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Word and Image in Online Education*

Andrew Feenberg

My adventures in distance learning

Once the stepchild of the academy, distance learning is finally taken seriously. But not in precisely the way early innovators like myself had hoped. It is not faculty who are in the forefront of the movement to network education. Instead politicians, university administrations, and computer and telecommunications companies have taken the lead. But proposals for a radical “retooling” of the university emanating from these sources are guaranteed to provoke instant faculty hostility.

This is a story about my role in the recent transformation of distance learning from pariah to standard. The drama unfolds in the late 1990s when I found myself in the paradoxical position of defending my own understanding of distance learning against both its foes on the faculty and its advocates in the administration.

In 1981 I worked on the design team that created the first online educational program. This was the School of Management and Strategic Studies at the Western Behavioral Sciences Institute in La Jolla, California (Feenberg, 1993; Hamilton and Feenberg, 2005). The school offered courses taught by humanistic social scientists addressing major issues, such as globalization, environmentalism, urban planning, philosophy of technology, and so on. For nearly ten years, I helped with the operation of the school, trained teachers, and myself taught courses in it.

At the time online education was essentially untried. The equipment was expensive and primitive. We used Apple IIE’s with 48K of memory and 300 baud modems. (Multiply by 1000 and 100 respectively to get current averages.) The complexity of basic computer operations in those days was such that it took a full page of printed instructions just to connect. A variant of e-mail called computer conferencing was the only available electronic mediation.

Computer conferencing was suited to our application since it facilitated the sort of many-to-many communication that goes on in the classroom,

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1 but no one knew how to use it for education. None of us had ever been
2 a student in an online class or seen one in operation, and we did not know
3 the answers to the most elementary pedagogical questions, such as how
4 to start a class, how long or short messages should be, and how often the
5 teacher should sign on and respond to the students.

6 We soon discovered that computer conferencing was not very useful
7 for delivering lectures, and of course it could not support any graphi-
8 cal contents, even the simple drawings teachers like to scribble on the
9 blackboard. But these limitations led us to explore a Socratic pedagogy based
10 on virtual classroom discussion that proved quite successful.

11 The school grew to include over 150 students in 26 countries around
12 the world. It pioneered many of the features of online education taken
13 for granted today. These include typical teacher and student roles and
14 relationships, techniques for organizing discussion in a virtual classroom,
15 ways of combining aspects of technical moderating and educational
16 leadership, the use of informal chatting and “café” conferences, specialized
17 client-server software, and so on.

18 Other experiments soon benefited from our example and added their
19 own contributions. Among the earliest were online classes at the New Jersey
20 Institute of Technology, The New School for Social Research, The University
21 of Arizona, Tucson, The Ontario Institute for the Study of Education, and
22 the Open University in England.

23 These experiments were all championed by enthusiastic professors who
24 involved their students in an adventure on the frontiers of technology. At
AC3 first growth was slow, but in the last ten years online education has become
26 a standard feature of the modern university. The widespread acceptance
27 of online education dates from the late 1990s, when it was taken up
28 enthusiastically by university administrators.

29 In 1998 I heard rumors that something called online education was
30 coming to the university at which I was then teaching, San Diego State
31 University, under the sponsorship of Microsoft, Hughes Aircraft, Fujitsu,
32 and MCI. This initiative, called CETI, was supposed to build a \$300 million
33 information infrastructure to support virtual learning on our multicampus
34 system. Our classrooms and dorms were to be hardwired to the Internet;
35 we were to have video conferencing, various computer based teaching
36 aids, electronic distance learning, and production facilities for marketable
37 prepackaged courses to be sold by the CETI consortium for a profit.

38 CETI was opposed by most faculty and students. There were two main
39 objections. First, both teachers and students doubted the educational
40 value of networking, and second, some faculty members were upset by
41 the commercial goal of CETI, the delivery of higher education through
42 the market outside the context of a university community. What was once
43 a daring faculty innovation had come to be perceived as a big business
44 takeover of the campus (Noble, 1997).

1 I am no more enthusiastic about trading an academic job for one at
2 Microsoft than the next faculty member, but this unqualified rejection
3 of online education contradicts our experience at the Western Behavioral
4 Sciences Institute. There the virtual classroom was a place of intense
5 intellectual and human interaction.

