Using an e-mail simulation to study electronic media futures

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Submitted to Courses, Curricula and Administration
Division

of the
Broadcast Education Association

December 2, 1999

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Abstract: This paper reports on an e-mail role-playing simulation employed during an electronic media seminar at the author's institution. Using naturalistic formative and summative evaluation the author suggests the simulation is a valuable pedagogical tool and encourages its use for incorporating futures studies in electronic media curricula.

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The Future as an Area of Study

In addition to keeping abreast and active in their own disciplines, electronic media faculties today are pressured to address many other diverse issues required by the contemporary academy. Typically, these pressures leave little time to develop expertise in nascent or undeveloped disciplines. One such relatively new area is "futures studies" which has yet to achieve a solid foothold in electronic media pedagogy. This is an unfortunate circumstance because the time period identified as "the future" remains the major preoccupation of the industry that these same electronic media faculty study. Indeed, the decade of the Nineties has witnessed a sea change in the organizational structure of the electronic media industry where already massive conglomerates are expanding to find synergies "going forward."

Many factors are driving the industry's increasing focus on the future. First, the electronic media sector is inundated with new and developing technologies built on digital platforms that are replacing older and less versatile analog systems. Today at the smallest unit of composition, the bit, there is no distinction between print and broadcast or between audio and video. Second, old business models and management systems have become incompatible with the new global economy that challenges the status quo on a weekly basis. Third, changes in audience demographics make it impossible for tried and true broadcast strategies to guarantee delivery of mass or even niche audiences in an economically efficient manner. Lastly, and perhaps most disconcerting to the existing industry, is the potentially devastating affect that unpredictable wild cards such as or new technologies might have on their ability to remain profitable.

Of course, the electronic media industry has always worried about its future. Radio feared television's impact on its audience; over-the-air television, in turn, fretted the effects of cable; and cable fought the telephone company "boogie man." Regardless of the fact that history tells us that each

established medium eventually adapted and survived incursions from upstart media, the current anxiety about the future somehow seems more intense. One reason for the strength of this reaction may be the almost mystical effects of the "Millennium" factor [see Bell, 1968]. But perhaps the most apt explanation is the fear that the Internet will be a great equalizer to challenge the fundamental premise of electronic media business in a capitalist society: that a comp any can generate profits by owning and packaging information to large audiences willing to pay for the services.

Unfortunately, academic programs in electronic media do little to assuage this general trepidation of the future. Rather than embrace it, our curricula have typically avoided the future to concentrate on the present and past. Moreover, we have neglected to inculcate our students with the ability to analyze or conceptualize a future vision. While there are some classes and programs around the country that do encourage futures studies, it is typically a niche industry that has failed to diffuse into academic culture.

Some might argue this reluctance is due to the low confidence levels generated by the methodologies employed in the futures studies discipline. For faculty trained to be skeptical of inconsistent method, it is hard to embrace research that has such low confidence levels. Additionally, the most common methods employed in futures studies research--Delphi Technique, scenario writing, trend extrapolation, content survey and game playing--typically do not lead to theory building, a prime objective of the current scientific paradigm. Rather, these techniques often provide more questions than they answer.

Also, futures studies may be too multidisciplinary to succeed in the real academic world. Bell (1997) says that the discipline is a "multifield" rather than just a "field" or "transdiciplinary field" because of its diversity. Many would argue that diversity is good; however, it also poses some practical issues. For example there is the very real problem of the social scientist and the physical scientist interacting together in the increasingly Balkanized university setting.

Finally, there is also a very real reluctance to "teach the future" because of a perception that many "futurists" are nothing more than charlatans selling snake oil to unsuspecting dupes. Indeed, much of the literature is cluttered with trite pronouncements about future forecasts made with nothing more than a

"feel," by political expediency or some self-designed methodology unable to withstand any kind of scientific rigor [see Popcorn, 1997 as an example].

Futures Studies

Regardless of its difficulties diffusing into the academe, a discipline called futures studies has become an established field active in government, industry and the non-profit sector. And like any other field it has acquired a significant and growing body of relevant literature written by both established scholars working in relative obscurity and popular authors at the tops of the best-seller charts. Individuals such as Toffler (1970), Naisbitt (1982), Fuller (1971) and Clarke (1963) are close to pop icons while scholars such as Bell (1968), Kahn (1967), Helmer (1966) and deJouvenel (1967) developed reputations inside the beltway and with corporate elites. And, while not all futurist work has been accurate or prescient, these authors have been influential in developing a respected field with its own tools and methodologies.

