Uses of the Videotape Recorder in Legal Education

Ronald Dressnick

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USES OF THE VIDEOTAPE RECORDER IN LEGAL EDUCATION*

RONALD DRESNICK**

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I. INTRODUCTION

   A. Information Theory

   The "information theory" is based upon the premise that power is no
   longer measured in land, labor or capital, but rather by information,

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   administer efforts in application of modern technology to teaching and learning.

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access to information, and the means to disseminate information. This becomes abundantly clear when viewed in the context of the university. Historically the university has been in the information business. Within the university, information is gathered, transferred, and processed. Power, in the sense that the word may be used within the university context, is measured largely by access to information. The person with the most power is the one who has "the greatest amount of relevant information in the most usable form in the quickest time."

Electric technology has imploded the informational environment, dissolving traditional divisions, and extending the information theory from the university to the entire world. The trend in communications has been toward "instantaneous, ubiquitous, no-cost access to all information." Thus, learning and knowing become the entire business of man. "[T]his means that all forms of employment become 'paid learning,' and all forms of wealth result from the movement of information."

The problem ceases to be the availability of information and rather becomes one of selection of relevant information. This selection, to a great extent, depends on the communications system available for use. Hardware systems are currently available that will enable the user to conduct all of his business, banking, shopping, and social functions from home over a two-way television screen. When the software (programming) becomes available, one might "hypothesize a cable, video tape library, computer retrieval, closed-circuit television combination," which would enable the user to dial on his telephone a designated combination of digits to see a particular videotape on his home screen. These systems will have a profound effect on formal education. They will serve as the basic tool of all education linking individual consoles to the common information pool. However, of more immediate concern are the devices (hard-
ware systems) currently available for use. Of these devices, this article will deal primarily with the videotape recorder and its use in legal education.

B. The Message of Legal Education

Usefulness of the videotape recorder, or for that matter any device in legal education, depends upon the goals of legal education. Effectiveness in reaching these goals depends upon the devices used to obtain them. This is a recognition of Marshall McLuhan's statement that the medium is the message. "This is merely to say that the personal and social consequences of any medium—that is, of any extension of ourselves—result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology." 8

This proposition can be demonstrated, at the risk of over-simplification, by a glance at the history of legal education in relation to the development of the technology of print. The earliest legal writing was manuscript, which, unlike print, is "cool." 9 Manuscript involves the reader by allowing him to complete the process started by the author. 10 Manuscript

8. M. McLuhan, supra note 4, at 7. McLuhan makes it clear that the consequences are a result of the medium and not the content of a medium, which is another medium, i.e., the content of writing is speech. This becomes clear when one thinks of the electric light. It is pure information and contains no message content, unless, of course a series of lights were arranged in sequence so as to spell out a word. Yet the consequences of the electric light or "the message of any 'medium' or technology is the change of scale or pace or pattern it introduces into human affairs." Id. at 8.

9. McLuhan defines all media as either hot or cool. To cool media he attributes the characteristics of wholeness, tactileness, inclusiveness, involvement of the reader or viewer, low definition, etc. Hot media are highly defined making them one-way communication, from the packager to the consumer. Their high definition and sharp features makes audience participation impossible. Media, which McLuhan labels as hot, includes print, radio, film, lecture, and photograph. Cool media includes manuscript, television, and speech (conversational).

A hot medium is one that extends one single sense in "high definition." High definition is the state of being well filled with data. A photograph is, visually, "high definition." A cartoon is "low definition," simply because very little visual information is provided. Telephone is a cool medium, or one of low definition, because the ear is given a meager amount of information. And speech is cool medium of low definition, because so little is given and so much has to be filled in by the listener.... Hot media are, therefore, low in participation, and cool media are high in participation or completion by the audience.

Id. at 22-23.

10. In the reign of Edward II, these were frequently found to be two, three, four, or even more versions of one case, so different that collation was impossible, and each of these versions might be represented (with minor variants) by several manuscripts. It was this abundance and diversity of material which has put such a heavy load upon the heroic editors of Edward II's Year Books. Behind it all we seem to catch glimpses of a big and busy profession in a state of almost feverish activity; reports were taken independently by many hands, then borrowed, copied, collated, and annotated; in an age when great judges were discussing momentous matters, their words were awaited with eagerness by the quick-witted sergeants who practised before them. It is impossible to miss the note of admiration for the heroes of the bench and bar which runs through the reports, and the almost excited interest which
tends "toward compressed forms of statement, aphoristic and allegorical." The manuscript presents the generalities of an oral culture. One of the first legal manuscripts of Western civilization is a book by Glanville, written about 1187. It is neither very long, nor very difficult. "When we come to Glanville everything is beautifully simple. He is only concerned with the law of the King's Court...."

Two generations later in 1256 we come to "'the flower and crown of English jurisprudence'—Bracton." One of the major contributions for which Bracton is credited is the way in which he "overspread the technicalities of the English courts with a broad cosmopolitan learning."

Legal education during this period was also generalist and inclusive. The students studied in what was a "kind of combined club, business office and hotel." From this emerged the Inns of Court, "which like a university, provided for ... the students general education and common life." Study was not limited merely to law and the abstracting of cases from the Year Books, but included, for example, "history, music and dancing...."

The first law book printed was Statham's Abridgment, published in about 1490 or 1495. This was to be superseded in 1516 "by a very much larger work, the later editions of which claim to be 'the grand Abridgment collected by the Right Reverend Judge Sir Anthony Fitzherbert.'" Thereafter the number of books in print began to increase, and the law became increasingly complex. Lawyers became specialists in the technicalities of the law. "What is more, these very men also acquired control of legal education as well. The inevitable result was the disappearance of

follows the success or failure of some clever attempt by counsel to maintain a difficult position when called upon to do so. To contemporary readers who were perfectly familiar with the rules of the game, these early Year Books must have read something like vivid newspaper reports of a highly intellectual sport, where even irrelevancies—the quip, the jest, the neat quotation—all have a natural part. Legal science no doubt was their ultimate aim, but they are so full of the joy of forensic battle that one is inclined to look upon them as allied to literature rather than to the cold, impersonal report of the present day. Throughout the Year Books of Edward II there breathes a spirit of keenness, of combativeness and restlessness which makes them the gayest of law books.

11. M. McGuhan, supra note 4, at 319.
12. T. Plucknett, supra note 10, at 257.
13. Id. at 258.
14. Id. at 261.
17. Id.
18. T. Plucknett, supra note 10, at 274.
19. Id. at 274-75.
20. However, the books that were in print at this time cannot be considered to have made proper use of the printing press. Quite to the contrary, early print was no more than a mechanized copy of the manuscript form. The same misuse of a medium occurs when a movie not "made for television" is put on television.
a liberal outlook upon law, and the loss of contact with other systems.\textsuperscript{221}

McLuhan would explain this phenomenon as a result of the "hot" medium of print. Print has the tendency to expand "expression in the direction of simplification and the 'spelling-out' of meanings. Print speeded up and 'exploded' the compressed script into simpler fragments.\textsuperscript{222}

Coke, in the seventeenth century, and Blackstone, in the eighteenth century, attempted to regain a generalist approach. Blackstone deplored the

\[P\]ernicious consequence[s] \ldots of the English system of legal education which were caused by the custom \ldots of dropping all liberal education, as of no use to students in the law: and placing them, in its stead, at the desk of some skillful attorney; in order to initiate them early in all the depths of practice, and render them more dextrous in the mechanical part of business.\textsuperscript{223}

Although Blackstone's efforts in legal education went unheeded in England, American legal educators embraced his generalist approach. In 1779 Thomas Jefferson created a professorship of law at William and Mary College.\textsuperscript{24} Soon the Dane Professorship and a chair established under the will of Isaac Royall came into existence at Harvard Law School.\textsuperscript{25} Legal education at this time resembled that of the prior period of the Inns of Court in England. Courses were varied and the "[s]tudy of law was closely tied to the study of philosophy, political economy, and ethics . . . .\textsuperscript{226}

Justice Story became the first occupant of the Dane Professorship in 1829.\textsuperscript{27} That date marks not only the beginning of the next period of legal education in America,\textsuperscript{28} but also the advent of legal text writing as a significant force in American legal development.\textsuperscript{29}

\textsuperscript{21} T. PLUCKNETT, supra note 10, at 264.
\textsuperscript{22} M. McLuhan, supra note 4, at 319.
\textsuperscript{23} 1 W. BLACKSTONE, COMMENTARIES 320.
\textsuperscript{24} Note, Modern Trends in Legal Education, 64 COLUM. L. REV. 710, 713 (1964)
[hereinafter cited as Trends in Legal Education].
\textsuperscript{25} T. PLUCKNETT, supra note 10, at 287.
\textsuperscript{26} Trends in Legal Education, supra note 24, at 713.
\textsuperscript{27} T. PLUCKNETT, supra note 10, at 287.
\textsuperscript{28} Trends in Legal Education, supra note 24, at 713.
\textsuperscript{29} R. POUND, THE FORMATIVE ERA OF AMERICAN LAW 142 (1938). It is interesting to note that:
American text writing as a significant force in our legal development begins in 1816 with Reeve's, Baron, and Feme. Down to the Civil War the list of text books which went far to shape the law for us is impressive: Kent's Commentaries (1826-1830); Gould on Pleading (1832); Story on Bailments (1832), on the Constitution (1833), on the Conflict of Laws (1834), on Equity Jurisprudence (1836), on Equity Pleading (1838), on Agency (1839), on Partnership (1841), on Bills of Exchange (1843), on Promisory Notes (1845); Wheaton on International Law (1836); Greenleaf on Evidence (1842-1853); Wharton on Criminal Law (1846); Sedgewick on Damages (1847) and on Interpretation of Statutory and Constitutional Law (1857); Rawle on Covenants for Title (1852); Bishop on Marriage and Divorce (1852) and on Criminal Law (1856-1858); Parsons on Contracts (1853-1855); Washburn on Real Property (1860-1862) . . . .

From the Civil War to the end of the century, Cooley's Constitutional Limita-
This change in educational method follows the trend outlined by McLuhan as the result of print—a trend toward fragmentation of inclusive wholes, specialization, detachment and visual uniformity. Law was divorced from other disciplines of learning. Legal education came to be conducted wholly in law schools and not in law offices, with a complete absence of any system of apprenticeship. Legal education became graduate and professional, and legal study became nationwide—"that is, that the students come to the schools from all parts of the country, and study a 'generalized' common law, rather than the law of [any] particular state."

The significance of legal text dwindled, Pomeroy's *Equity Jurisprudence* (1881-1883) becoming the last great text of the period. American legal education had entered its modern period, when, in 1870, Langdell introduced the case method. The case method "took over largely unchanged subdivisions of the law already established by the textbook." The change that occurred was in the method of teaching. The Socratic method replaced the lecture. It was felt that students would learn better if they were involved in the teaching process rather than being "merely passive recipients of the teacher's solutions." Students were not to sit by passively and digest presentations made by the professor. Rather, the method was designed to encourage students to compete with their classmates to answer the professors' questions and to criticize the remarks of the other students.
II. FAILURE OF CASE METHOD

A. Lack of Feedback

While it must be admitted that the student does become more involved with the "cooler" case than he did with the "hot" text, it is a mistake to assume that the student is a participant in the "learning" process. "The first year students, being initiated to legal education, do not fully understand the purpose of the classroom and their relationship to other students and the professor." It is anxiety and fear that cause the participation in classroom discussion and not the case method, the basic tool of which is print. "A hot medium allows less participation than a cool one, as a lecture makes for less participation than a seminar, and a book for less than dialogue." The mark of Socratic method is absence of dialogue. The students are to form their own conclusions as to what transpired in class. The professor acts merely as a catalyst to stimulate thought. He "makes few evaluative comments about any student's performance in class." Most of his remarks are questions, which the student perceives "as never ending demands .... Such a technique runs counter to all learning theory."

This method of teaching, with its emphasis on the process by which information is acquired, rather than the utilization of that information, neglects what is called the "transformation" aspects of learning, i.e. the process by which the learner "manipulates knowledge to make it fit new tasks," and the "evaluative" aspect of learning, i.e., that process by which the learner checks "whether the way [he] manipulated the information is adequate to the tasks."

The Socratic method forces the student to evaluate his own and other students' performance from the various offerings of the class. A student who has recited poorly has little indication that his preparation needs improvement. Other members of the class, except by their own intelligence, have no way of being sure whether the remarks made by a student are precisely on point, meritorious, irrelevant, or indicate a total lack of preparation.

38. Id. at 1204.
39. M. McLuhan, supra note 4, at 23.
41. Silver, supra note 37, at 1202.
42. Watson, supra note 36, at 123.
43. The knowledge which the Socratic method seeks to convey is the experience of the form or style of knowledge rather than a knowledge of the subject itself.
45. Silver, supra note 37, at 1202-03. This method of teaching encourages individual
This is a classic example of lack of feedback.