6 Literally hundreds of highly intelligent comments were contributed to
7 our computer conferences each month by both students and teachers. The
8 quality of these online discussions surpasses anything I have been able to
9 stimulate in my face-to-face classroom. As CETI became a common topic of
10 discussion on my campus, I wondered why my colleagues did not share my
11 interest in this innovative medium.

12 My puzzlement was soon to end. Our new system-wide chancellor,
13 Dr. Charles Reed, was due for a get-acquainted visit. As he was leaving
14 I finally had an opportunity to ask him the question that most bothered
15 me: What is the pedagogical model that has guided CETI? The chancellor
16 looked at me as though I had laid an egg, and said, "We've got the engineer-
17 ing plan. It's up to you faculty to figure out what to do with it." And off he
18 went: subject closed!

19 Would you build a house this way or design a new kind of car or
20 refrigerator? Surely it is important to find out how the thing is going to be
21 used before committing a lot of resources to a specific plan or design. Yet
22 this was not at all the order in which our chancellor understood the process.
23 Why not? I would guess it is because he did not conceive of the technology
24 of online education as a system, including novel pedagogical challenges,
25 but as an infrastructure, an "information superhighway," down which we
26 faculty were invited to drive. And just as drivers are not consulted about
27 how to build the roads, so faculty were not much involved in designing the
28 educational superhighway.

29 But this overworked metaphor is altogether inappropriate. In the case of
30 educational computing, the choice of infrastructure will largely determine
31 the applications. If corporations rather than faculty are consulted about this
32 choice, the outcome will be entirely different from the ideal of educational
33 community to which faculty is attached by their culture and traditions. The
34 ambition of CETI to make and market computer and video based courses
35 illustrated that difference.

36 The CETI story has a significant ending. Public outcry against it grew
37 gradually as faculty and students protested on campus, in the newspapers,
38 and before legislative committees. Legal and financial questions were raised
39 about mixing public and private assets, and finally the companies pulled out
40 one by one. The initiative collapsed and was replaced by a more modest plan
41 paid for out of public monies, as is proper. The faculty shed no tears over
42 having to wait a bit longer for their first ride on the electronic *infobahn*.

43 The fate of CETI is emblematic of many similar initiatives. After an initial
44 burst of enthusiasm, administrators encountered problems and for the most

1 part gave up on the commercial ambitions that had at first inspired their invest-
2 ment in online education. But the investment remained. No university presi-
3 dent was prepared to say he had made a mistake in supporting the purchase of
4 the equipment required by his online education initiative. The slippery concept
5 of “online education” gradually returned to something more like the original
6 meaning we gave it in the early 1980s. In this form universities remained
7 committed to expanding network opportunities despite the lack of savings.

8 Rather than replacing the existing faculty, online education was presented
9 to them as an enhancement of the classroom. Faculty was encouraged to use
10 the available equipment. The automated alternative promised by computer
11 companies and futurologists disappeared from the radar screens. Text-based
12 “learning management systems” such as Web CT and Blackboard were
13 acquired and teachers used them to supplement ordinary classroom teaching.
14 These universities were little changed by the widespread introduction of the
15 new technology. Meanwhile, adult educational institutions such as the
16 University of Phoenix developed very large online education programs in
17 which text based online classes played a central role.

19 **Education and economics**

21 CETI teaches an important lesson about the different ways in which most
22 administrators and faculty understood distance learning and its technology
23 during the dot com boom, of which this story is an episode. I will try to sketch
24 what I take to be these different perspectives. Of course generalizations such
25 as those I am about to formulate do not apply universally, but it is a fact
26 that the distance learning debate polarized, and to some extent still polar-
27 izes, around two hostile positions that usually correspond to the different
28 concerns of administration and faculty.

29 For too many administrators the big issues were not educational. The
30 fiscal implications of electronic distance learning were what interested
31 them. Administrators hoped to use new technology to finesse the crisis in
32 higher education spending, and to accommodate exploding enrollments of
33 young people and returning students. Innovations like video conferencing
34 and automated online education were supposed to improve quality through
35 the use of “star” professors while cutting costs of delivery. Students in virtual
36 classrooms would need no new parking structures. What is more, courses
37 could be packaged and marketed, generating a continuous revenue stream
38 without further investment.