The definition of this discipline employed by these futurists uses the plural construction "futures" purposely to emphasize that there are alternative futures, not just one. Under this rubric, the future is a "surprise free" option, a choice made by humans from many possible options. In essence, humanity creates its own future in the present by selecting a broad range of policies and actions. The futurist's job, therefore, is to identify, locate and define these choices in a period of interest typically defined from 5-50 years in the future.

The philosophical foundation for this approach can be traced directly from Voltaire who advocated exploring alternative futures rather than trying to predict one (Dickson, 1977). Later, Marquis deCondorcet (1743-94) applied a consistent and duplicable scientific method in monitoring expert opinion. Believing you could predict phenomena when you know its laws, deCondorcet showed significant prescience by forecasting such developments as universal suffrage and birth control" (Beckwith, 1981)

In the Nineteenth and early Twentieth Centuries, the popular science fiction genre epitomized by Edward Bellamy's "Looking Backward" and Jules Verne's "Twenty Thousand Leagues Under the Sea" enhanced popular interest in the future and there was a concomitant increase in both the scientific and artistic components of the discipline. But the real impetus for contemporary futures studies came during and

after W.W. II, especially in the Air force as post war think tanks such as RAND attempted to stave off

potential nuclear catastrophe by developing elaborate scenarios, games and computer models. Corporations

and social agencies later hired many of these same futurists to develop probable alternatives for their

businesses as the post war boom continued to effect dramatic changes in technology and social

institutions.

And more recently, future studies continues to grow as increased computer power gives present

day futurists enhanced quantitative and qualitative tools necessary to explore their areas of interests.

Unfortunately, futurist literature reveals few attempts to apply these tested techniques to media education.

It was the purpose of this author, therefore, to develop an electronic media/mass communication course

which had two central objectives: (1) to expose students to the range of the futures studies discipline, and

(2) to determine if futures studies techniques can be integrated into the existing curriculum.

The instructional situation

The author offered a master's level graduate seminar at the [Name of institution here] entitled

"Futures Studies in Mass Communication. " Bell's (1997) list of the nine purposes of futures studies was

examined to provide focus to the specific task(s). These purposes include:

  1. the study of possible futures.

  2. the study of probable futures.

  3. the study of images of the future.

  4. the study of the knowledge foundations of futures studies.

  5. the study of the ethical foundations of futures studies.

  6. interpreting the past and orientating the present.

  7. integrating knowledge and values for designing social action.

  8. increasing democratic participating in imaging and designing the futures.

  9. communicating and advocating a particular image of the future.

Because of time limitations and because this was a "mass communications" seminar and not simply a

seminar in futures studies, the instructor maintained the focus on numbers one, two and six: to study the

possible future, to study probable futures; and to interpret the past and orient the present. The instructor

established a requirement that all students participate in an e-mail simulation hypothesizing the introduction

of a new mass communications technology into the marketplace. This assignment was given in addition to

the traditional graduate paper and discussion. It was the instructor's belief that while traditional research

papers are excellent at developing expertise in specific cognate areas, certain qualities of studying possible

and probable futures are not so easily demonstrated with traditional methods.

Specifically relating to futures issues in mass communications, the instructional objectives were

defined as follows: (1) to demonstrate the interrelatedness of many different players in the business,

electronic media, policy making and global arena; (2) to suggest that the media future is an optional choice,

and (3) to increase enthusiasm for alternative means of electronic media instruction. As an additional utility,

the instructor hoped that any instructional technology so developed in this small graduate seminar might be

used as a prototype for similar simulations in larger undergraduate classes.

Simulation Design

There is inconsistent use of terms "games" and "simulations" (Gredler, 1992). While both are

interactive events, there are important differences. A game is "any contest...among adversaries...operating

under constraints...for an objective [winning, victory, payoff] (Gredler, 1992, 13). In distinction, Bell (1997)

defines simulation as

a process by which the structure and change of some system, organism, or set of interrelated

variables is represented by another, usually manipulable, system or model designed to be similar

to the original in some specified and relevant ways. In a simulation, some aspects of reality...

are imitated or reproduced usually in microcosm, within a model. (272)

A simulation, then, is more open and less confined by rules. Winning and losing is not part of the equation

as it is with gaming, which is more complex and relies on formalized procedures and greater structure of

relationships (Taylor & Walford, 1972). Simulations are a model of some complex process or reality that, in

addition (1) provide an understanding of the structure of knowledge, (2) connect subject matter (cognitive)

and motivational (affective) learning; and (3) provide an appreciation of group dynamics (Adams, 1973, 11).

