms, even at their best, will always fall short of an ideal education. Brick-and-mortar classrooms often fall short too, despite their greater capacity for meaningful human interaction. The perfect education will elude most of us, but as we consider the options we face in the real world, the principles of sympathy and fellowship help us sort through them.