39 But how could new technology accomplish the existing educational mis-
40 sion for larger numbers at a discount? The failure of the projects of the
41 1990s has not discouraged advocates of the agenda elaborated then. They
42 continue to propose two main solutions.

43 Video conferencing allows a professor to address a large number of students
44 in remote locations. Live interaction can be supported by a two-way video feed.

1 The physical presence of teachers and students in the classroom can be repro-
2 duced electronically at some cost, but more students can be served without
3 expanding existing campuses. This approach has some successful applications
4 in remote geographical areas and with adult learners.

5 Automation offers a more radical solution with large start up costs but
6 promising far greater savings in the long run. In an automated system, the
7 teacher's physical presence in the classroom is reproduced on CD-ROM
8 or made available over the Internet. Exciting computer based graphical
9 materials can replace dull textbooks. Research on the Internet can replace
10 hours spent in libraries. Testing and grading can be done online. Even essay
11 tests can be graded by powerful programs for textual analysis (Foltz, 1996).

12 The key to automation is to separate out informational "content" from
13 "process." A small number of well paid "content experts" will work as
14 "star" performers, while the delivery process is deskilled so that inexpensive
15 tutors can handle interaction with students. In a really low cost solution,
16 discussion can be replaced by automated exercises. Eventually it will be
17 possible to dispense with campuses altogether. Students will pick out courses
18 at an educational equivalent of Blockbuster and "do" college at home
19 without ever meeting a faculty member or fellow student (Agre, 1998).

20 Is this for real? Unfortunately many people think it is. Coopers and
21 Lybrand published a white paper in which they claimed that 25 packaged
22 courses can take care of half of community college and 35 percent of four-
23 year college enrollments (Coopers & Lybrand, 1997). They are convinced
24 that students will learn just as much if not more, and they will be free to
25 study at their own pace. In educational terms, nothing fundamental will
26 change except cost and convenience, those two favorite selling points
27 marketers like to emphasize.

28 It's quite a vision, but few faculty buy it. Most faculty cannot imagine
29 simply reproducing the learning experience of a face-to-face classroom
30 online (Farber, 1998). Distance learning, like it or not, is a paradigm change,
31 a change, many faculty fear, for the worse. Faculty skepticism is of course
32 due in part to resistance to innovation and fear of change, as administrators
33 charge. But they are, after all, the professionals and know something about
34 the difficulties and opportunities of conventional classroom teaching. They
35 have reasons to doubt that an item by item electronic replacement of their
36 classroom is possible.

37 Faculty consistently anticipate specific losses with respect to face-to-face teach-
38 ing in an electronic classroom. How, they ask, can one duplicate the learning
39 experience of a highly interactive classroom on an electronic network, and how
40 can one reproduce the wealth of informal human contacts that add so much
41 to education on a campus? How can the intense moments of human interac-
42 tion which mark our memories and our lives ever occur in a sterile electronic
43 environment experienced in the isolation of the home? Students confirm what
44 faculty suspect, that they are poor TV performers, that it is boring to watch them

1 on the little screen. And both faculty and students complain that computer
2 programs that are supposed to replace specific teaching tasks, such as guiding
3 students through exercises, are often difficult to use or even incomprehensible.

4 On the other hand, faculty detect continuity in administration enthu-
5 siasm for cost-cutting at the expense of traditional educational roles and
6 values. Between 1970 and 1995, the number of full-time faculty increased
7 by about half, while over the same period part-time faculty grew by two and
8 one half times. By now part-timers have overtaken full-timers on college
9 campuses. This worrying trend parallels the growth of the nontraditional
10 or returning student population, which now constitutes the majority of
11 students in higher education.

12 These students require different course schedules than the traditional
13 ones to which faculty are attached. Largely because of this, adult education
14 has developed outside the standard academic departments and procedures
15 under direct administrative control. As a result, a vast parallel system of
16 higher education has emerged in which faculty have low status and little
17 power. Since it serves adult learners, precisely the students most likely to be
18 open to distance learning, this parallel system has a free hand to experiment
19 even if traditional universities resist.