One particular kind of simulation is role-playing. Taylor & Walford (1972) identify role-playing as "rel[ying]

on the spontaneous performance of participants...in a hypothetical situation" (18). Accordingly, role-playing

simulations usually incorporate little formal structure.

With this format in mind, the instructor developed the following role-playing simulation: *Computer

entrepreneur Sid Willard, in conjunction with the American Newspaper Publishers Association

(ANPA)*[this precedes that organization's name change] *developed an Electronic Newspaper (ENP), a new

system of alphanumeric text and picture delivery. Willard's system employed ATM machines to download

this information to the consumer's lightweight, pocket sized, disposable LED readout called an Electronic

News Reader (ENR), which can be readily purchased as stores. These ENRs download in about five

seconds, deducting the cost automatically from a subscriber's personal account. The data, some of which

includes slow scan video and low quality audio in addition to alphanumeric text, can be used for a about

one month and then will automatically self-destruct. No other detail as to operations or business model

was given.*

This was a small seminar with only eight students, so rather than confuse participants by having

them take up multiple roles, each assumed only one role at a time. Participants would take other

characterizations only if something transpired to affect their "virtual person" through the course of the

simulation. Roles were initially assigned based on a perception of personality, interest and expertise.

Obviously, some of the roles were based on personalities active in the current electronic media environment:

    The Chair of the Federal Communications Commission (FCC).
    The President of France.
    The biggest star in Hollywood.
    The Vice President of the United States.
    Ruperd Greek, a self-made media baron.
    The biggest Wall Street financier.
    The CEO of CBS
    A famous consumer advocate.
    The chief-of-staff to a newly elected Libertarian president.
    The Chair of the Senate Telecommunications Sub-committee.
    A former network anchor now preaching anti-technology.

Sid Willard, Chair of Microfirm, the richest man in the world.

Simulation Developments

Initially, there were eight roles, matching the number of participants. Later the instructor, who also played Sid Willard and served as the simulation master/coordinator, switched or removed roles for some of the students. For example, during an announced presidential election year, the President hoped to enhance his Affirmative Action credentials by advocating, through his Vice President, that all new media services must have strict racial employment quotas. While the FCC typically would only be tangentially involved with a communication system that downloaded data via dedicated wired ATM networks, Willard planned to use a satellite to feed participating terminals, thus the FCC jurisdiction. Citing past failures and court challenges, the Chair of the FCC consistently argued against quotas even after it was made clear the president was using this policy as a central tenet of his campaign. The Chair's intransigence lost the administration's confidence and he was pressured to resign. This participant then had his/her role changed.

Another unique connection to the simulation is the "Biggest Star in Hollywood." Not often thought to be part of the policy mix, this role was included to develop an awareness of copyright issues. The "Biggest Star in Hollywood" was vitally interested in the use of celebrity images in a medium that was not quite a newspaper and had much in common with a performance medium such as television. Also, the President of France was concerned about another new American technology usurping French business and infringing upon the French language and culture. He/she fought this battle in the United Nations and through bi-lateral negotiations with the US.

Throughout the eleven rounds of the simulation, participants' roles remained anonymous. Great care was taken so that those participants deemed as "smarter" or more fluent because of their native English speaking skills did not have undue influence on their peers. This latter issue was important because half the participants came from non-US countries. Similarly, international students without English as a native language needed to have their identifications protected since they could readily be discerned through

language usage. In short, in this virtual world, the instructor only wanted the simulation character to exist. This required editing of non-native English speakers responses.

The class was held on Thursday evenings and participants were to respond via e-mail to an updated round consisting of all of the edited responses and new information 48-hours before class. The instructor then edited the material, stripped off identification, clarified responses, provided the role of other characters as necessary and presented "wild cards," unpredicted and sometimes serendipitous events that may or may not be relevant to the tasks at hand. These wild cards were usually delivered via e-mailed press releases or Associated Press news stories included in each round. For instance, one news story announced the assassination of the Japanese Prime Minister. This was at a point of particular turbulence in the world's financial markets and just as Willard was trying to finance ENP.