Feedback is a process of controlling a system by reinserting into it the results of past performance. If the information which proceeds backwards from the performance is able to change the general method and pattern of performance we have a process which may be called learning. 46

It is by our seeing one set of relations through another set that we store and amplify experiences. 47

This use of feedback in a law school class was demonstrated by Professor White. He tape recorded his students as they engaged in mock negotiations with each other for a grade. Then he and the psychiatrist teaching the course with him played back the tapes in class and discussed the "information" recorded on them. White reported that some students changed their tactics "in response to the data acquired about the various techniques and about their own and their opponent's emotional responses." 48

Without this type of supervised feedback, many basic learning processes occur only with the unsupervised feedback from dissatisfied clients that begins after the student goes into practice. 49 There are those who see this period of extended learning during which "the young attorney will serve as a period of tutelage under experienced lawyers..." 50 as a benefit of the case method. On the other hand, this informal educational device can be "criticized in many ways—clients suffer from the inexperience of the young but licensed lawyer, the experience is not available to all, it is poorly organized, or it is conducive to bad habits." 51 Furthermore, the student has invested three years in a process, the end result of which forces him to work for a firm that will provide the feedback that could have so easily been offered in the first place. "The law schools, not the bar, ... should provide the kind of practical exposure and training that the apprenticeship was unsuccessfully designed to offer. By struc-

47. "[A]ll media as extensions of ourselves seem to provide new transforming vision and awareness." M. McLuhan, supra note 4, at 60.
48. White, The Lawyer as a Negotiator: An Adventure in Understanding and Teaching the Art of Negotiation, 19 J. LEGAL ED. 337, 344 (1967) [hereinafter cited as White].
turing the experience within an academic context, it can be made more fruitful and productive.152

B. Lack of Human Relations Training

One such experience that is lacking in legal education is training in the reading of human nature.63 “[L]awyers constantly deal with people.”64 They deal with people far more than they do with appellate courts.155

Thus, contrary to Langdell’s notion, this is an aspect of the science of law that is not contained in a printed book.60 Current methods of legal education emphasize the verbal aspects of communication at the expense of the non-verbal aspects.67 It is even arguable that the case method undermines development of skills in this area.58 Scientific evidence and recent experiments with videotape and audiotape recorders demonstrate that the non-verbal aspects of communication, face-to-face dealings with people, are teachable.69

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52. Id. at 462.
53. When one stops to think about it, the truth comes forcibly home that much of our success and failure in life depends on “reading human nature,” or making correct inferences about the character and even the ability of others on the basis of what we see in ordinary life situations.
Lasswell and McDougal, Legal Education and Public Policy: Professional Training in the Public Interest, 52 YALE L.J. 203, 280 (1943) [hereinafter cited as Lasswell & McDougal].

54. “For lack of basic information about human personality, many lawyers have become fruitlessly entangled with ill and even dangerous persons. To choose a notorious example there is a type well known to psychiatrists called a 'litigious paranoid,' who is continually starting law suits . . . .” M. McLuhan, supra note 4, at 170.


56. The premises upon which the case method is based are “that law is a science; . . . [and] that all of the available materials of that science are contained in printed books.” Address by Professor Langdell before the Harvard Law School Association Meeting, Nov. 5, 1886, in 2 WARREN, HISTORY OF THE HARVARD LAW SCHOOL 374 (1908).

57. Watson, supra note 36, at 113. See Birdwhistell, Background to Kinesics, 13 ETC: A REVIEW OR GENERAL SEMANTICS 10 (1955) (explaining non-verbal communications).


59. Man more than other animals is born with a nervous system devoid of gene-borne patterns of behavior. His upbringing and education is comparable to programming a giant computer, and a tremendous number of his activities ranging from facial expression, style of walking, and an infinite number of thought patterns reflect the explicit and implicit teaching to which he is constantly subjected.

Watson, supra note 36, at 99.

The teaching of such non-verbal aspects of communications has been undertaken by the IRS which has begun using videotape feedback to train their agents in how to deal
C. Failure to Teach Synthesis of Raw Facts

Another aspect of law that is teachable, valuable, and currently neglected is the synthesis of raw facts. The case method presents to the student a package of "frozen facts," three times removed from reality.61 It is from this concrete situation that he is to strike out on his own to draw conclusions of law. Professor Fuller suggests that presenting facts in this manner trains the student in reverse62 by misleading him "into the assumption that real facts show the same neat contours as facts reported in published decisions."63 The student has the idea that engaging in "tedious interviews with witnesses . . ." to get at the real fact-issues may be "somehow beneath a real lawyer's dignity."64

The effect of the presentation of a highly defined fact situation is to lower the opportunity for participation by the student.65 This is the antithesis of the desired result of Socratic method.66 The participation evoked by Socratic method is contrived; it is the result of fear and anxiety. Participation could be invoked, however, by allowing the student to partake in the educationally rich process of synthesizing raw facts.67

with people in the course of their employment. See COMMUNICATION NEWS, April 1971, at 40.

A recent newsletter from the Council on Legal Education for Professional Responsibility (CLEPR) outlined the use that Professor Gozansky at Emory University School of Law has made of videotape in Teaching Interviewing and Counseling Workshop. CLEPR, Vol. III, No. 6, March, 1971 (newsletter) (hereinafter cited as CLEPR); see infra note 224 and accompanying text. Professor White has used audiotape to provide information to feedback in class on the art of negotiating. See note 48 supra and accompanying text.

60. The case method "may be said to lose two anchors: that which holds the discussion to legal principals [sic], and that which holds to the facts frozen in a written report." Fuller, supra note 34, at 305.

61. The facts have gone through a three-step distillation: (1) unorganized "real" facts are reduced to facts proved in court, (2) these facts are then interpreted by a lawyer to prove a legal issue on appeal, (3) finally, the appellate judge reinterprets these facts to support his decision on the legal issue involved. A. Harno, LEGAL EDUCATION IN THE UNITED STATES 184 (1953).

62. See notes 69-70 infra and accompanying text.

63. Fuller, supra note 34, at 274. "[S]tudents should be presented with much irrelevant data in order that they can go through the process of finding the legally relevant material. This is closer to the inductive process through which most life situations are resolved." Watson, supra note 36, at 138.

64. Fuller, supra note 34, at 276. Watson points out that this problem, the problem of role, is to be contrasted with another serious problem, the law school's failure to solve the identity crisis. Identity, as contrasted to role, is a set of internalized, as opposed to externalized, images. Watson defines identity as the detailed and complex internal image which each person must develop of himself as he matures, which becomes a kind of model by which he patterns his life.

The constant comparison of our actual day-by-day experiences with our ideals and hopes as they are reflected in identity is one of the principal means by which we regulate our behavior.

Watson, supra note 36, at 103.

Watson says that "[o]ne of the critical events which should occur during legal education is the incorporation into identity of a model for professional behavior." Id.

65. M. McLuhan, supra note 4, at 29. This can be contrasted to the reading of a detective story in which the "reader participates as co-author simply because so much has been left out . . . ." Id. See also notes 38 and 39 supra and accompanying text.

66. See notes 35-37 supra and accompanying text.

67. See notes 193-216 infra and accompanying text.
D. Entropy Because of Complete Dependence Upon Print

The Socratic lecturer does not summarize conclusions derived from the cases or from the class discussion.68 This is to force the student to participate in the teaching process by making such analysis himself, as the result of individual effort. There is no interaction with the professor, only competition with classmates, the results of which become known only after the course is completed. This is a one-way, or closed system. Lack of interaction prevents feedback. The professor does not contribute information, nor is it known whether any information was contributed by the class. As a system, this is wasteful of the energy within it.69 This situation is called entropy. It occurs

when the measure of energy lost is greater than the measure gained. . . . The degree of a systems entropy is equal to redundancy or stasis whereas its negentropy is equal to kinesis or change. . . . [I]nformation becomes energy when it contributes to the self-enriching omni-regenerative wealth of the system. When it is not contributing (i.e., redundant) it is allowing the natural entropy to increase.70

The proponents of the case system assert, however, that the Socratic method is not designed to impart information,71 but rather to train the “student in the most basic skill of the lawyer: the finding of the law by analyzing, distinguishing, and synthesizing cases . . . [and to teach him] to make judgments on concrete facts, in a manner similar to that of a practicing attorney.”72 The Socratic method does teach one to think legally.73

The question arises, however, as to the length of time necessary to train a student to think before the training becomes redundant. In sys-

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68. K.N. Llewellyn, in reporting for the Committee on Curriculum, notes that a consensus seems to have developed “that after doubts have been raised, after all arguments made, and after the students' mind has been opened, there is a great advantage in giving the class the benefit of the teacher's mature conclusions.” AMERICAN ASSOCIATION OF UNIVERSITY PROFESSORS, THE PLACE OF SKILLS IN LEGAL EDUCATION, at 45 COLUM. L. REV. 345, 368 (1943). See also COMMITTEE ON CURRICULUM OF THE ASS'N OF AM. L. SCHOOLS, REPORT OF THE COMMITTEE ON CURRICULUM OF THE ASS'N OF AM. L. SCHOOLS (1944) [hereinafter cited as Llewellyn]. More recently, the students' demand for feedback seems to have given rise to the clinical approach. See HARVARD LAW SCHOOL, REPORT OF THE COMMITTEE ON CLINICAL LEGAL EDUCATION 8 (1970) [hereinafter cited as 1970 CLINICAL REPORT].

69. “[I]t is obvious . . . that a man could hardly devise a more wasteful method of imparting information about subject matter than the case class. Certainly man never has.” Llewellyn, The Current Crisis in Legal Education, 1 J. LEGAL ED. 211, 215 (1948) in TRENDS IN LEGAL EDUCATION, supra note 24, at 714.

70. G. YOUNGBLOOD, EXPANDED CINEMA 63 (1970) (stating the second law of thermal dynamics).

71. See note 43 supra. But see Memorandum to a Law School Faculty, ISSUES IN LEGAL EDUCATION 674 (D. Bok ed. 1971) (“[I]nformation transmittal is a purpose of the upper level program. . . .”).

72. TRENDS IN LEGAL EDUCATION, supra note 24, at 714. But see notes 60-67 supra and accompanying text.

73. See Llewellyn, supra note 68, at 371.
tems terms, is a message-space of three years necessary to convey the given amount of information? One critic has answered that "after the first year, the system is not exacting in its demands on any but the most morbidly conscientious student."* Llewellyn noted that student interest in classes begins to fade by the second semester, and that the student pays almost no attention to classes by the fifth or six semester. Much legal education is admitted to be "a waste of time because it consists of the reiteration of a limited list of ambiguous terms cut asunder from any institutional context that would set a limit to their ambiguities."* This is the result of a system which has relied completely upon the printed word to impart information. For the last 150 years, American legal education has relied upon print to carry its message to the exclusion of any other medium. Print is an effective and low cost information distribution system. It allows for flexibility, generality, physical accessibility, standardization, and integration. Print gave western man individuality, equality before a written code, and continuity in time and space. He gained from it the power to act without reacting; and to act in any situation with detachment from the feelings or emotional involvement that a non-literate man would experience. An advantage of the ability to fragment oneself can be seen in the "case of a surgeon who would be quite helpless if he were to become humanly involved in his operation. We acquire the art of carrying out the most dangerous social operations with complete detachment."* But many people are disposed

74. "Redundancy is inversely proportional to the amount of information a given message-space can convey." Maloney, A Philosophy of Educational Television, THE FARTHER VISION, EDUCATIONAL TELEVISION TODAY 11, 24 (A. Koenig and R. Hill eds. 1967) [hereinafter cited as Maloney].


76. Llewellyn, supra note 68, at 371. This could be a result of the intensity of the experience.

Is it not evident in every human situation that is pushed to a point of saturation that some precipitation occurs? When all available resources and energies have been played up in an organism or in any structure there is some kind of reversal of pattern.... [N]umbness is the result of any prolonged terror....

M. McLuhan, supra note 4, at 30.

77. Lasswell & McDougal, supra note 53, at 215.

78. Thus similar consequences could be expected with complete reliance upon written problems, or long and involved fact patterns.

79. "In speech we tend to react to each situation that occurs, reacting in tone and gesture even to our own act of speaking. But writing tends to be a kind of specialist action in which there is little opportunity or call for reaction." M. McLuhan, supra note 4, at 79. Writing is dependent upon the letters of the phonetic alphabet with "its power to extend patterns of visual uniformity and continuity. . . ." Id. at 84. Within a few letters, writing is able to encompass all languages.

Such an achievement, however, involved the separation of both signs and sounds from their semantic and dramatic meanings. . . . [This separation has social and psychological effects.] Literate man undergoes much separation of his imaginative, emotional, and sense life. . . .

Id. at 87-88.

80. Id. at 79.
to object that we have purchased our structure of specialist technology and values at too high a price.

In the legal profession there is "an awareness . . . that three years' preoccupation with sources as formal as judicial opinions and statutes can have a deadening effect on the moral sensibilities of students." Ralph Nader has claimed that three years of the case method dehumanizes law students. Professors Lasswell and McDougal blame the high level of abstraction necessary for use of the case method for the erosion of basic democratic values. The effect of the case method goes far beyond the content of the cases.

