

## Teachers' Perceptions on the Roles on Educational Technology

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### ABSTRACT

Entering graduate students were asked whether technology would soon eliminate the need for teachers. Responses (all negative) were clearly separable into 'modernist' responses, which indicated that the role of education was the transmission of information and skills, but that teachers can do a better job of this; and 'postmodernist' responses, which indicated other roles for educators. Many incoming students displayed a lack of insight into the possibilities for technology in education. The study concludes that teachers should be made aware of the various goals of education, and which goals can best be achieved using technology. A second recommendation is that potential educators be made more aware of the various roles of technology in education, and how teacher-technology synergies can be tapped.

### Keywords

Technology, Postmodernism, Teacher roles, Teacher training

### Introduction: 'Death of the Professor'

Technology can now perform many of the traditional roles of teachers. In recent years, some 'postmodernist' educators have lamented the possible replacement of teachers by computers and other technological devices. Notable among these is Jean-Francois Lyotard (1984), who has written about the 'death of the professor': as a result of the emphasis placed by society on the efficiency of the transfer of information or skills. If computers can transfer more information to more students in a shorter time span and at lower cost, then the efficiency of technology will force teachers out of business. The revolt against 'modernism' bemoans the relegation of education to an input-output model subject to economic cost-benefit analysis.

Of course, *wise* teachers have always understood that they serve as role models, motivators, and coaches in critical and creative thinking, in addition to being organizers and dispensers of information. Lyotard and others stress, however, that, in real-world practice, the twentieth century single-minded preoccupation with economic growth and information transfer has led teachers away from these other goals of education. In many instances, technology can outperform the teacher in terms of sheer efficiency – more information can be transmitted to more students in a shorter time span by technology than by teachers.

Influential authors like Rorty (1979) argue that even in our information and economic skills-oriented age, the teacher should have many roles in addition to relaying information and skills. In Rorty's view, teachers need "... to keep space open for the sense of wonder ... to make students thrill to the same things they themselves thrill." (p. 42). He distinguishes between systematic philosophers and edifying philosophers:

Great systematic philosophers are constructive and offer arguments. Great edifying philosophers are reactive and offer satires, parodies, aphorisms. (Rorty, p. 369.)

The edifying teacher, for example, inculcates in students an appreciation for the beauty of a mathematical theory better than the computer can.

Nuyen (1995) describes Rorty's argument concisely: "The role of education is not to pass on the truth but to edify... What we need is not a battery of computer terminals, but a whole range of Professors who not only purvey truth, but who excite student's imagination."

Besides edification, according to many educational philosophers, there are other human values inherent in the educational process. Bertrand Russell (1994), in his famous treatise *On Education* devotes more than the first half of the book to discussions of the building of 'character', and only later does he treat the 'intellect', while

deprecating the mere transfer of information. Broudy (1962) reflects this view, although he eschews words like ‘character’ and uses instead ‘attitude formation’ and ‘value climate’. “In attitude formation, human models and the value climate of the school as a whole are important, perhaps crucially so. Clearly the machine cannot serve as such a model.” (p. 152.)

Thus, the postmodernist revolt emphasizes a re-focus on these non-informational roles of teachers. Teachers are to serve as role models and transmitters of values. In addition to being a source of knowledge, a good explainer, or an expert motivator, the new teacher is expected to be a human role model, in order to guide the students’ characters in the right direction.

## **Theory into Practice: Students at Eastern Mediterranean University**

What do today’s educators feel about the arguments expressed above? If teachers feel that transmission of information is the only goal of education, then perhaps most of their work can and *should* be done by technology. If, however, they disagree with the information-only view, then they can go on to define and focus on additional roles for teachers.

Thirty-eight students applying for admission to postgraduate programs in Education at Eastern Mediterranean University were asked the following question as part of their admissions examination:

“In the near future, it will be possible for technology (including books, videos, computers, etc.) to transmit any information or skill more effectively than teachers. Therefore there will be no need for teachers.” Do you agree or disagree with this statement? Discuss.

The question was deliberately worded in order that the respondent might focus on either the premise or the conclusion. One can argue with the premise that it will be possible for technology to transmit information more effectively, or on the other hand, even if the premise is true, whether the conclusion follows that there will be no need for teachers.

Now these 38 educators or future educators were not about to agree with a statement implying that they will no longer be needed. However, disagreement can follow two lines, which might be termed the *modernist line* and the *postmodernist line*.