20 These trends set a precedent for administration strategies in the late 1990s
21 when the issue of distance learning was on the agenda at prestigious uni-
22 versities in a big way. A straight route down the information superhighway
23 led from the deprofessionalization to the deskilling of higher education. The
24 replacement of full-time by part-time faculty was to be merely the opening
25 act in the plan to replace the faculty as such by CD-ROMs. A new eco-
26 nomic model of education was sold under the guise of a new technological
27 model. This is the route to what David Noble calls “digital diploma mills.”
28 Understandably, this is not a route many faculty wish to travel.

30 **The question of distance learning technology**

31 I believe there are two closely linked problems here. First, the source of
32 innovation shifted from faculty to administration; and second, the nature of
33 the innovation shifted as well, from text to video based communication. In
34 what follows I will attempt to explain this linkage between actors and their
35 preferred technological designs.

36 When faculty were lonely champions of the new distance learning tech-
37 nologies, their primary goal was pedagogical success. They had few resources
38 and relied on inexpensive technologies such as e-mail. They were engaged
39 through their vocation as teachers, their commitment to finding new and
40 exciting ways to transmit knowledge and culture. Their principal allies were
41 students interested in playing with computers, and occasionally companies
42 willing to donate equipment. This was a world of tentative experiments in
43 which the stakes were small and near-term expectations low.

1 The later administration dominated phase of the development of distance
2 learning is very different. Now it's all about efficiency and, ultimately,
3 money. And there is plenty of it for high tech approaches to education, if
4 not to staff the French department. Contrary to the popular impression that
5 the academic world is poor, American universities in fact spend about \$200
6 billion a year, many times the revenue of the movie business (Oberg, 1998).
7 Administrators command these resources and corporations know it.

8 Huge sums are involved in the purchase of elaborate networks.
9 Corporations are major players and find a ready audience for their most
10 expensive technologies among administrators. Big investments in technol-
11 ogy today are supposed to pay off in savings on facilities and salaries tomor-
12 row, although the details remain fuzzy. Pedagogical objectives take the back
13 seat to prestige and budgetary ones. Faculty and students are not allies but
14 obstacles to be swept along by the inevitable momentum of progress.

15 The shift from faculty to administration centered innovation is more than
16 a shift in actors and their allies. It is also a shift in what might be called
17 spontaneous philosophies of technology. By this I mean that administrators
18 typically have a different vision of technology and what it can accomplish
19 than faculty.

20 Perhaps this is due to the influence of corporations. Salesmen seem often
21 to have the ear of administrators in a way faculty do not, and they use their
22 access to sell not just devices but also the content/process distinction which
23 gives plausibility to their claim to be able to revolutionize something called
24 educational "delivery" without much attention to faculty insights into
25 teaching. The faculty possess the "content" and supposedly the technology
26 is there to "deliver" the existing classroom experience online. From the
27 standpoint of this dubious doctrine, it seems natural to suggest that new
28 tools be used simply to reproduce the classroom experience or better still, to
29 automate its elements and deliver it as a package.

30 The aim of reproducing or automating the classroom feeds directly into
31 a preference for video, which seems to offer the closest equivalent to the class-
32 room experience. If administrators believe that, they may buy these expen-
33 sive tools in the expectation that faculty will be able simply to pick them up
34 and use them. This is naive: in the business world training employees to use
35 new equipment is often more expensive than the hardware itself. But in fact
36 universities do not seem anxious to make the enormous expenditures on
37 adaptation and training that typically accompany the acquisition of com-
38 plex new computer systems in the business world. A perverse fascination
39 with capital investment seems to be involved.

40 Faculty, when they actually engage with the new teaching technology,
41 sense immediately that it is not mature, that electronics is not "there" yet
42 as a ready tool. In the actual experience of online education, technology is
43 not a predefined thing at all, but an environment, an empty space faculty
44 must inhabit and enliven. They have a craft relation to the technology

1 rather than a development strategy. They try to get the feel of it and figure
2 out how to animate it.

3 This difference is reflected in different technological emphases. While it
4 would be nice to be a “star” professor in an automated virtual class, most
5 faculty do not aspire to that exalted status. Video, with its complicated and
6 intimidating apparatus, holds little attraction for either teachers or students.
7 Talking heads just are not very entertaining. Of course this may change as
8 high-speed access over the Internet becomes commonplace, but we are
9 many years away from achieving this in campus settings much less in the
10 home. And multicasting still poses technical problems faculty and students
11 should not have to deal with. To the extent that they are interested at all
12 today, most faculty appreciate the graphical capabilities of computers in
13 a different connection, as aids to presenting information and for exercises
14 in computer labs. But these applications are better compared to textbooks
15 than to classrooms; they are supplements to, rather than replacements for,
16 classroom teaching.