Instructor's Observations

Participants were typically cautious in making moves. Initially they spent a great deal of time feeling each other out. In fact, the instructor had to keep students from continually having meetings over lunch at LaCirque. Participants initially appeared afraid to hurt their peers' feelings. This lasted about three weeks as students eventually became accustomed to the spirit of the project.

As the simulation progressed, it became evident that attempts by the government to regulate ENR were unsuccessful in light of the rush of business developments. Also some business relationships began to mirror real life. While Ruperd Greek and Sid Willard initially attempted to partner in the venture, Willard soon backed out fearing the domination of his ruthless competitor. Greek then started his own business that appeared to have a more efficient technology and was better able to exploit the marketplace.

Later, in an apparent attempt as self-aggrandizement, political figures jumped into the arena trying to find an angle to identify them as patrons of this new technology.

In another development, CBS was set to receive 25% ownership of ENR in exchange for 10% of the bandwidth of its network, which would be used for further delivery of information to reach ATMs and other non-defined outlets. However, this deal fell through when the CEO of CBS committed suicide as a result of

financial improprieties brought to light by the world economic crisis initiated by the assassination of the Japanese Prime Minister, a true wild card event.

Throughout, the French president's call for a French language version of the new technology received only lip service by the exigencies of the marketplace. Also, the simulation gradually eliminated the direct role of ANPA as irrelevant to the machinations of high-powered business dealings.

In later rounds, a Ralph Nader like consumer advocate began to comment on how the medium was suffering from increasing commercialization. An participant whose role was no longer relevant to the direction of the simulation played this Nader character.

Selected Participant Responses

Participants were asked to provide a qualitative evaluation of their experience with this process. A representative sample of both "positive" and "negative" verbatim responses are listed randomly below:

"You made me think that copyright and privacy should be the main topics for a movie star. You were right, but I was not sure if a movie star would care about it. Of course, an economic increase of copyright royalties fees is an issue that any performer, artist or writer would care about because it would mean a higher income. I think a famous movie star of Hollywood would be more concentrated in the creation of the characters and in a sophisticated lifestyle instead of in copyright and privacy issues."

"I regret that all issues raised by participants were not fully discussed and concluded. It is because not everybody answered the correspondence addressed to the person, and some issues naturally disappeared without any arguments. Sometimes there was miscommunication among participants, and it was actually difficult to handle such a correspondence. In addition, there was more than one argument at a time, and everybody was not able to get involved in all arguments."

"My suggestion for the simulation is that all participants talk about one issue at a time from each role's point view so that everyone has an opportunity to think about it."

"Unlike any of our other assignments, there was group participation within the project itself. Each person had an impact on the outcome and no one knew where it would take us. This is what made it

interesting. I also liked the fact that we didn't know who was who during the simulation. I feel that make it more realistic because you only judged the character and the person behind the character."

"The idea of ENP I found to be quite interesting and very possible in the near future. In the simulation, I think focus was lost on the concept, however, as characters began to focus on the politics of the world rather than the implementation of such a service. We never decided nor agreed upon how exactly this will work, what the logistics were, what the market direction would be, profitability, organizational structure and who exactly would have the decision making rights. For example, we spent time eating lunch and PRAISING stars instead of coming up with a market strategy."

"The interactions were limited in that many of the characters only interacted with one other character for that week. Maybe a mandatory response to two or more characters would have helped the project. Furthermore, since we were using the Interment, responding and interaction could have taken place more frequently. It seems that just as some character interactions got going, a full week went by and some of the train of thought and excitement was lost."

"I feel that the roles were interesting. The characters depicted were necessary for such a project. The input of the monitor [simulation master] was necessary to keep the group focused and to liven up the discussion. The press releases were necessary to change the pace of the simulation and to keep all characters involved."

"It sometimes felt difficult to handle the situation because all correspondences were exchanging at the same time."

 "Focus was lost on the concept [of ENP]. Characters began to focus on the politics of the world rather than the implementation of such a service...the nuts and Bolts of ENP were not often discussed."

"Each person had an impact on the outcome and no one knew where it would take us."

"I found that this simulation was very practical. The interactions we did throughout this simulation were very much similar to the ones in the actual business world. We need to defend ourselves as well as to attack competitors."