III. THE MESSAGE OF ELECTRIC TECHNOLOGY

A. Clinical and Interdisciplinary Approaches

Legal educators will be abdicating a duty owed to society if they continue to rely exclusively upon the medium of print. This is not only because of its indirect effects upon the students, but also because print has been replaced as the sole method of distribution of information. Marshall McLuhan sounded "taps" for the Gutenberg galaxy and announced the confirmation of the Age of Electricity. He also warned of the bitter clash that occurs when one technology encroaches on an already existing technology. It is the task of legal educators to identify and clarify the issues of our time and to "develop lawyers who have the competence to discern the implications of science and technology and to assess their social consequences." The schools will not be able to "dislocate older media into postures that permit attention to the new" as long as they continue to ignore electric technology as a suitable alternative to

82. They point out that lawyer's, if not the policy makers themselves, are at least intimately connected with any policy decision. This includes anything from policy at a national level to the policy of a slum lord. Lasswell & McDougal, supra note 53, at 207-9.
83. More and more we turn from the content of messages to study total effect. . . . Concern with effect rather than meaning is a basic change in our electric time, for effect involves the total situation, and not a single level of information movement. Strangely, there is recognition of this matter of effect rather than information in the British idea of libel: "The greater the truth, the greater the libel."
M. McLuhan, supra note 4, at 26.
84. See M. McLuhan, supra note 4, at 15-18.
The American stake in literacy as a technology or uniformity to every level of education, government, industry and social life is totally threatened by the electric technology. The threat of Stalin or Hitler was external. The electric technology is within the gates, and we are numb, deaf, blind, and mute about its encounter with the Gutenberg technology, on and through which the American way of life was formed.
Id. at 17-18.
85. Donnelly, Some Comments Upon the Law and Behavioral Science Program at Yale, 12 J. LEGAL Ed. 83 (1959).
86. M. McLuhan, supra note 4, at 254. "To this end the [educator] must ever play and experiment with new means of arranging experience, even though the majority of his audience may prefer to remain fixed in their old perceptual attitudes." Id.
print. It has been this lack of perception of the attributes of electric technology which has plagued attempts at a clinical and interdisciplinary approach to law. On the other hand, it has been the altering of our sense ratios of our patterns of perception by electric technology which has necessitated such approaches to law.\footnote{87}

It is the speed of electricity that creates in depth involvement. "Electricity offers a means of getting in touch with every facet of being at once, like the brain itself."\footnote{88} Thus, our central nervous system is technologically extended to involve us in the whole of mankind and to incorporate the whole of mankind in us, we necessarily participate, in depth, in the consequences of our every action. It is no longer possible to adopt the aloof and dissociated role of the literate Westerner.\footnote{89}

Law students of today, products of the electric age, have demanded from their education this type of involvement,\footnote{90} and the clinical legal approach is an attempt to provide it. The clinicians seek to involve the student in the use of the skills\footnote{91} of the profession to restore the lost values of apprenticeship training.\footnote{92} At the same time they hope to impart a better understanding of legal institutions, and to instill a sense of professional responsibility.\footnote{93}

Unfortunately, to achieve this end, the clinical program actually involves the student in the "real time" practice of law.\footnote{94} When crammed

\footnote{87. "The effects of technology do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without any resistance." \textit{Id.} at 18.}
\footnote{88. \textit{Id.} at 249.}
\footnote{89. \textit{Id.} at 4.}
\footnote{90. TV has changed our sense lives and our mental processes. It has created a taste for all experience \textit{in depth} that affects language teaching as much as car styles. Since TV, nobody is happy with a mere book knowledge of French or English poetry. The unanimous cry now is "Let's \textit{talk} French," and "Let the bard be \textit{heard}." \textit{Id.} at 332.}
\footnote{91. It is thought that the law student should be exposed to the basic skills to enable him to be competent to examine a title; to write a deed and other customary instruments; close a real estate deal; institute and prosecute suits, including the statutory proceedings of his jurisdiction; defend a criminal; prepare individual, partnership and fiduciary tax returns; work out an estate plan; prepare and probate a will; administer an estate, with the federal and state returns, etc.; and form, operate and dissolve an individual proprietorship, a partnership and a corporation, including compliance at each of these stages with all the requirements of the federal, state and local laws, tax and otherwise, applying to a small business. Cantrall, \textit{supra} note 49, at 909 (footnotes omitted).}
\footnote{92. See 1970 Clinical Report, \textit{supra} note 68. See also Ferren, \textit{Goals, Models and Prospects for Clinical Legal Education, Issues in Legal Education} 485 (D. Bok ed. 1971) [hereinafter cited as Ferren]. "Practice is \ldots a skilled activity \ldots to be carried on according to craft-traditions and craft standards of ideals and skills, an activity which involves expert knowledge and use of the law and also other lines of expertness \ldots ." Llewellyn, \textit{supra} note 68, at 367.}
\footnote{93. Cantrall, \textit{supra} note 49, at 909.}
\footnote{94. They rationalize that educational goals often "presuppose routine involvements as part of the pedagogical package." Ferren, \textit{supra} note 92, at 498. Fuller, \textit{supra} note 34, at 298 argues that these tasks do not serve any educational purpose.}
into a three-year educational program, the result is specialization.\textsuperscript{95} Instead of taking a lesson from modern automation, which is the reason for their existence, the thinking of the clinicians has remained in the mechanical age. Llewellyn, for example, states:

The lesson from modern production analysis is that the machine designed to do many things at once or indiscriminately can commonly be made more effective if the needed operations are broken down and taken one at a time. The lesson from general pedagogy is that to master a skill the less gifted student must have sustained practice in that skill; not only practice, but repetitive uninterrupted practice on that particular skill until it is a part of him.\textsuperscript{96}

The need for such specialized practice no longer exists in the electric age. "The essence of automation is the opposite. It is integrated and decentralizes in depth, just as the machine was fragmented, centralist, and superficial in its patterning of human relationships."\textsuperscript{97} Specialization and fragmentation are not needed for insight. Electric speed, with its ability to provide in depth participation, produces insight.\textsuperscript{98} Electronic speed couples action with reaction.\textsuperscript{99} It abolishes the spatial dimension of sequence that persisted in the machine age.

Electronic speed has also made us aware of the interrelationship and complexity of knowledge. It was, in part, an awareness of such an interrelationship that provoked the faculty of Columbia Law School to blur the traditional lines of division between areas of knowledge by adopting an interdisciplinary approach. This approach was also an attempt to simplify knowledge,\textsuperscript{100} but the introduction of the social sciences increased rather than reduced

\textsuperscript{95} The clinical program requires in depth involvement in a particular area of law with the rationale that all of the skills that the lawyer must exercise will be utilized by the student during his involvement in this program. This assumes, however, that skills will not become obsolete. "Most of the skills of the lawyers' craft obsolesce slowly if at all." Llewellyn, supra note 68, at 387. Electric technology has changed this too. It will cause an acceleration of "obsolescence of skills and cease to make their teaching the main end of education. Skills in the future will be taught on the job and retaught continuously through the span of a worker's employment. . . ." Mather, \textit{When Men and Machines Work Together, Automation, Education and Human Values} 37, 48 (W. Brickman & S. Leher eds. 1969).

"Our job on the side of skills alone is bigger than that of our-case forefathers, . . ." Llewellyn, supra note 68, at 382.

\textsuperscript{96} Llewellyn, supra note 68, at 376.

\textsuperscript{97} M. McLuhan, supra note 4.

\textsuperscript{98} Electric speed imposes a concentric pattern because it has an instant quality about it that causes "overplay in depth." "[T]he concentric with its endless intersection of planes is necessary for insight." \textit{Id.} at 26.

\textsuperscript{99} "In the mechanical age . . . many actions could be taken without too much concern. Slow movement insured that reactions were delayed for considerable periods of time. Today the action and the reaction occur almost at the same time." \textit{Id.} at 4.

\textsuperscript{100} \textit{Columbia University Law School, Summary of Studies in Legal Education} 12-14 (1928).
complexity. . . . [T]he social sciences did not yield clear rules that would simplify the law, but rather difficult and vague standards that might aid the lawyer; moreover, they could only complicate and greatly increase the scope of the teaching task.101

This phenomena has happened before with the introduction of electric "labor-saving" devices, such as toasters or washing machines or vacuum cleaners. Instead of saving work, these devices permit everybody to do his own work.102 It becomes apparent that to retreat from the interdisciplinary study of law merely because it is more than we bargained for is to hide our heads in the sand. The realization of the complexities of the real world should be proof enough of the need to pursue an interdisciplinary approach.

Electric technology provides the means to effectively pursue interdisciplinary study. The device of electric technology which offers the most immediate and feasible assistance is television. Television offers possibilities for achieving curriculum expansion that would be impossible utilizing any other means.103 It can take entire classrooms to situations that would normally be inaccessible, unobservable, or where the presence of the class would contaminate the event.104 The television image can depict processes and problems. It can demonstrate skills. It can expose classrooms to people and identities that they would otherwise never see. In all of these examples the class has the opportunity to react immediately to the image in the presence of each other and the teacher.

Educators, however, have been slow to acknowledge the educational potential of the television image. When they have accepted it, the goal was typically to compensate for deficiencies in the educational program by spreading the "best" teaching talent to a burgeoning classroom population at the lowest cost.105

Such an approach has the strength of frank, self-critical examination which prepares the ground for overcoming present handicaps as rapidly and as effectively as is possible with the use of modern techniques. But it also has the limitation of assuming that this is necessarily the most suitable way to remedy the present situation and that the value of television lies in the long run in such emergency relief.106

102. M. McLuhan, supra note 4, at 36.
103. It allows reinforcement within existing curriculum or even total renovation of curriculum.
104. See CLEPR, supra note 59, for example of how an entire class was able to watch a videotaped client interview.
105. "Primarily educational television has its widest support as an electronic extension of the class-room teaching of the 'best-teacher' to the 'most,' generally for formalized education and justified most often on a purely economic basis." Sherbrle, ETV Research in the Decade Ahead, 8 AUDIO-VISUAL COMMUNICATION REV. 192 (1960).
The reason for this approach is the inability of educators to consider the television image without reference to its primary method of distribution. To most people, television means broadcast television, with its limitations on scheduling due to allocation of one or two channels, its stigma as a dehumanizing and depersonalizing electronic device, and its lack of feedback and interaction of teacher and students. "[R]esearch has concentrated almost wholly on television as used (can we teach by television? who learns best by television? how do teachers feel about teaching by television?), to the exclusion of any interest in optimum uses of the medium." This is the easiest and most natural way to conceive of television since the television industry evolved from broadcast radio, and educational television evolved from educational radio.

But broadcasting is merely one way of bringing the television image to its point of reception. Confusion of the method of delivery of the image with the image itself is a serious handicap to any meaningful study of the effect of the medium.

B. The Television Image

The image is seen on the screen of a television monitor. The screen is a sheet of glass the inside of which has been coated with many bits of phosphorescent material. When an electronic signal is introduced into the monitor, it is directed to an electron gun which sprays the signal in sequence against these bits of phosphorescent material. When a bit of this material is struck by an electron, it glows. The brightness of the glow at any one point on the line is directly proportional to the strength of the electronic signal.

There have been few, if any, attempts to empirically study the effects of the television image itself upon the viewer. At a more philosophical level, however, Marshall McLuhan has proposed some hypotheses. He has stated that the "stipple of points" on the screen creates a mosaic image, and that that image can only be explained in terms of mosaic space as contrasted to visual space.

The mosaic can be seen as dancing can, but is not structured visually; nor is it an extension of the visual power. . . .

107. Kumata, A Decade of Teaching by Television, The Impact of Educational Television 176 (W. Schramm ed. 1960); Ford Foundation, Teaching by Television 46-49 (1959). These studies indicate no significant difference as to achievement or attitude of students between teaching by television and conventional face-to-face teaching methods.
110. Maloney, supra note 74, at 11.
112. McLuhan likens a television image to the stipple of points of a Seurat painting. M. McLuhan, supra note 4, at 249.
The visual sense when extended by phonetic literacy fosters the analytic habit of perceiving the single facet in the life of forms. The visual power enables us to isolate the single incident in time and space, as in representational art. In visual representation of a person or an object, a single phase or moment or aspect is separated from the multitude of known and felt phases, moments and aspects of the person or object. By contrast, iconographic art uses the eye as we use our hand in seeking to create an inclusive image, made up of many moments, phases, and aspects of the person or thing. Thus the iconic mode is not visual representation, nor the specialization of visual stress as defined by viewing from a single position. The tactual mode of perceiving is sudden but not specialist. It is total, esthetic, involving all of the senses.\textsuperscript{113}

The television image differs from a filmic image in that, with the latter, the motion the viewer perceives is a result of his eyes' retinal image retention. A standard motion picture is a series of still photographs projected onto a screen at a twenty-fourth of a second each. Each photograph is called a frame. A frame in television occurs each time the electron gun scans the 525 lines of phosphorescent material on the screen. This happens thirty times each second.\textsuperscript{114} McLuhan makes an even greater distinction between the effect of the television image and that of the filmic image:

The mode of the TV image has nothing in common with film or photo, except that it offers also a nonverbal \textit{gestalt} or posture of forms.\textsuperscript{115} With TV, the viewer is the screen. He is bombarded with light impulses. . . . The TV image is visually low in data. The TV image is not a \textit{still} shot. It is not a photo in any sense, but a ceaselessly forming contour of things limned by the scanning-finger. The resulting plastic contour appears by light \textit{through}, not light \textit{on}, and the image so formed has the quality of sculpture and icon, rather than of picture. The TV

\textsuperscript{113} Id. at 334.

\textsuperscript{114} A frame is made up of two fields. A field is completed when the beam scans the screen filling in every other line. The beam scans alternate lines to avoid the flickering image one would associate with an old time movie which is produced when a beam scans every line on every field. This is called interlace scanning.