The *modernist line* buys into the present-day view of education solely as transmitting information and skills, and that its success is measured by its efficiency in such transmission. A student could disagree with the premise of the statement in the examination along modernist lines by stating that in the long run, teachers are better at transmitting information.

This modernist disagreeing argument runs that teachers are better motivators than machines. They can better interact with students than can machines. They can better intuit students’ learning difficulties, especially when these involve emotional problems. So even if these arguments run along humanistic lines, they still see interactive teacher interventions as efficient *means* to the modernist *end* of transmitting information.

The *postmodernist line*, in accordance with Rorty, emphasizes education as much more than the transmission of information. A postmodernist disagreement with the conclusion to the examination question might focus, as does Rorty, on the non-informational role of the teacher, more as a guidance counselor or a societal role model. Attention to students’ personal growth is seen not as a means to information acquisition, but as an end in itself.

In most cases, the student responses were very clear as to which line of reasoning the student followed. The following are excerpts from typical ‘modernist’ responses:

Computers cannot give the information more clear than teachers. Teachers give the information more clear than books.

In order to transmit information or skills effectively, we need people who can .....

Computers cannot express a motivational feedback or reinforcement.

Teachers know how to teach specific information to a learner.

Nothing can transmit any information or skill more effectively than teachers, who can organize, motivate, show warmth, humour, and flexibility.

Notice that while such responses may refer to ‘human qualities’ such as motivation or care, the emphasis is on using those qualities as means to the end of acquiring information. Thus, the ‘modernist’ response may emphasize humanistic methods, but the goal is still the purely cognitive acquisition of information and skills.

On the other hand, clear examples of postmodernist responses were the following:

...to guide the student socially and psychologically, and to develop interpersonal relationships.

What about the soul? We can transmit any information or skill by means of technology but unfortunately it is not enough .. to touch the human magic.

Children also need love and care, and to acquire discipline.

...security, belonging, self-esteem, emotional as well as academic problems.

In these latter examples, teachers are seen as ministering to the personal needs of children as ends in themselves.

Four of the 38 responses were judged as ambiguous and so were rejected from the tabulations below. But even those ambiguous responses provided some insights. One important line of thought attempted to cut between the modernist and postmodernist views. This was the reference to multiple intelligences and learning styles. Three responses argued that all children were different, but it was not clear whether the responses meant that children require different interventions in order to achieve the (modernist) goal of acquiring information, or that children have different needs.

Other expressions that could be interpreted as either modernist or postmodernist include the words ‘guide’, ‘human touch’, and ‘interaction’. In such cases it was usually clear from the context which line was taken. For example, teachers may guide students to acquire information, or they may guide them to solve family problems. A human touch may be used to motivate a student in acquiring information, or it may be used to assist the child in his/her social adjustment. Interpersonal interaction may be a means towards acquiring information, but it may also be an end in itself. For example, one response referred to a girl who is shy in class, and the teacher may be able to help overcome that shyness with other students.

Tabulations of the responses into Modernist or Postmodernist lines of reasoning, are shown in Table 1 below.

*Table 1. Tabulation of Responses by Student Level*

	<b>Modernist</b>	<b>Postmodernist</b>	<b>Ambiguous</b>
Master’s applicants	13	10	3
PhD applicants	5	6	1
All applicants	18	16	4

It appears that the master’s applicants leaned more heavily towards the modernist line of argument, while the Ph.D. applicants leaned towards the postmodernist. A chi-square analysis of the 34 unambiguous responses, however, yielded a chi-square of only 0.37 and revealed no statistically significant differences between the two groups.

Another question arising in this context is whether applicants with previous degrees in education tend to respond differently from applicants from other disciplines. Students with a B.A. or M.A. in education might have been exposed to the postmodernist view, and thus might be expected to fall into the Postmodernist category more often than their non-education counterparts. Table 2 below shows the breakdown, combining both master’s and doctoral applicants:

*Table 2. Tabulation of Responses by Education Background*

	<b>Modernist</b>	<b>Postmodernist</b>	<b>Ambiguous</b>
Previous Education Degree	13	10	2
No Education Degree	5	6	2
Total	18	16	4

Once again, a chi-square test performed on the unambiguous responses yielded a chi-square of only 0.37 and revealed no significant differences between the previous-education and the no-education groups, with total modernist and postmodernist responses nearly equal in number. (The fact that the split was the same as the Master's/PhD split reported above is probably just coincidental.) Thus there is no evidence that applicants with education degrees were more or less likely to give postmodernist responses.