Evaluation

Guba & Lincoln (1983) suggest that the naturalistic paradigm is more useful in evaluating curriculum than the scientific paradigm, at least initially, because it focuses on differences from the status quo. In comparison, the scientific paradigm tends to only see similarities. As such, a naturalistic approach of observing student participants and instructional process was employed as the evaluation strategy. This is consistent with the project's objective to serve as a prototype for further development and was also convenient because of the small class size.

Two different kinds of evaluation were employed: (1) formative evaluation, with a purpose to refine and improve, and (2) summative evaluation, to determine the impact or outcomes. (Guba & Lincoln, 1983, 49). The purpose of formative evaluations is to fit or adapt the program or curriculum to a local context or situation. The purpose of summative evaluation is to certify or warrant the program or curriculum for permanent local use.

The formative and summative evaluations used here was based on a two tools: (1) an analysis of the open-ended self-reported student simulation evaluations; (2) an ongoing log maintained by the instructor throughout the semester contemporaneously listing any problems or opportunities realized from this project. Of course evaluation by the sponsor is always problematic but, in this instance of developing an instructional prototype, was not inappropriate.

Formative Evaluation

The formative evaluation identified ten items that would help to refine and improve the simulation if applied in the future.

1. Administration of the e-mail routine became a nightmare. The instructor was required to spend an inordinate amount of time organizing and editing the materials. At the same time, the instructor also was a

participant in the simulation and some of the administrative detail took away from his enthusiasm for the project. Using a different approach such as a moderated chat room on a web page might have been a better option, but even this approach would require significant time involvement for the instructor, especially if there were the necessity to keep identifications confidential.

2. The narrative outcomes of the simulation were not dissimilar to what would occur in the real non-virtual world. As such, there may be some self-fulfilling prophecy that seeped into the simulation due to its design. In fact, some of the role characterizations unconsciously could have led the simulation in a pre-determined direction. Or, perhaps the very involvement of the instructor as a participant and simulation master could have also biased the narrative direction of the participants. In later applications it might be more appropriate to have the logistics coordinator be a different person from the content designer.

3. There was a tendency to discuss specifics of the simulation in the classroom. For example, the instructor had to restrain from addressing real world developments occurring contemporaneously so as to not influence the direction of the simulation. At times, students picked up on the real world events and imported them into the virtual world.

4. There was little opportunity for participants to interact directly with each other without the knowledge of other simulation participants. Perhaps there could be an opportunity for direct one-to-one communication if participants would use the moderator to connect them, which could be done by creating anonymous web addresses though any number of commercial services and bypassing the university mail system. This could open whole new vistas as individuals could partner for common objectives.

5. Just the simple process of requiring regular e-mail developed a marked improvement in computer and E-mail skills in most of the students. There is a perception among faculty that all students use e-mail regularly. This appears to be a false assumption. At the time of the seminar, Fall 1998, many students simply did not have requisite e-mail skills to participate freely in the simulation. Perhaps in future applications there would be a required tutorial on e-mail usage before participation in the seminar.

6. Students simply did not have equal levels of understanding of electronic media business. Understandably, international students were weak in legal and regulatory matters. However, all participants were very limited in their knowledge of finance and business. In this latter category, many students even

lacked awareness of the difference between stocks and bonds, critical distinctions to understanding the early financial developments supporting the implementation of any new technology. Obviously, this suggests a hole in author's departmental curriculum and perhaps a larger gap in the general education sequence of the host university.

7. One student with a particularly important role in the simulation was consistently late in his responses, holding up the return for the entire class. This put time pressure on the instructor and prevented the next round from going out until two days later than scheduled. The instructor contemplated imposing a penalty, and perhaps that approach could work in a larger group; however just by the nature of a small group, penalizing a student might have limited his willingness to participate and created a deleterious effect on this simulation.

8. Initially, students were "too courteous," spending more time asking each other out for lunch than in developing competitive organizations. Students avoided confrontation until the last third of the simulation. Again, this may be a function of the high percentage of international students participating in the seminar. However, the American students displayed similar characteristics. Perhaps this trepidation will be mitigated as students become more familiar with this instructional technology. This seminar suggested some evidence to that effect.