\textsuperscript{115} The viewer receives an impact from this visual form that does not have to be remembered. It remains in the brain as a result of the energy it adds to the brain in the form of the image that can be recalled at once in terms of mental energy.

This is particularly important when used in conjunction with print. An argument used in favor of print, to the exclusion of videotape or other image form devices, was that print allows instant and no cost reference back. Retrieval of information on tape is difficult and time consuming at worst. Instant retrieval systems which would provide reference back are not yet feasible. \textit{But see} note 172 \textit{infra} and accompanying text. The mix of print and image forms allows a "word anchor" as a stimulus to the visual concept. \textit{See} Hopper, \textit{One Way, One Time}, \textit{Educational Television}, March 1971, at 11; Luchins, \textit{Implications of Gestalt Psychology for AV Learning}, \textit{Audio-Visual Communications Review}, Oct. 1961, at 27.
image offers some three million dots per second to the receiver. From this he accepts only a few dozen each instant, from which to make an image. 116

The viewer is an integral part of a television system. To create a perceivable image the viewer must compensate for the low amount of visual data by "closing" the space between the pattern of dots. 117 It is this viewer involvement that makes the viewing of a television image a participational activity. Thus, McLuhan contrasts television with print and likens it to manuscript and the spoken word as a "cool medium . . . [one which] leaves much more for the listener or user to do than a hot medium. If the medium is of high definition, the participation is low. If the medium is of low intensity, the participation is high."

Television, like all electrical media, abolishes spatial dimension. 119 For example, in demonstrating the use of a videotape recorder in a trial practice class, it was possible to show the faces of the witness and the student attorney on the screen at the same time, even though they were far apart and were facing opposite directions. In this way the image is able to create an in depth involvement with the participants and eliminate time and space as factors in association. This quality also enables the viewer to become involved on a one-to-one basis. One-to-one involvement is possible even though the viewer is part of a large group. 120 A major factor contributing to this feeling of personal relationship with the image is that it tends to be a close-up medium. 121 Consequently, a student sitting in the back of the room, near a monitor, would be able to see the subtle nuances of the person being televised as well as a person sitting next to the person televised.

The television image enables "us not only to see and hear more vividly, but to understand more deeply." 122 The scanning mechanism of the television monitor blurs sharp lines of distinction making one image

117. McLuhan explains that this prerequisite for viewing makes the quality of the image "profoundly kinetic and tactile, because tactility is the interplay of the senses, rather than the isolated contact of skin and object." Id. at 314.
118. Id. The problem with complete reliance upon this approach is that it fails to take into consideration advances that will undoubtedly be made in image quality. A system exists that is capable of producing 1000 lines of visual information. This system produces an image that is more highly defined than a glossy photograph. But the practicalities of the situation do not necessitate this type of definition for normal use, and it is doubtful that industry will ever produce such systems for other than medical or highly technical uses.
119. The television image is two dimensional. It is "able to transcend barriers of time and place, or disciplines and personalities." H. Cassirer, Television Teaching Today 61 (1962) in Maloney, supra note 74, at 14.
120. Hopper, One Way, One Time, Educational Television, March 1971, at 11.
121. A recent trend in motion picture films has been toward greater use of the close up. This is in reaction to audience demands for more involvement with the actor such as the involvement they are able to achieve at home watching the Tonight Show. "[T]elevision talk shows are said to be the most original form the medium has produced." Welles, The Sociology of Dumb, Esquire, May 1971, at 104 (a humorous article castigating talk shows).
part of the next. It is this quality that makes effective understanding of total "processes" possible from a television screen.\textsuperscript{123}

The origin or source of every television image is a television camera.\textsuperscript{124} The camera has an electron gun which scans the subject 525 times every half second.\textsuperscript{125} Light and dark areas on the subject are converted into a stream of high and low levels of sequential electrical energy. This information along with a synchronizing signal and the electrical information produced by the microphone is the television signal. This signal is ultimately received by the television monitor and produces the television image. The signal contains information about the picture itself, audio information, and synchronizing information to convert the signal back into a picture.\textsuperscript{126} The synchronized signal is sent to an electron gun at the rear of the picture tube where it is broken down into individual lines corresponding to the lines generated by the camera when it scanned the subject. These lines are then sprayed onto the screen by the electron gun in the same order that they were converted into electrical information by the camera.\textsuperscript{127}

C. Distribution Systems

Between the screen and the camera is a distribution system. Each system is different and offers its particular benefits at its particular costs. Each distribution system should be viewed in terms of particular educational goals.

\textsuperscript{123} The recent flood of documentary films is a result of the demand by television audiences for themes of process and complex reactions. M. McLuhan, supra note 4, at 320. See E. Barnouw, supra note 109. All of America was involved in and a part of the funeral of John Kennedy. The Kefauver Crime Committee Hearings and the Army McCarthy Hearings depicted to millions the Committee process, the Hearing process, the questioning process, and the process of taking the fifth amendment. Children that watched television were more aware of the process of launching men into space and getting them back than were their newspaper reading parents.

\textsuperscript{124} There are three types of monochrome cameras: (1) the image-orthicon (I-O) camera, (2) the vidicon camera, and (3) the Plumbicon camera. The camera associated with low cost videotape records is a vidicon camera. It is cheaper than the others, requires less light, and is lightweight and compact. The other two are essentially studio cameras. See H. Zettl, Television Production Handbook 1-40 (2d ed. 1970); R. Bretz, Techniques of Television Production 11-28 (2d ed. 1962).

\textsuperscript{125} This is the minimum standard number of lines for over-the-air broadcast purposes established by the FCC. There are cameras, however, which scan at a slower rate, and cameras such as those used for medical school purposes, which scan up to 1000 lines per half-second to produce a very detailed image.

\textsuperscript{126} The beam in the television receiver must be synchronized with the scanning beam in the television camera so that both begin each line, field, and frame together. This is accomplished with a "sync pulse" which signals the scanning beam to start a new line or frame. A "blanking pulse"—to switch off the beam as it moves into position for a new line or frame—is also necessary. . . . The scanning beam traverses 15,750 lines per second in order to paint the standard thirty frames per second.

Barrow and Manelli, Communications Technology—A Forecast of Change (Part 1), 34 LAW & CONTEMP. PROB. 205, 212 (1969) [hereinafter cited as Barrow & Manelli].

\textsuperscript{127} L. Showalter, Closed Circuit TV for Engineers and Technicians 209-10 (1969).
1. OVER-THE-AIR BROADCASTING

Over-the-air broadcasting of television signals was conceived as a method of escaping from the confines of a wire. It offers simultaneous access to the signal at random receiving points. It is particularly useful as a means of servicing diverse points within a given geographical area.\textsuperscript{128} It would be very costly to run a wire to each point, but, on the other hand, it is also costly to build and maintain transmitting equipment. This cost is balanced, however, by the increased audiences. Thus, if the goal is to simultaneously reach a diverse group of people at many different points within a given geographical area, over the air broadcasting is the proper method.

However, because there are a limited number of frequencies over which broadcast of television signals is feasible, the FCC has maintained control of these channels of communication. There are currently two different broadcast band frequency ranges.\textsuperscript{129} The "choicest" of the two is called Very High Frequency (VHF). It is in the 30 to 300 megahertz range. It is preferable because at higher frequencies the wave is absorbed by buildings and other obstructions, and at lower frequencies more sophisticated receiving equipment is necessary. The wide bandwidth of a television signal makes it impossible to fit more than twelve transmitting stations within this frequency range.\textsuperscript{130} In 1952 the FCC authorized the use of the next higher frequency range for television broadcasting. This is the 300 to 3,000 megahertz or Ultra High Frequency (UHF) band. Although available since 1952, lack of economic incentive has slowed development in this frequency range.\textsuperscript{131} In 1963 the FCC carved out of the UHF band the frequencies of 2500 to 2690 megahertz for the transmission of programs to selected receiving locations in accredited public and private schools, colleges and universities.\textsuperscript{132}

This frequency range is called Instructional Television Fixed Service (ITFS). ITFS differs from the other broadcast frequencies in that special equipment is needed to pick the signals off the air and to convert

\textsuperscript{128} For an interesting discussion of the factors used to determine whether satellite would be suitable for distribution of television signals in India, see Shramm & Platt, \textit{Satellite-Distributed Educational Television For Developing Countries—Summary Report}, Satellite Communications and Educational Television in Less Developed Countries (Appendix C) Staff Papers for the President's Task Force on Communications Policy (1969).

\textsuperscript{129} See Barrow & Manelli, \textit{supra} note 126, at 206-16 (for a detailed discussion of the radio spectrum).


\textsuperscript{131} The equipment needed to transmit in this frequency range is more sophisticated and more expensive. Furthermore, audiences are already condition to the more polished and professional productions they are able to receive on VHF network shows. Consequently, advertisers are not willing to support UHF stations. For discussion of the economics of broadcasting industry, see F. Friendly, \textit{Due to Circumstances Beyond Our Control} (1967). \textit{See also President's Task Force, Final Report, supra} note 130.

\textsuperscript{132} This is essentially a closed circuit system. \textit{See} notes 139-153 \textit{infra} and accompanying text.
them into an image. This need for special equipment makes ITFS in essence a private distribution system. It is capable of transmitting an image from five to twenty miles.

The elements of the system are a central transmitter system (transmitter and antenna) for generating the... signal and a parabolic receiving antenna installed on the roof of each receiving location along with a “down” converter for converting the 2500 MHz signals to channels receivable on a standard TV receiver. A separate transmitter is needed for each active channel, while only one receiving antenna and converter are needed for each receiving location. Once received and converted, the signals are usually distributed by a closed circuit cable to the appropriate classrooms where conventional television receivers are utilized in viewing. 133

The first college course offered for credit over broadcast television was undertaken by Western Reserve University in 1950. It had an estimated viewing audience of 58,000 persons. 134 Great Britain has put into operation a plan called Open University which will make higher education available on a nationwide basis. 135 Governor Sargent has announced plans to establish a “college without walls” in Massachusetts. 136 The major concept in these plans, and the plans that will follow, is to provide the most information for the most people at the least cost. Governor Sargent said his plan “could cost as little as 10 per cent of the expense of a conventional university.” 137 The British plan calls for $14.4 million for the first five years of operation, “most of which will be devoted to the construction of the university center... (to build just one conventional campus, housing only 5,000 pupils, would require an expenditure three times as great).” 138

2. CLOSED-CIRCUIT TELEVISION (CCTV)

In closed-circuit television, the signal is carried by coaxial cable or by microwave relay to selected receiving locations. Unlike public broadcast, control is exercised over closed-circuit reception. The signal is not available for general distribution. The hardware for a closed-circuit system consists of a “headend,” either the source of the information (camera, videotape recorder, or film chain) or an antenna that picks up off-the-air signals (microwave or broadcast); a coaxial cable; and “hook-ups” to connect one or more television monitors. Since closed-circuit channels

133. Future Opportunities For Television (Part II) at 87 Staff Papers for President’s Task Force on Communication Policy (1969).
137. Id.
are not limited by the FCC, the only limitation on the number of channels is the capacity of the hardware. It can also be used in combination with other systems. A signal could be broadcast on ITFS, picked up by an antenna and distributed throughout the school on its closed-circuit system.

Closed-circuit systems are used for selected distribution of specific information. This system insures that the information will not be available to other than the individual or individuals selected by the sender. This point was made particularly clear by Chief J. P. Storm, head of the South Carolina Law Enforcement Division, in explaining why police forces were using closed-circuit television instead of public broadcasting for police training. "Broadcast TV would only create problems; we would actually be training criminals in law evasion . . . ."

South Carolina has initiated a training series on closed-circuit television that is directed to 4,000 police officers at 85 locations throughout the state. Some of the units taught in the series called "From Crime to Court" include:


Material for each program is thoroughly researched by the State Attorney General's Office before production. Throughout the series, television instructors include the State Attorney General, Assistant Attorneys General, an FBI inspector, the Alcoholic Beverage Control Chief Commissioner and leading authorities on crime control from within the state.

The Internal Revenue Service has also begun to use closed-circuit television to aid in the instruction of its agents and field personnel. They have used television to teach income tax law, corporate law, and to keep "abreast of new developments, techniques, and regulations that affect agents and other personnel." The Internal Revenue Service has a studio.

139. There are two basic types of signals that can be used in closed-circuit television. One type is a video signal carried on a coaxial cable. A basic videotape recorder is the heart of this type of closed-circuit system. The signal starts at the camera, is directed to the videotape recorder over a coaxial cable, and from there into a television monitor. The other type of closed-circuit signal is radio frequency (RF) signal. This is the type used in ITFS broadcasting. It is considered a closed-circuit system because a special receiver is needed; however, with RF signals there is no way to insure privacy of the messages. Thus, if dealing with confidential information such as lawyer-client interviews, it would be best to use video closed-circuit.

140. ITFS systems were developed as a means of economically extending CCTV systems to cover a wider area with increased receiving points. ITFS What It Is . . . How to Plan (National Education Association, 1967).