17 Although neither video conferencing nor automated learning have caught
18 on with faculty, there is a long history of enthusiasm among at least a small
19 group of them for interactive text based applications such as computer
20 conferencing. These experiences go back to a time when there were no
21 more elaborate alternatives; it is widely assumed that the introduction of
22 image and sound renders earlier approaches obsolete. But that is a mistake.
23 The latest equipment is not always the best for the task. Could it be that
24 our earliest experiences with computer conferencing were not merely
25 constrained by the primitive equipment then available, but also revealed
26 something important about electronically mediated education? I believe
27 this to be the case. Even after all these years the exciting online pedagogical
28 experiences still involve human interactions and for the most part these
29 continue to be text based.

30 But here is the rub: interactive text based applications lack the pizzazz
31 of video alternatives and cannot promise automation, nor can they be
32 packaged and sold. On the contrary, they are labor intensive and will
33 probably not cut costs very much. Hence the lack of interest from corpora-
34 tions and administrators, and the eclipse of these technological options
35 by far more expensive ones at the end of the 1990s. But unlike the fancy
36 alternatives, interactive text based systems actually accomplish legitimate
37 pedagogical objectives faculty can recognize and respect. There are good
38 reasons for this.

39 Considered as an environment, the world of online interaction has
40 properties that determine its appropriate use. Just as a concert hall is a space
41 appropriate for different activities than a living room, so the electronically
42 mediated spaces of computer networks are also suited to specific activities.
43 It would of course be possible to conduct a class in a restaurant, or dine on
44 a basketball court, but the results would likely be disappointing. Similar

1 abuse of the online environment will also yield disappointing outcomes.
2 But this is precisely what happens when attempts are made to reproduce
3 a face-to-face classroom online.

4 The basic fact about computer networks is scarcity of bandwidth. Even
5 with all the recent advances, we are far from being able to reproduce the
6 actual experience of human proximity in space. Indeed, it is hard to imagine
7 in what that would consist. What kind of network would make it possible to
8 bump into someone on the way into class and make a new friend, to carry
9 on a heated discussion after the end of the hour, to catch the professor's
10 eye and exchange an instantaneous glance in which boredom or alertness
11 is tacitly expressed?

12 On the other hand, we have a well-established method for communicating
13 in a narrow bandwidth. It's called writing. And we have a rich experience
14 of using writing to overcome the limitations of bandwidth. Writing is thus
15 not a poor substitute for physical presence and speech, but another funda-
16 mental medium of expression with its own properties and powers. It is not
17 impersonal, as is sometimes supposed. We know how to present ourselves
18 as persons through writing; this is what correspondence is all about. And
19 e-mail and blogging have introduced this technique of communication to
20 a whole new generation. Nor is it harder to write about ideas than to talk
21 about them; most people can formulate difficult ideas more easily in written
22 form than in speech in front of an audience.

23 These considerations on writing hold the key to online education. The
24 online environment is essentially a space for written interaction. This is its
25 limitation and also its potential. Electronic networks should be appropriated by
26 educational institutions with this in mind, and not turned into poor copies of
27 the face-to-face classroom which they cannot adequately reproduce.

28 While interactive writing is the basic medium of expression on networks,
29 in recent years we have learned to enhance the network experience with
30 sound and image, and that is fine. We can expect these enhancements to
31 develop gradually and perhaps someday to change the nature of online
32 education. But for many years to come, writing will continue to be the basic
33 medium of online expression, the skeleton around which other technologies
34 and experiences must be organized to build a viable learning environment.

35 In online education as in the classroom, we must be careful to distinguish
36 the basic medium from the enhancements and not to confuse their roles.
37 Speech is the basic medium in the classroom, and we supplement it with
38 labs, movies, slides, textbooks, computer demonstrations, and so on.
39 Similar enhancements to the written medium are possible on networks. But
40 confusing the medium with the supplementary enhancements leads to the
41 pedagogical absurdity of teacherless education.