9. All participants related that they were surprised at how important social, business and serendipitous events were to developing a communications technology. Going in, there was an assumption that technological change occurs simply by an existing industry extending its product line in friendly collaboration with the government.

10. There could be an opportunity to revise this simulation into a game. Perhaps, hypothetical assets could be distributed to show win and loss. However, the designer would have to be careful about establishing a reward structure the penalized creativity and risk.

Summative Evaluation

From an analysis of all of the qualitative student evaluations, the stated instructional objectives (1) to demonstrate the interrelatedness of many different players in the business, electronic media, policy making

and global arena; (2) to demonstrate that the media future is an optional choice, and (3) to increase enthusiasm for alternative means of electronic media instruction appears to be satisfied. While each of these objectives is difficult to quantify in this type of naturalistic observation, the evaluation suggests that all three areas were enhanced. Indeed, the simulation appears to be an ideal tool for improving student motivation and demonstrating complex interactions for, as Adams (1973) suggests, simulations let students see cause/effect relationships and promote discovery through direct and immediate feedback with the consequences of moves and decision imputed to oneself. In short, it appears that the simulation heightened interest and excitement in learning. It provided guided discovery learning that occurs from understanding one's mistakes, mistakes of others and the importance of interplay between/among roles.

Conclusion

Because of the size of the simulation, this particular exercise could only be a prototype. More expansive pronouncements about impact can only be made after this is tried on larger, more diverse populations. However, before this could be attempted on a larger undergraduate population, many of the logistical problems identified in the formative evaluation need to be addressed.

Secondly, a larger simulation would more readily be appropriate to formal statistical measurement with pre- and post-simulation testing techniques.

Finally, this instructional project had this class of students thinking of the future and recognizing that futures can be studied. The particular instructional technology employed here can be modified to fit the unique institutional or instructional circumstances. But whatever approach is employed, it remains critical for electronic media curricula to incorporate the futures study discipline into its study of such a dynamic industry.

Bibliography

Adams, Dennis M. (1973). *Simulation Games: An approach to learning*. Worthington, OH:

   Charles A. Jones Publishing.

Bell, Daniel (1968). *Toward the Year 2000: Work in Progress.* Boston: Houghton Mifflin.

Bell, Wendell (1997). *Foundations of Futures Studies: Vol. 1: History, Purposes, and Knowledge.*

   New Brunswick, NJ: Transaction Publishers.

Beckwith, Burnham P. (1981) "Condorcet: The first scientific futurist." World Future Society
   Bulletin. July/August 1981 7-11.

Clarke, Arthur C. (1973). *Profiles of the Future*. New York: Harper and Row.

Cornish, Edward (1977). *The Study of the Future*. Bethesda, MD: World Future Society.

De Jouvenel, Bertrand (1967) . *The Art of Conjecture*. New York: Basic Books.

Dickson, Paul (1977). *The Future File*. New York: Avon.

Fuller, R. Buckminster (1971). *Education Automation*. Garden City, NY: Anchor Books.

Gredler, Margaret (1994). *Designing and Evaluating Games and Simulations*. Houston: Gulf Publishing.

Guba, Egon G. and Yvonna S. Lincoln (1983). San Francisco: Jossey-Bass.

Helmer, Olaf. (1966) *Social Technology*. New York: Basic Books.

Kahn, Herman and Anthony J. Wiener (1967). *The Year 2000: A framework for speculation on the next
   thirty-three years*. New York: Macmillan.

Naisbitt, John, (1982). *Megatrends: 10 new directions transforming our lives*. New York: Warner.

Pierce, John R. (1966) Communication pp. 297-309 in Bell, D. *Toward the year 2000. Work in Progress*

Popcorn, Faith (1997). *Clicking*. New York: Harper Collins.

Tansey, P. J., (ed.). (1971) *Educational Aspects of simulation*. London: McGraw-Hill.

Taylor, John L. and Rex Walford (1972). *Simulation in the Classroom*. Middlesex, England:

Penguin Books.

Toffler, Alvin (1970). *Future Shock*. New York: Random House.

--(1972) (Ed) *The Futurists*.   New York: Random House.

Wager, W. Warren. (1983). *H.G. Wells and the Genesis of Future Studies*. World Future Society

Bulletin January/February 1983 25-29

Wells, H. G. (1932, 1987). "Wanted --professors of foresight!" *Futures Research Quarterly* 3, No. 1

(Spring): 89-91