142. Id. at 54.

143. COMMUNICATIONS NEWS, April, 1971, at 40.
at its National Center in Washington. The studio is equipped with two television cameras, a videotape recorder, and devices to enable the director to cut from camera to camera for the picture he wishes to have recorded and transmitted to monitors in any of the twelve classrooms. The studio is also used by agents-in-training for "role playing" which is viewed by the class, and later by the participants on videotape. Studies made by the Methods Section of the Service have demonstrated that their programs have improved student performance and, at the same time, reduced class time by twenty-five per cent.\(^4\)

The medical schools have long been aware of the potentials for closed-circuit television. "In 1939 surgery was televised at the Israel Zion Hospital in Brooklyn, New York, to seventy-five doctors and interns who viewed the operation in another building. The long-distance view in the amphitheater was replaced by the television close-up.\(^1\)"

The medical health field has also taken advantage of closed-circuit television. In 1970 a diagnostic service was established between Massachusetts General Hospital and Logan Airport, Boston, Massachusetts. It is possible for a person feeling ill at the airport to be directed to the diagnosis room where he is seated on a chair in front of a television camera and monitor. He telephones the hospital and the doctor at the other end comes into view on the patient's monitor. The doctor sees the patient on his monitor and has the controls at hand to point the camera and to change its focal length, thus allowing the doctor to get a close up view of any particular part of the patient's body.\(^4\)

At the college level, closed-circuit television came into use in 1950 at Stevens College to help in the education of persons entering the field of communications. Its use was expanded to teaching a course in citizenship at Syracuse University in 1951, and at Cornell University it was used to expose many students to the physics experiments they would normally have had to line up at microscopes to view.\(^147\) At Harvard University and the Massachusetts Institute of Technology closed-circuit television has been used to bring students to situations that could not otherwise accommodate an entire class at one time. Thus, it has been helpful

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\(^{144}\) "Since the installation of CCTV systems, 'we have increased teacher effectiveness, stimulated student participation and enthusiasm, and provided substantial reductions in training time for both instructors and students.' Id.

Texas Instruments Inc. has established a microwave link with "nearby universities" that pipes lectures into their plant. "In addition to developing managers, the facility helps to attract and hold key employees." \(\text{BUSINESS WEEK, Dec. 5, 1970, at 59.}\) The article, \textit{Making a B-school more relevant}, at 58, is an explanation of how Carnegie-Mellon University's Graduate School of Industrial Administration has been using videotape to revitalize their curriculum.


\(^{146}\) Massachusetts General Hospital [Boston], Telediagnosis (undated pamphlet).

\(^{147}\) Gumpert, \emph{supra} note \(^{145}\), at 169.
in demonstrating electronics problems and also in teaching courses on
computers. Instead of taking the whole class to the computer, closed-
circuit television provides a method of bringing the computer to the
class.

At the University of California at Berkeley closed-circuit television
has encouraged "face-to-face contacts of teacher and student and intro-
duced resources, experiences, and efficiencies not otherwise available to
student learning contexts, including self-study, tutorial, seminar, discus-
sion, laboratory, and lecture meeting formats." Harvard University,
apparently aware of the interdisciplinary possibilities offered by closed-
circuit television, installed a cable that had connections at almost every
building on the campus in 1965. This system would make possible, for
example, a demonstration to law students in Austin Hall at the Law
School of the use of a computer located across the campus in Pierce
Hall to solve complex problems in Environmental Law, Consumer Pro-
tection, or Urban Planning by simply connecting a television camera to
the tap-off at Pierce Hall and a tap-off at Austin Hall.

Other universities have planned for the eventuality of closed-circuit
communications. In 1968 the University of Miami had its law school
connected to the central television studio on the campus. The University
of Washington at Seattle has provided closed-circuit television facilities
for teachers interested in using an overhead camera. Abilene Christian
College in Texas has made use of closed-circuit television to observe
student teachers and to allow classroom observation for various psy-
chology courses. The list goes on to include among the innovators Illinois
Wesleyan University, Kent State University, Lewis and Clark College,
and New Mexico State University.

Law enforcement agencies have recently begun to make use of closed-circuit television
for surveillance. In Olean, New York, a single policeman is able to keep 75 percent of the
city's downtown area under surveillance from headquarters. This helps to control traffic con-
Another use of closed-circuit television becomes evident from the rationale used by officials at the University of Miami Law School in discussing their plan to move the law school closer to "where the law is happening." Before student demands for relevance became fashionable, professors at that law school were aware of what they considered a serious deficiency in the legal education of their students. Most of the law students had never seen a real trial, nor had they seen the courthouse or any of the processes of law that are carried on at most courthouses. The plan is to move the law school to the building next to the courthouse in downtown Miami so that law students would be involved in the hubbub of legal activity there. The plan is original, exciting and invigorating, but its fruition is also a long way off.

Closed-circuit television makes possible many of the same objectives without the necessity of moving the law school or of waiting until financing becomes available. If the court would allow one way mirrors into the classroom next door, they would certainly permit a television camera to be inconspicuously mounted at the rear of the courtroom. Cables could be run from the courtroom in downtown Miami to monitors at the law school which could be placed in classrooms and in the student lounge. A class in evidence or trial practice could watch a live trial and discuss points of law and tactics as they arose without interrupting the trial. The trial could also be recorded on videotape for subsequent reference. Relevance, reality, and supervised feedback are built into such a course without the need for a substantial investment in hardware or teacher salary.

Conditions, crime detection, accident response and fire detection. The cost of the system is $6,500 a year, less than the salary of a single policeman. Smith, The Wired Nation, 210 The Nation 582, 585 (1970). The Boston Police Department used their CCTV system for the first time on May 6, 1971 to cover a war protest. Supervisors sat at the station, watching the situation and deployed reserve policemen whenever trouble seemed most imminent. They videotaped the event as they watched it for subsequent use in police training and for evidence against those arrested. See also Miami Herald, Jan. 5, 1971, at 8-A, col. 1.

This police activity demonstrates the use of CCTV in a situation that is opportune for such utilization. At the same time, legal educators should begin to think of possible limitations to protect rights of privacy.


154. The University of Michigan Law School installed such a system in September 1961. The system was originally planned to be used in conjunction with courses such as Evidence and Trial Practice. However docket changes due to out of court settlements, etc., made difficult any long range plans. Consequently, the cable system has been utilized on an informal basis. A blackboard outside the television room lists the current docket, and students are allowed to view the monitors at their convenience.

Safeguards limiting the viewing of monitors to law students must be taken if such cable hookups are to work properly. For example, last year, during a highly publicized murder trial, interesting to the law student body as well as to everyone, the judge turned off the television camera to avert a possible mistrial. "[A]n interesting if not typical learning situation was missed." Letter from Bailey H. Kuklin, Assistant Dean, to the author, August 25, 1971.
3. COMMUNITY ANTENNA TELEVISION (CATV)

Community antenna television is a hybrid of closed-circuit television and broadcast television. It was devised in 1950 by Robert Tarlton, a television sales and serviceman, to pick up faint broadcast signals from Philadelphia. He erected a master television antenna on top of a mountain to pick up the signals and then boosted their strength by feeding them into an amplifier before sending them to the homes of his subscribers over a coaxial cable. The system is still basically the same as it was when first put into operation.

A tower is constructed on a hill or other spot selected for good reception. The antenna system on the tower is carefully engineered, usually with a separate antenna for each channel that is to be received. In some instances, distant signals come to the tower by a relay system of one or more microwave transmitters.

At the foot of the tower is a small control station, called the "headend," where the signals are brought up to maximum strength and clarity. . . . Amplifiers placed at distances of 1,500 to 2,000 feet along the trunk line into town keep the signals strong. From the main cable, feeder lines, "tapoffs," and "housedrops" carry the signals to individual streets and the subscribers' homes.155

Cable television is seen by many as the solution to the major communications problems of the information age.166 It offers expanded channel capacity and improved signal reception.167 Moreover, CATV offers the opportunity for low cost origination of television signals.158 In this

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155. Smith, The Wired Nation, The Nation, 582, 583, May 1970, at 582, 583. (This article presents a general overview of CATV. It can be obtained by sending $.35 to The Nation, 333-6th Ave., New York, N.Y. 10014).

156. The Mayor's Advisory Task Force on CATV and Telecommunications, A Report on Cable Television and Cable Telecommunications in New York City, [hereinafter cited as Mayor's Task Force on CATV]. See Barlow & Manelli, supra note 126, at 238 n.99 and accompanying text.

Before very long information theory will have been brought to its logical conclusion in public communications; there will be a single unified network for all kinds of messages . . . separate systems for telephones, telegraph, television and data transmission will disappear. Information will flow through the network as on-off digital signals and appear as pictures, sound or print, according to the choice of those sending and receiving it.


158. Beginning January 1, 1971 CATV systems with 3,500 or more subscribers were required by the FCC to begin "to operate to a 'significant extent,' as a local outlet." Local cable companies would have to obtain at least basic origination equipment (T.V. camera and videotape recorders, an expenditure of less than $1,500) and serve as an origination point for programming.

By "significant extent" we mean something more than origination of automated
way cable television will be able to provide service to its local community\(^1\) in a way that broadcast television cannot.\(^2\) Origination of television signals on a cable-system is inexpensive for the same reasons that broadcast of television signals is expensive.\(^3\) There is no transmission facility to build or maintain.\(^4\) Since the signal will not be carried over the air, it is not necessary to use expensive standard broadcast equipment.\(^5\) The only hardware needed for origination, in addition to a basic


\(^{2}\) It should be further noted that the FCC intends to limit to one the number of channels on which the operator can originate himself. Id. This means that a 40 channel system, assuming maximum incoming programming of 20 channels, would have 20 channels left open.

\(^{3}\) The FCC has suggested CATV as "a low cost outlet for moderately funded organizations desiring access to a particular segment of the community." Notice of Proposed Rulemaking and Notice of Inquiry, F.C.C. Docket No. 18397, 15 F.C.C.2d 417, 420 (1968). There is no reason to suppose that "local" merely indicates geographical proximity and that it could not indicate a special interest group such as the "legal community."

\(^{4}\) Cable television represents the maturity of the electric age of implosion. The margins are now as powerful as the centers in the mechanical age once were. Comparing cable television to broadcast television is like comparing "a railway system to an electronic grid system: the one requires railheads and big urban centers. Electric power, equally available in the farmhouse and Executive Suite, permits any place to be a center and does not require large aggregations." M. McLuhan, supra note 4, at 36.

\(^{5}\) The President's Task Force indicated that a major barrier to expanded television use, a barrier more formidable than scarcity of radio frequencies within the spectrum, was money.

Establishing a broadcasting station is an expensive undertaking. Before there is a single viewer or advertiser, a substantial outlay is involved—legal and related expenses to obtain a license, a transmitter, studio equipment. . . . In a reasonably sized market, the minimum total cost of a new entry is roughly $500,000. . . .


159. The FCC has suggested CATV as "a low cost outlet for . . . moderately funded organizations . . . desiring access to . . . a particular segment of the community." Notice of Proposed Rulemaking and Notice of Inquiry, F.C.C. Docket No. 18397, 15 F.C.C.2d 417, 420 (1968). There is no reason to suppose that "local" merely indicates geographical proximity and that it could not indicate a special interest group such as the "legal community."

160. The FCC has estimated that a minimum cablecasting system could be purchased for $4,485 with a total annual operating cost of $1,675. FCC First Report & Order, supra note 156, at 17654. Compare this figure with the Rand Corporation recommendation that $750,000 be invested for an over-the-air UHF station for Watts. Smith, supra note 154, at 86. Since the FCC has not yet established minimum equipment standards it would be possible to spend a minimum of $1,500 for a half inch portable videotape recorder with camera. Videotape, maintenance, and operating personnel will be added expenses but this is no where near the $1.3 million estimated by the Carnegie Commission to equip a "basic" over-the-air broadcast station.

A basic station has a small studio with two black-and-white image orthicon cameras and a peak time station complement of just seven people: a general manager who doubles as program producer and director, his assistant and a secretary-bookkeeper, two engineers at the studio for camera work, tape and film operation, broadcast control and maintenance, and an all-purpose operation crew of two men. . . .
cable system, is a television camera. Finally, the management of a broadcast frequency has become a highly professionalized business requi-

basic station can be expected to turn out about an hour or an hour and a half of its own programming weekly. It is equipped with two tape and two film units, one of each able to handle color.

Its annual operating costs of $160,000 and annual capital cost of $130,000 bring its total annual cost to $290,000.

The management of a broadcast frequency has become a highly professionalized business requir-

its annual operating costs of $160,000 and annual capital cost of $130,000 bring its total annual cost to $290,000.

The potential of cable is that, with adaption, any signal can be sent without having to go to the two-inch quadriplex tape needed for broadcast television because sending signals into the air makes them "break-up." Since no information is lost by transmitting over cable, a complete system can be built around half-inch portable equipment, of which a complete system sells for $1,500.

164. A cable company can begin origination by pointing "its camera at, say, a basketball game, a play, a concert, or a candidate for public office, and feed its system's coaxial cable directly. It can also feed its cable with filmed material, such as motion pictures." Mayors Task Force on CATV, supra note 156, at 4.

The FCC has devised a list from data supplied by TeleMation Corp. of five different systems a cable operator might purchase. They include a "color system," a "complete monochrome system," a "basic monochrome system," a "small monochrome system," and a "minimum monochrome system."

The complete monochrome cable system includes:

One film chain with two 16-millimeter projectors, one 35-millimeter projector and a film chain camera.

Minimum necessary lighting and audio equipment to produce professional looking programs.

EIA-RS 170 standards for video signal. Cameras are of high quality with 800 to 1,000 lines of horizontal resolution and a signal to noise ratio of approximately 50 db.

Two video tape 1-inch helical scan recorders.