42 To replace online written interaction with the enhancements makes no
43 more sense than to replace the teacher in the face-to-face classroom with
44 labs, movies, slides, textbooks, and computer demonstrations. That was

1 tried with educational television and computer-aided instruction long ago
2 with no success.

3 What does this say about the ambition to replace campuses with virtual
4 universities? Large markets for distance learning have emerged, and this is
5 a blessing for many students who cannot attend college classes. But if we cut
6 higher education loose from the traditional university and its values, the
7 blessing will turn into a disaster. The best way to maintain the connection
8 is through insuring that distance learning is “delivered” not just by comput-
9 ers but by living teachers, fully qualified to teach and interested in doing
10 so online.

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11 Then prepackaged materials will be seen to replace not the teacher as
12 a mentor and guide but the lecture and the textbook. Interaction with the
13 professor will continue to be the centerpiece of education, no matter what
14 the medium. And of course for most people that interaction will continue
15 to take place on campus if they have the means and the mobility to attend
16 a college.

17

18 **Conclusions**

19

20 Let me summarize now the conclusions I drawn from these reflections.

21 First, administrators and businessmen should forget the idea that distance
22 learning systems based on videoconferencing or star professors will replace
23 face-to-face classroom education. The dream of automating the educational
24 process has failed so often in the past that there is little reason to take it
25 seriously on this, the *n*th round.

26 Second, politicians need to be realistic about the future costs of higher
27 education. Distance learning is not going to be a cheap replacement for
28 campuses. Some other solution to the parking problem will have to be
29 found. The campus experience will remain in demand for the foreseeable
30 future.

31 Third, the overselling of foolish ideas about technology should not be
32 allowed to discredit the whole field of online education. We as faculty
33 need to get beyond defensive contempt for this significant educational
34 innovation and look at specific designs with legitimate pedagogical
35 objectives in mind.

36 Fourth, the educational technologists themselves need to continue to
37 work creatively with faculty and students to devise truly viable applications
38 that fulfill real needs (Wilson, 1999). There are good reasons for sticking
39 with interactive text based systems and supplementing them with visual
40 and other online resources, rather than attempting to duplicate face-to-face
41 education online. The design challenge of improving the original text based
42 systems is well worth pursuing.

43 Fifth, we must give serious thought to the implications of student
44 diversity. The influx of returning students over the past 25 years has had

1 major benefits for many people who missed the opportunity to finish their
 2 schooling in adolescence. New educational formats have been developed
 3 that are more appropriate for working adults than the traditional residential
 4 college teaching schedule. But these innovations have gone along with
 5 a devastating deprofessionalization that has gutted the occupation of
 6 university professor of security and respect for approximately half of all
 7 current faculty. The idea that distance learning can now deskill the already
 8 half deprofessionalized profession is deeply offensive to faculty and out
 9 of touch with the best current thinking about how to employ advanced
 10 technology (Feenberg, 1999).

11 However, negativism is not enough. The faculty's failure to demand the
 12 right and privilege of teaching returning students, to innovate new formats
 13 appropriate to their needs, and to exercise control of their education has
 14 led to the current situation. The systematic rejection of online education
 15 by some faculty has had no effect on the deprofessionalization of higher
 16 education. The dream of automation under cover of which this process goes
 17 forward deserves criticism, of course, but that should not become an alibi
 18 for ignoring real dangers and opportunities. The faculty must accept the
 19 responsibility for shaping distance learning, and in the process, it should
 20 also attempt to reclaim ground lost in the development of programs for
 21 returning students.

22 23 Notes

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25 *An earlier version was published in the winter 1999 issue of *Crosstalk*. The author
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QUERY FORM

BOOK TITLE:	RT-Engstrom
CHAPTER NO:	Chapter-15

Queries and / or remarks

Query No.	Query / remark	Response
AQ1	Would you like to specify <current> by providing a date range?	
AQ2	Ok to change <those days> to <the 1980s> for clarity?	
AQ3	Please provide a specific date range for clarity.	
AQ4	Please provide date range for clarity.	
AQ5	Do you mean <flesh-and-blood teachers>? Ok to change?	
AQ6	Please provide the volume number, issue number and page numbers.	
AQ7	Please provide page numbers.	
AQ8	Please provide page numbers.	
AQ9	Please provide page numbers.	
AQ10	Please provide page numbers.	