Thus, the students separated themselves into two clear camps, with 18 of the 34 unambiguous responses taking the modernist line (53%) and the other 16 (47%) taking the postmodernist line.

## Discussion and Conclusion

It was surprising that most of the 'modernist' responses incorrectly claimed that teachers have certain traits but technology does not. Six responses stated that only teachers can convey humor. But a computer can tell a joke as well, even though it does not have a sense of humour *per se*. It would be one thing to state that teachers can use humor to better advantage than computers, but it is quite wrong to state that computers are incapable of using humor. Similarly, seven responses stated that only teachers can interact with students. But interactive computer programs have come a long way in the past twenty years.

Several responses stated that only teachers can answer questions or give detailed explanations. But in many instances, the writers of educational software are well aware of the various questions posed by students, and incorporate FAQ sections into their interactive software. And it is quite possible that a well-thought-out explanation offered by a computer can be much clearer than a spontaneous explanation by a teacher. Most students mentioned motivation as unique to teachers, but a good interactive program can give immediate feedback using phrases like, "That's wonderful!", or "Good job, Kathy!" A yellow smiley face or a frown can convey nearly the same approval or disapproval as can a teacher.

These mistaken judgments came in many instances from applicants who already had a bachelor's or master's degree in education. Somewhere along the line, their training should have included an assessment of what technology can or cannot do, such as interacting with students, answering questions, and offering clear explanations. A major recommendation of this study is that teacher training programs include discussions about the possibilities and limitations of technology, such as the discussion in the above paragraphs.

The responses came from students in Northern Cyprus. Many of them have taken education courses in student-centered education, philosophy of education, the role of education, et al, and still appear to view education solely as the transfer of information and skills. This bias could of course be cultural. It might be interesting to compare a larger sample size in Cypriot culture (a mixture of Western thought and Islamic thought) with a more Westernized audience, as well as with a more traditional Islamic audience.

Cypriot culture lies at the crossroads of East and West. The sample used in this study, while all nominally Muslims, cannot be classified as devoutly religious. Students from a more strict Muslim culture might be expected to emphasize the role of the teacher as spiritual guide to a greater extent than Western teachers. (Ozdemir and Frank, 2000, p. 16). Indeed, Islam's whole concept of knowledge and the role of education is quite different from the secular view. In Islam, knowledge is to a large extent 'revealed' knowledge as disseminated by the Prophet, and the role of education is to instill this body of unquestioned revelation to the students. For example, the skill of critical thinking might have lower value in Islamic education than in Western education.

It is perhaps significant that this Cypriot sample split almost evenly between the two camps. Perhaps a more Western audience would fall more into the 'modernist' camp, while a more devoutly Islamic audience would fall more into the 'postmodernist' camp.

Despite the relatively small sample size, it was clear from the responses that both the modernist and the postmodernist view of education and the role of the teacher are prevalent among both present and future educators at Eastern Mediterranean University, and that these views are distributed among doctoral as well as master's level students, as well as among former educators and those with little or no teaching experience. However, none of the respondents mentioned *both* viewpoints or drew any distinction between them. This is evidence that the respondents, many of whom have bachelor's and master's degrees in education, have not really thought deeply about the various goals of education. A major recommendation of this study is therefore that teacher training programs stress these various goals and discuss which goals are best amenable to technological

interventions. A second major question addressed in any education program should be, “Technology – for what?”

Many discussions of the teacher-technology interface treat the matter as an exclusive ‘either-or’ question, that is, which is better, teachers or technology. In fact, the more appropriate question should be, “how can teachers and technology interact to the optimal advantage?” For example, teachers, videos, and interactive computer programs might join together to improve a child’s self-esteem, or to promote interpersonal social skills. There are many synergies to be explored which exploit the advantages of the information processing of technology along with the more human aspects of the teacher. Awareness of these aspects should also be included in teacher training courses.

Are potential teachers in today’s teacher training programs being well-versed in how technology relates to educational philosophy? A survey of teacher training programs might shed light on how institutions are preparing teachers in the uses of technology.

Further research might also investigate whether followers of the postmodernist argument (accepting *both* the acquisition of information and the pursuit of human objectives) value one teacher role *more* than the other. A traditional Muslim might strongly prefer a more value-based education rather than the acquisition of economically useful skills. The present study serves only to illustrate that at least two lines of thought exist and are clearly identifiable; further research may identify other lines of thought and may address questions of differences in attitudes among various social, religious, or national groups.

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