Fader type switching with preview.

Screen splitter special effects generator.

Adequate monitoring and test equipment.

Control console with necessary remote controls and intercom system.

Automatic Weather Channel with slides on same channel.

One thousand square feet of studio space at $8 per square foot plus $1000 furnishings.

No mobile van is included, but the equipment is designed so that necessary equipment for remote cablecasting can be transported satisfactorily in a station wagon or other company vehicle.

The basic monochrome system includes:

Single live camera zoom lens.

One film chain connected to the Weather Channel with one 16-millimeter film projector and one 35-millimeter film projector.

Minimum necessary lighting and audio to produce professional looking programs.

EIA-RS 170 standards of video signal. Cameras are of high quality with 800 to 1,000 horizontal resolution and signal to noise ratio of approximately 50 db.

Two video tape 1-inch helical scan recorders.

Vertical interval switching with preview.

Minimum monitoring equipment.

Automatic Weather Channel on same channel.

Six hundred square feet of studio space at $8 per square foot, plus $500 furnishings.

No mobile van is included but equipment is designed so that equipment can be satisfactorily transported in a station wagon or other company vehicle for remote programming.

The small monochrome system includes:

Single live camera with zoom lens. Synchronizing standards are reduced to industrial two-to-one interlace. There is no video processing outside of that produced by the camera itself. Horizontal resolution is reduced to approximately 550 lines and signal to noise ratio is reduced to approximately 35 db. The cameras are
ing precise timing to use every possible second of the limited broadcast time in any given day. This is due to the fact that a broadcast frequency is a limited and scarce resource.\textsuperscript{165} Cable, on the other hand, has the capacity for almost unlimited expansion of channels for communication.\textsuperscript{166} “If cable expansion is permitted in keeping with its appeal in the marketplace, we are on the threshold of a new era in broadcasting...”\textsuperscript{167}

less adaptable to broadcast style operating techniques. The zoom lens is reduced in range and type of controls. There is no film chain although the Weather Channel\textsuperscript{TM} has a projection slot for rented projectors. Minimum lighting and audio. One video tape 1-inch helical scan recorder. One Weather Channel\textsuperscript{TM} with reduced number of weather instruments. Minimum monitoring. Four hundred square feet of studio space at $4 per square foot as a refurbishing cost.

The camera and video tape recorder can easily be transported in an ordinary automobile for remote cablecasting. “The color system is more elaborate than the [complete monochrome system], whereas the small and particularly the minimum monochrome systems are much more modest.” FCC First Report and Order, supra note 156, at 17654-55.

The total cost for the equipment, studio construction, and furnishings including “[All video, audio, lighting (excluding overhead pipe grids and power distribution), and installation in prepared studio. . . . [And] including air conditioning, power distribution and minimum space required for satisfactory programming,” is: Color system, $95,000; Complete monochrome system, $45,000; Basic system, $27,300; Small monochrome system, $9,500; and minimum system, $4,485. Id.

165. This may not operate to the same extent with educational television, but the fact of broadcast connotes “the fleeting moment.” The staff is paid on a weekly basis and must produce X hours of programming.

There are numerous broadcasting standards to which the public and the broadcaster have been conditioned, some of which are not intrinsic to the medium, but rather are conventions which are the result of practice. People have been conditioned to “shows” as opposed to “lessons.” Opening and closing themes, elaborate credits, fast pacing, and a preoccupation with getting “on” and “off” the air on time have become customary practices.

Gumpert, supra note 145, at 158.

166. A broadband cable has capacity to carry 80 television channels. Hearings on Regulation of CATV Before the Subcomm. on Communications & Power of the House Comm. on Interstate and Foreign Commerce, 91st Cong., 1st Sess., Ser. 91-91, at 63 (1969) (testimony of Irving B. Kahn). This is because of the nature of the cable. It consists of three elements. The center is a piece of copper wire which is surrounded by a polyethylene foam which is in turn surrounded by a tubular shield of braided copper wire or a seamless aluminum sheath.

When a current is introduced into the cable, an electromagnetic interaction takes place between the center wire and the surrounding sheath.

Smith, supra note 154, at 584. It is this interaction that prevents currents from radiating off of the cable thereby enabling it to carry so much information.

The smallest piece of cable, the wire off of the main line into the home has a capacitance of approximately a thousand times—I believe it is 987 times—that of a piece of bell wire that brings in your telephone signal. . . . You could put hundreds of AM [radio] signals into the bandwidth required for one television signal.

Theoretically, that piece of wire is capable of doing many things, like data transmission and other uses which do not require anything like the bandwidth of the radio signal. Testimony of Irving Kahn, supra at 63.

167. \textsc{President's Task Force, Final Report, supra} note 130, at ch. 7, p. 52.

The primary reason to suspect that cable will expand is its potential for profit. In October of 1968 the research firm of Drexel, Harriman and Ripley published the Industry Report on Community Antenna Television (CATV).
Expansion of cable capacity could provide a variety of new communications services to home and office. In addition to the already commonly provided services such as time, weather, news ticker, and stock ticker some of the predicted services include: facsimile reproduction of newspapers, magazines, documents, etc.; electronic mail delivery; merchandising; business concern links to branch offices, primary customers or suppliers; access to computers, e.g., man to computer communications in the nature of inquiry and response (credit checks, airlines reservations, branch banking, etc.)...and computer to computer communications; the furtherance of various governmental programs on a Federal, State and municipal level, e.g., employment services and manpower utilization, special communications systems to reach particular neighborhoods or ethnic groups within a community, and for the municipal surveillance of public areas for protection against crime, fire detection, control of air pollution and traffic; various educational and training programs, e.g., job and literary training, preschool programs in the nature of "Project Headstart," and to enable professional groups such as doctors to keep abreast of developments in their fields; and the provision of a low cost outlet for political candidates, advertisers, amateur expression (e.g., community or university drama groups) and for other moderately funded organizations or persons desiring access to the community or a particular segment of the community.168

4. VIDEOTAPE AND INTERCONNECTION

A videotape which has been recorded on one videotape recorder can be replayed on another videotape recorder. The videotape itself, when

It presents the hypothetical case of a system constructed in a community of 30,000 to 40,000 people, of whom about 10,000 might subscribe. These are assumed to be 100 homes per square mile. Such a community would require 100 miles of cable, at an installed cost of $4,000 per mile, or a total of $400,000. A good antenna and head end installation would cost about $75,000, and legal fees, promotional expenses and other costs would come to about $85,000. The total investment in the rig would therefore be $560,000. In the example the system is to be depreciated over ten years, and the cable operator has borrowed $400,000 of the required capital at 7.5 percent interest.

When such a system has signed up 5,500 subscribers—55 percent of the potential total in the community, which many systems meet or exceed—it will be producing, after all costs have been met, depreciation is accounted for, and interest and taxes are paid, an annual profit of $167,000. At that rate it would more than repay its total cost in less than four years. "A system operator might reasonably expect to achieve a pretax margin of 30 to 35 percent," the study says coolly.

Smith, supra note 156, at 587.

Fred Friendly, in a letter accompanying the Mayor’s Advisory Task Force Report, indicated that “[t]here is now an abundance of venture capital ready and able to extend cable through the city.” Letter from Fred W. Friendly to John Lindsay, Sept. 17, 1968 (accompanying MAYOR’S TASK FORCE ON CATV, supra note 156).

The reason for this potential is the demand for better reception and greater channel selection. It is estimated that cable will reach 30 million homes by 1975 and by 1980 it will be the primary source of broadcasting. Barnett, Cable Television and Media Concentration, Part I: Control of Cable Systems by Local Broadcasters, 22 STAN. L. REV. 221, 229 (1970).

sent from one place to another, is a distribution system. The hardware needed for this type of system is two compatible videotape recorders, one connected to a camera, and one connected to a monitor. This videotape principle of distribution is the basis for a whole new industry within the communications field—packaged information available to the general public. Several firms have begun to manufacture a device which can be attached to a television set for the playback of pre-recorded video cassettes. Unlike the videotape recorder, these machines merely reproduce what has been recorded. Thus the informational flow is unidirectional with no opportunity for the user to process his own information.

169. The biggest obstacle in the way of exchange videotapes was that individual systems were incompatible. It was decided, at an early date, that individual users, if they intended any exchange of information, should purchase similar systems. The consensus of opinion among unorganized users, as expressed in RADICAL SOFTWARE, showed a preference for the Sony one half inch videotape recorder. Sony was chosen not for any particular positive reason, however there was nothing drastically wrong with it. It was chosen only so that systems could be compatible. The Japanese electronics industry recognized the problem and, in 1971, established an industry standard. It is called EIAJ. Since this standard has been established all one half inch Japanese units are compatible with each other. The following chart indicates videotape recorders which produce interchangeable tapes:

<table>
<thead>
<tr>
<th>Tape Size</th>
<th>Speed (inches per second)</th>
<th>Recorder Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. 1/2-inch tape</td>
<td>7.5</td>
<td>Apeco VT-101, Shibaden SV-700U, Shibaden SV-800U</td>
</tr>
<tr>
<td>B. 1/2-inch tape</td>
<td>9.45</td>
<td>Craig 6401, Diamond DP-1, Victor KV-810</td>
</tr>
<tr>
<td>C. 3/4-inch tape</td>
<td>12</td>
<td>Concord VTR-400</td>
</tr>
<tr>
<td>D. 1-inch tape</td>
<td>6.91</td>
<td>Panasonic 8100, IVC-600, IVC-900 (Photo D)</td>
</tr>
<tr>
<td>E. 1-inch tape</td>
<td>7.5</td>
<td>RCA-800, Bell &amp; Howell 2910, RCA-900</td>
</tr>
<tr>
<td>F. 1-inch tape</td>
<td>9.60</td>
<td>Ampex 4500, Ampex 5800</td>
</tr>
<tr>
<td>G. 1-inch tape</td>
<td>8.57</td>
<td>GPL VR-400, Panasonic 8100 AD</td>
</tr>
<tr>
<td>H. 1-inch tape</td>
<td>7.5</td>
<td>Craig 6403, Diamond DP-2, Victor KV-800</td>
</tr>
<tr>
<td>I. 1-inch tape</td>
<td>9.60</td>
<td>Ampex 5200, Ampex 7900</td>
</tr>
<tr>
<td>J. 1-inch tape</td>
<td>8.57</td>
<td>GPL VR-400, Panasonic 8100 AD</td>
</tr>
</tbody>
</table>

Harris, Selecting a Videotape Recorder, ELECTRONICS WORLD, Feb. 1971, at 51.

If a tape is made on a videotape recorder which is noncompatible with others, it can still be copied onto a tape which is compatible.

Although the video cassette players are not yet on the market, the indication is that the industry plans to have the cassettes interchangeable to any manufacturer's player. See VARIETY, Jan. 6, 1971, at 68, col. 1.

170. "The potential magnitude of the video cassette market is projected at approximately $500,000,000 in 1975 and over $1,000,000,000 by 1980." VARIETY, Jan. 6, 1971, at 68, col. 1. See also SATURDAY REVIEW, Jan. 30, 1971, at 41-47.

171. This is the major problem of using broadcast television in education. However, the image itself being fed into an informational structure, the classroom can provoke feedback. It is not necessary to feedback to the source of the information to have a learning process. It was the experience of the IRS that merely playing the tapes to a classroom was not sufficient to provide an educational experience.
the videotape recorder, these machines allow the user to stop and replay a given segment. Another device, the Teldec, will replay information recorded on a flat record-like disc and will also be on the market in about a year.\(^{172}\) The size and shape of the disk makes it easier to ship and store than the cassette. Its flat, record-like nature makes information at the beginning, middle or end equally accessible. It is this lack of rapid access to information which is the major problem of the videotape.

Another means of distributing information is by interconnection.\(^{178}\) Interconnection of information distribution systems allows the videotaped information to be distributed electronically instead of physically. There are two ways to interconnect. One is by coaxial cable between systems, and the other is by microwave transmission. Microwaves have a frequency of between three and thirty gigahertz. At these frequencies the radio waves take on the characteristics of light and are "susceptible to optical-like focusing through the use of directional antennas."\(^{174}\) Thus, microwaves can be directed along a series of towers, or to a satellite which will direct the beam back to a receiving station on Earth. Interconnection allows for a simultaneous\(^{175}\) distribution of information that would be impossible to achieve by the physical delivery of the information packages.\(^{176}\) The proliferation of CATV systems with multichannel

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During our early work with CCTV, students showed little enthusiasm because our taped lectures ran continuously and did not allow direct student participation, Evert said. After we instituted tape stopping [(the students can stop the tape at any point for class discussion)], however, student enthusiasm and interest increased substantially.

\(^{172}\) See Harris, The Teldec Television Disc, ELECTRONICS WORLD, Feb. 1971, at 36; Winslow, Teldec's Video Disc—a "groovy" medium (Part I), EDUCATIONAL TELEVISION, Feb. 1971 at 8; (Part II) EDUCATIONAL TELEVISION, March, 1971; (Part III), EDUCATIONAL TELEVISION, April 1971 at 22.

\(^{173}\) Interconnection denotes a system that "links television broadcast studios to each other and to central distribution points, by electronic means." CARNegie COMMission REPORT, supra note 108, at 53.

\(^{174}\) Barrow & Manelli, supra note 126, at 215.

\(^{175}\) Electronic interconnection . . . to link stations for simultaneous broadcasting, as is customary in commercial television—has not generally been used by educational television, primarily because of the large costs involved. NET distributes its programs by means of videotape, duplicating the tapes in its own facilities . . . on a schedule that generally permits them to reach all stations within a two-week period for programs of timely interest. CARNegie COMMISSION REPORT, supra note 108, at 26.

\(^{176}\) In determining the method of distribution, it is important to keep in mind the educational goals desired. This determination was demonstrated in a study prepared for the United States Agency for International Development by Wilbur Schramm and William Platt. The study, in comparing the educational goals of India to Latin America, determined that India's educational goals could best be achieved by satellite distribution of television signals while the separate countries of Latin America would benefit most from videotape distribution.

The leaders of both India and Latin America shared the same overall desire objectives. They wanted the television image to:

- Upgrade primary and secondary education by sharing the best teaching and the best demonstrations, thus more nearly equalizing the learning opportunities for all students.
capability increases the feasibility of a cable network.\textsuperscript{177} Such a system would provide fantastic possibilities for education.\textsuperscript{178} Information could

Modernize curriculum content throughout the entire educational system without having to wait for the training and retaining of the teaching staff.

Reform teaching process to encourage inquiry-oriented, problem solving learning instead of role-memory instruction.

Schramm & Platt, \textit{Satellite Distributed Educational Television For Developing Countries—Summary Report in Boston}, Satellite Communications And Educational Television In Less Developed Countries (Appendix C 1969), Staff Papers for President's Task Force on Communications Policy.

As to more basic criterion, the report compared four distribution systems with the following determinations:

<table>
<thead>
<tr>
<th>ETV DISTRIBUTION SYSTEM</th>
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<tr>
<td>Criterion</td>
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<tr>
<td>Educational</td>
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<tr>
<td>Ability to pace and control modernization</td>
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<tr>
<td>Ability to reflect local programming needs</td>
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<tr>
<td>Psychological inputs for modernization integration</td>
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<tr>
<td>Potential for growth in geographical coverage</td>
</tr>
<tr>
<td>Simultaneous reception of important events</td>
</tr>
<tr>
<td>Management</td>
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<tr>
<td>Simplicity of local management</td>
</tr>
<tr>
<td>Simplicity of central management</td>
</tr>
<tr>
<td>Adoption to pilot test of software</td>
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<tr>
<td>Indirect Efforts</td>
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<tr>
<td>Spillover benefits for local communications</td>
</tr>
<tr>
<td>Opportunity to develop local Industries</td>
</tr>
<tr>
<td>Reliability</td>
</tr>
<tr>
<td>Freedom from overall system interruption</td>
</tr>
<tr>
<td>Freedom from local failures</td>
</tr>
<tr>
<td>Fiscal</td>
</tr>
<tr>
<td>Cost of covering major urban centers</td>
</tr>
<tr>
<td>Cost for covering entire country</td>
</tr>
</tbody>
</table>

\textit{Id.} See text of the papers, \textit{id.} at 17-20 for discussion of relative advantages of satellite over videotape for a total informational system. However, it is pointed out that if the system is solely for education, the cost of videotape vis-a-vis satellite makes it preferable. \textit{Id.} at 17.

\textsuperscript{177} Smith, \textit{supra} note 154, at 589. Interconnection could be by a Microwave System or satellite. Cable operators and the major networks are both looking to satellite rather than a ground facility provided by AT&T. Wall Street Journal, Oct. 22, 1969, at 7, cols. 3-4.

\textsuperscript{178} The Carnegie Commission has recommended that Congress "act to permit the granting of preferential rates for educational television for the use of interconnection facilities, or to permit their free use, . . . ." \textit{Carnegie Commission Report, supra} note 108, at 53. Nicholas Johnson indicated that the FCC may authorize free interconnection for educational television stations. N. Johnson, \textit{supra} note 2, at 125.

The FCC itself has indicated that they would oppose any attempt to preclude CATV systems "from leasing channels to others for program origination of any kind or from interconnecting on a regional or national basis for any purpose . . . ." \textit{FCC First Report & Order, supra} note 156, at 17653.
be transferred from one college to another for simultaneous dissemination or to be videotaped at the terminus for subsequent use.

Colorado State University has pioneered the transfer of this type of information without the benefit of electronic interconnection with its operation "CO-TIE." Videotaped courses were mailed by parcel post to cooperating colleges around the state. "After playback at the remote locations the videotapes are returned to CSU, erased, and stored for further use." Operation CO-TIE was initiated in the fall of 1968 as an attempt to provide the basic courses needed for transfer to Colorado State University so that students from other schools would not lose time for lack of proper prerequisites. Colorado State has also initiated a project, Colorado SURGE, which distributes videotaped courses to employees of industrial firms and governmental agencies located "along a line extending 200 miles southward from Fort Collins to Colorado Springs. At the end of each day videotapes are picked up by a courier service from the central recording facility and delivered the next day to appropriate SURGE locations." In this manner, during the 1970-1971 academic year, SURGE offered 63 courses to more than 500 graduate students. Likewise, the Internal Revenue Service has been distributing videotaped courses in corporate and tax law to its agents in the field.

IV. HARDWARE AND SOFTWARE

A. The Videotape Recorder

The programs at Colorado State University and elsewhere demonstrate two vital points. First, once basic hardware problems are overcome, the educational use of the television image is not dependent upon more sophisticated distribution systems. Second, the educational use of the television depends, more than anything else, upon the production of sufficient software.

179. Maxwell & Lord, Effects of Educational Television on Higher Education in the State of Colorado, IEEE TRANSACTIONS ON EDUCATION, Feb. 1971, at 5. [hereinafter cited as Maxwell & Lord]. "This procedure of erasing tapes is followed primarily because of the changing nature of the engineering course material." Id.

180. Some 50 college students viewed the videotapes and conducted the assigned classroom work under the supervision of an instructor at the college. The regular homework and assignments, indicated in the videotapes or in accompanying written instructions, were graded either by the college instructor or by the CSU professor offering the course. In addition, two hours of recitation per week were provided on the blackboard-by-wire and slow-scan television equipment. This latter feature fulfilled much of the students need for contact with the course instructor and has proven to be an essential characteristic of the CO-TIE Project. In the Department of Electrical Engineering alone over 20 college transfer students have been able to register as fully fledged juniors because of their participation in the CO-TIE Project.

Id. at 1-2.

181. Id. at 2.

182. This is in excess of 3000 quarter credits per academic year.

183. See note 143 supra and accompanying text.
The hardware problems are overcome as soon as the school purchases a videotape recorder. The videotape recorder is the basic tool of each of the distribution systems discussed above. Its original function was coextensive with broadcast television as a device to record network television programs for subsequent playback. It retains this function, but its mass production, low cost, simplicity, and unique ability to provide instant feedback has extended its use well beyond the area of broadcast television. Educators should view it as a device which can provide instant feedback into existing information systems as well as a device which can facilitate the low cost exchange of information between disciplines. The videotape recorder has the unique ability to record and process on videotape—a medium that stores and transports information. It should be viewed, not as a single information system, but rather as a device with the capacity to extend and revitalize existing information systems to make them viable in a world of total information.

The videotape recorder itself is only one part of a three part system. Within this system, the recorder's function is to record and process audio and video information onto videotape which stores and distributes this information. In its record mode, the videotape recorder converts electronic information to magnetic patterns on videotape. Incoming electronic information from a television camera and microphone are directed to a magnetizing device—"the head." At this point, the videotape, a plastic backing on which microscopic particles of iron oxide are loosely bonded, is passed through the magnetic field created by the action of an electrical input on an electro-magnet. The iron particles are arranged in a pattern by the magnet to complete the circuit. In the playback mode there is no incoming electricity so the prearranged magnetic patterns on the videotape act to reverse the above process by completing the playback circuit, thus creating electric information for output. When this electronic information is fed into a television monitor, it is converted into image and sound. Although the videotape recorder needs a television monitor for the meaningful conversion of the electronic information, the camera and microphone are not necessary to the individual system so long as there is a pre-recorded videotape for available playback.

The videotape recorder used in broadcast television is more complicated than the helical scan recorder that is readily available on the
market today. Broadcast standards require four recording heads and a two-inch tape. The complicated nature of this machine is the result of the necessity for maintaining "the proper alignment and synchronizing of the four heads involved." The helical scan recorder has two heads attached to a cylinder and can record on one inch, half-inch or even quarter-inch magnetic tape. Proof of the operating simplicity of this machine can be gleaned from the use made of a half-inch videotape recorder at Harvard Law School in the Spring of 1971. Dr. Alan Stone desired that the members of his class in Human Relations be able to see themselves on videotape in an interview situation. The class was taken to the small room which served as the television studio for the law school and was given a fifteen minute demonstration in the use of the machine. Written step-by-step instructions as to the operation of the machine were posted on the wall next to the recorder. Fifteen two-man teams were to pick up the single videotape that was left with Dr. Stone's secretary at their convenience, go to the studio, thread the recorder as per the diagram taped to the top of the machine, plug in the equipment that was pre-set, and begin their interview. When it was finished they were to rewind the tape and playback the interview. There were no technical problems throughout the more than 60 hours of use that the 30 students made of the videotape recorder and single videotape.

The videotape recorder offers the viewer an opportunity to interact with the image in a way that is impossible with centralized distribution of the image. The viewer can control the informational input by stopping the machine at any point, and replaying the tape in whole or in part as many times as he wishes. This quality has been incorpo-

helical scan head cuts across the tape at a much sharper angle which allows reduction in the width of the tape used.

187. The transverse scanning process allows for easier editing than a helical scan. The image is sharper and the tape is readily interchangeable with any other two inch videotape recorder.

188. R. Bretz, Techniques of Television Production 506 (2d ed. 1962).

189. There are many myths about T.V. production that will be overcome in this workshop. To produce a quality tape, one does not require a B.A. in electronics, ten years of production experience, or expensive hardware. We have taught 7th grade public school children in a few hours how to operate the equipment and produce interesting pieces of communication. Santa Cruz Community Service Television Project, at 2-3, 3 Radical Software 5 (Spring 1971). (Radical Software is an information service about videotape. Issues of Radical Software can be ordered by writing to 24 East 22 Street, 2nd Floor, New York City 10010).

190. It is clear that the physical situation made it impossible for everyone to have seen the demonstration.

191. The only situation in which the machine would not work was when one student missed the somewhat inconspicuous "auto shut off" while threading the tape.

192. James Everett, Chief of the Internal Revenue Service, Methods Section, when commenting on the Service's use of videotape noted that, during the early work with videotape, it was run continuously, and students showed little enthusiasm. But that has been changed and the tapes can be "stopped at critical points to permit classroom discussion . . . After we instituted tape stopping, however, student enthusiasm and interest increased substantially." Communication News, April 1971, at 40. Thus, videotape recorder provides
rated into devices which merely replay prerecorded video cassettes and which will sell at a price below that of the videotape recorder. But the unique feature of the videotape recorder is that it allows the user to (1) gather his own information; and (2) instantly "feedback" the information into the situation that created it, or "playback" the information at any subsequent time.

B. Software

1. INFORMATION GATHERING

The videotape recorder was originally conceived to be a distribution system for packaged information. This view failed to realize that the packaged information had to be prepared in the first place. The ready availability of the videotape recorder makes it a natural tool for the gathering of information. The information put on tape can be synthetic material arranged and programmed in a television studio, or it can be more spontaneously gathered with the use of portable equipment. The gathering and synthesis of this information can be compared to the research and writing of a law review article or a book.

This of course raises questions of video grammar. What is the best method of expressing a given thought? How should the material be two sense inputs. It captures both the process, and the moment. The information becomes more meaningful and is, therefore, more easily learned.

193. The Sony video cartridge repeater, "Videocassette" provides for a playing time of up to 90 minutes, and is expected to sell for about $350. The cassettes will cost about $20 each.

RCA's "Selecta Vision," will retail for about $400. Pre-recorded materials will cost $10 for a half hour.

CBS unit "EVR" is now selling for $795. It plays either color or monochrome. Color cartridges "sell for $18.50 (25-minute program) where the original is being copied onto cartridges in quantities of 2000." Harris, Selecting a Videotape Recorder, ELECTRONICS WORLD, Feb. 1971, at 34-35.

194. Even within the television studio, the medium is intrinsically one that tends toward the spontaneous and the real. The medium is often mistakenly used in a very rigid manner. This should be guarded against. CARNegie COMMISSION REPORT, supra note 108, at 96-97.

It is this quality of "professionalism" that prevails in broadcast television and that tends to give it a "plastic" appearance. The movies suffered from this same malady in the golden days of Hollywood, but the recent trend in filmmaking has been toward a reality, a human-ness. This trend has been called the result of the entry of young filmmakers into the market. Such an explanation fails, however, to take into account that filmmaking equipment is now much more readily available and cheaper than it was in the golden days of Hollywood. The same is true in the field of television. A low priced studio set-up costs $4,485. See note 163 supra. Yet the typical portable videotape recorder costs less than $1,500.

195. Videotape can be to television what writing is to language.

196. There is a visual language. We have a rich background of perceived visual experiences that can form the basis of visual writing with a camera. It has a proper grammar, vocabulary, and syntax. See Debes, The Loom of Visual Literacy, an Overview, AUDIOVISUAL INSTRUCTION, Oct. 1969 at 25; Birdwhistell, Background to Kinesics, 13 ETC.: A Review of GENERAL SEMANTICS 10 (1956).

197. "You can say anything you want in any language you choose, if you are ingenious enough, and wish to invest enough time and effort." Maloney, supra note 74, at 17.
arranged? What should the visual portions be? How long should they be shown and what sound should accompany them? What is the effect of camera position or of a cut, a fade, a dissolve or a zoom? All of these questions and more must be answered, but basic common sense and good taste should be the hallmarks of good video. It must be remembered that the purpose of the equipment is to communicate. That which communicates most effectively is best. The same applies to print; redundancy, lack of purpose, aimless rambling, in any medium reduces the effectiveness of the communication.

The information gathering ability of the videotape recorder offers legal educators a means of correcting a major deficiency in the case method, the fact that it does not allow the student to deal with or synthesize raw facts. The student must learn to deal with information on its own terms, not in terms of a set of facts three times removed from reality. Use of the videotape recorder to gather information and to present it in a cogent manner will involve the student in the synthesis of raw facts. “The student needs to see, and to participate in, the process by which facts are organized for presentation or are analyzed . . .” After a year of law school the student will have learned to think legally. He will have a “lawyer’s eye.” His eye will be able to focus and direct

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198. “Picture for the sake of serving the ‘visual medium’ cliche—picture for its own sake—merely detracts from the communication of ideas.” Interview between Cyril Bennett and Peter Morly, Presenting Actuality, The Progress in Television 215 (W. Bluem & R. Manwell eds.).

199. Ambient sound can often sufficiently communicate a process. For example it is not necessary to always synchronize sound to picture (a process that happens automatically with videotape, but which requires effort in film). See Ryan, Techniques, 2 Radical Software 13 (Winter 1970).

200. See, Cronin, An Investigation of the Use of Audiovisual and Production Techniques in Instructional Television Production. (University Microfilms Inc., Ann Arbor #69-3372).

201. This does not mean it should be the same as the smooth production that the television viewing public has been conditioned to. As a matter of fact, we must constantly guard against the tendency to fall into producing shows rather than merely communicating information.

202. The equipment itself can cause redundancy. Videotape records information. When information repeats itself, it is redundant. Expensive equipment which creates highly defined images is not necessary for the production of programs of people talking. It is necessary, however, for programming which depicts complex surgical procedures. The equipment should be purchased with a view toward its probable use. Legal educators generally are not going to want cameras that scan 1000 lines.

203. “[T]he failure of the law schools to offer opportunities for seeing the law in action (and that is as true of business law as it is of poverty law) has built up a reservoir of frustrations in students . . .” Stevens, supra note 58, at 44. See notes 60-61 supra and accompanying text.

204. Fuller, supra note 34, at 274. “The chief pedagogical presupposition of the case method was that students learn better when they participate in the teaching process . . . than when they are merely passive recipients of the teachers’ solutions . . .” Patterson, supra note 23, at 5.

205. Llewellyn talks about teachers who have gone into practice “with teacher’s eyes and teachers’ understanding of how the experience in practice can be organized for teaching. Such men see differently, while in practice. What such men bring back is not mere experience and competence in practice, but teachable experience and competence.” Llewellyn, supra note
the camera which gathers information, synthesize it and present it for others. 208 This process of gathering information will make the student "look at" the information (the process or the people) he is attempting to synthesize. 207 "Perceiving achieves at the sensory level what in the realm of reasoning is known as understanding ... eyesight is insight. 208 "Insight is something more than the enrichment that comes from learning and relearning the terms, doctrines and citations of any established field of law. Insight means awareness, not puppet learning; ..." The videotape recorder offers a means of enabling the student to gain insight, but it does not create the action or ideas; these depend on the people in it. Used responsibly and creatively, it can accelerate perception and understanding.

Rapid innovation in the development of the portable videotape recorder has removed the encumbrances that plagued earlier equipment and has extended the studio to any place the operator can go. 210 The vista of the law student's reality can likewise be unencumbered by innovation in methodology of legal education. With the portable videotape recorder in hand, the student can enter the real world and look at legal process, courts, and administrative agencies. 211 He can record the facial

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68, at 365. This is the same process by which anybody trained in a discipline sees in perspective to that discipline. The student of the law perceives his environment through a lawyer's eyes.

206. "Film is a way of seeing. We see through the filmmaker's eyes. If he is an artist we become artists along with him." G. YOUNGBLOOD, EXPANDED CINEMA 72 (1970). If he is a lawyer, we become lawyers along with him.


"When people work toward the goal of communicating a problem or situation to others, they learn more about the positive and negative aspects of the community. In order to communicate the reality, one examines more critically and develops greater awareness." SANTA CRUZ COMMUNITY SERVICE TELEVISION PROJECT, 3 RADICAL SOFTWARE 5 (Spring 1971).


210. "Much of the somber and the static image which educational television has created for itself is the result of its inability to take its cameras beyond the four walls within which they have been fixed." CARNegie COMMISSION REPORT, supra note 108, at 48. It would be a misuse of resources if the student were anchored to the studio. But to leave the studio with a portable videotape recorder changes the form of the information. The polished and "professional" shows will give way to perceivable information.

211. Many law schools are currently discussing plans which will allow the student to intern at a governmental agency in an attempt to get an insight into the workings of government vis-a-vis that agency. The problem with such an approach is that it tends to limit the student to a single in depth involvement. Any diversity of experience will result only from the classroom discussion of all interns. See Swords, The Public Service Responsibilities of the Bar: The Goal for Clinical Legal Education, 25 U. MIAMI L. REV. 267 (1971).

Additionally, the student often cannot see the forest for the trees. He is involved in the lower echelons and cannot gain the overview needed for an educational experience. And finally, such involvements are often very uneventful and boring, involving the student in no educational experience. Moreover, the teachers' task of organizing these diverse experiences into suitable classroom modules has proven an insurmountable task. See Ferren, supra note 92, at 492-94.
expressions and body movements of judges, clients and witnesses. Like-
wise, the student can spend time with a skilled practitioner and return to
school with a visual catalogue\textsuperscript{212} of practical skills to share with the
class.\textsuperscript{213}

Videotape allows a sharing of the "total" experience with others.

In all likelihood, not every student can be assured of a rich
clinical experience . . . . The emphasis, therefore, in clinical edu-
cation must be to bring rich materials from the field to class in
a form which permits every student to understand his own ex-
periences better and to benefit vicariously, as much as possible
from the experiences of the others, especially if his own field
work is relatively unrewarding. These materials can include
written simulations of legal aid clinic files, assignments for role
play, and invited guests with important perspectives from the
field. Once collected, such materials in the aggregate . . . may
offer far more educationally to any one student, through the
classroom, than will a bundle of individual field experiences,
even supervised ones, when routine, repetitive activity pre-
dominates over diverse tasks requiring difficult judgments.\textsuperscript{214}

"The classroom, . . . of course, will not benefit fully from the field under
any formula unless students and their supervisors effectively handle and
learn from experiences as they take place and can package them for
classroom use."\textsuperscript{215}

This ability of videotape, to gather information as it is occurring
and to transport it to another place for others to share, raises what is
possibly the major problem with its use in the clinical program: Fear
that it is unethical to record the client\textsuperscript{216} and allow others to see and hear
the communication. The sensitivity to this fear in legal groups was demon-
strated by the reaction of the Harvard Legal Aid Society. They were look-
ing for ways to improve their interviewing skills. Some of their members
thought that it would be beneficial if they could videotape client inter-

\begin{itemize}
\item[212.] This is similar to the requirement that a student involved in a clinical program
write a paper which draws on some of his field experience . . . . Such a paper would
normally receive 1 hour of credit. A primary purpose of the paper would be to help
the student to step back from his clinical activities and take a more searching look
at the Institutions and processes with which he had been involved.
\item[213.] "The classroom is the rendezvous point inherent in a comprehensive clinical pro-
gram." Ferren, \textit{supra} note 92, at 495.
\item[214.] Id. at 498.
\item[215.] Id. at 500.
\item[216.] It is acknowledged that the students must take every precaution in asking the client
if he would consent to being videotaped to insure that he would in no way feel that being
videotaped was a precondition of legal aid, or that his negative reaction to the suggestion
would weigh in his mind or the mind of the student involved. Yet, it is felt that because
the clients are indigent, they will feel coerced by the suggestion.
\end{itemize}
views and discuss methods for the improvement of their technique among
themselves and with the aid of Dr. Alan Stone, a psychiatrist and member
of the Harvard Law School Faculty.

The videotape room was arranged so that the interviewer could
record the interview without the necessity of the presence of anybody
other than the interviewee. A member of the Society was trained in the
use of the equipment, including the special effects generator for the
use of two cameras enabling both faces to appear on the screen side-by-
side. He was instructed in the camera placement necessary to record the
profile of both faces, or to record only the interviewer or interviewee.
The executive board of the Society voted against the use of the video-
tape player. The reasons given were: first, that they felt that it was
unethical to record the interview; and; second, that they feared the
videotape recorder would intrude upon the lawyer-client relationship.

2. FEEDBACK

The feature that makes the videotape recorder unique from other
image recording devices is that it processes its own information and
makes it instantly available for feedback into the situation which created
the information. This feature enhances certain learning processes be-
cause the overall informational system can react to its own feedback—
the information of itself—and generate new information in view of the
prior data. This unfolding of information is what occurs when a student
views a videotape of an event in which he has just participated. The stu-
dent is given the rare opportunity to see himself as others see him and
to react to the information. It is this very feedback process that is
totally lacking in Socratic legal education today.

In classes where skills are sought, the emphasis is on providing as
much feedback as possible. It is in courses of this type that the videotape
recorder would be of current value. The value of videotape feedback
was demonstrated in two courses at Harvard Law School. With the co-
operation of Professors Keeton and Blakey, several trial practice classes
were videotaped. Although the overall results were far from what was
originally hoped for, the videotape recorder did, in one situation, provide
the desired feedback. The student-lawyer involved thought that her pres-

217. Professor Gozarsky of Emory Law School makes this same point in CLEPR,
supra note 59, at 2.

218. Oh wha some power the Giftie gie us
To see ourselves as ithers see us
It would from many a blunder free us
And foolish notion
What airs in dress and gait would lee us
And e'vn devotion.
   "It would from many a blunder free us."
   It would enlarge our ability to self correct.
   It would extend us in a cybernetic way.

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entation had been poor and that she looked "awkward." After her presentation she complained of having a headache and of feeling generally upset with herself. However, after viewing the videotape of her performance, she stated that she felt better and that her self-confidence had been restored. The second course, Human Relations, taught by Dr. Alan Stone had even better results. Dr. Stone's assignment called for the members of the class to pair up and to interview each other while being recorded on videotape. Each student was then to write a three page paper on his relationships to his image including awareness of non-verbal communication.

The reasons for the success with the interview and the failure with the trial practice class seem to be the equipment used. The videotape recorder was a half-inch Panasonic. There were two vidicon cameras equipped with wide angle lens, but no viewfinders, a special effects generator and two monitors. In the interview situation only one camera was used. It was prefocused and aimed at the two chairs in which the students were to sit. One microphone was placed on a stand in front of the chairs. The television monitor and the videotape recorder were at the far end of the room away from the chairs, and the monitor faced away from the chairs. The equipment was preset so that all the students needed to do was to thread the tape, plug in the camera and the videotape recorder, engage the "play" button, sit in the chairs, and begin their interview. When the tape was finished,219 the student had to rewind it and then view the tape to get his feedback. After this process was completed one time, the students would switch roles, and the interviewer would become the interviewee. The videotape would have to be rewound from the prior playback and rethreaded for the next interview.

The trial practice set-up was far more complicated. It was the expressed desire to show both the witness and the student lawyer on the screen at the same time. Thus both cameras had to be utilized with the special effects generator. Since the cameras had no viewfinders, it was necessary to connect one of the television monitors to one of the cameras so that the cameraman could see what his camera was pointed at. This meant that the other camera had to be aimed by intuition. Furthermore, since there were four roles played,220 it was necessary to use a sound mixer and four microphones. Two operators were used. One worked the special effects generator, the sound mixer and the videotape recorder. The other operated both cameras. The camera that was not connected to a monitor was to remain in a stationary position pointed at the witness. The other could be aimed at the attorney. The results of this were a poor image and very annoying audio signal. One of the microphone cords produced an audible hum that destroyed any usefulness the tape might have had.221

219. The tape ran about 40 minutes.
220. A witness, a judge, and two teams of two attorneys.
221. A subsequent attempt using one microphone and one operator with different
Another problem was with the use of the tape after it was recorded. The professor would spend whatever time was left at the end of the period to feedback his impressions to the class and to get their feedback. The fact that the information that he was talking about was buried somewhere on the tape made it impossible for the operator to find the image the professor wanted in time for the professor to reinforce his points with that image.\textsuperscript{222} Even though the videotape recorder had a digital counter on it, and even when the operator knew where on the tape the information was located, the rewind, which was only four times faster than the forward play, was so slow that the use of the videotape recorder actually encumbered classroom discussion.

Videotape for feedback purposes requires "real time." A major purpose of this type of feedback is to set the entire situation in context rather than to highlight specific examples (except within the total picture).\textsuperscript{223} It is this writer's opinion that the trial practice experience would have been more successful if it had been videotaped for only the purpose of providing feedback for the student participants. If that had been the case, one camera could have been used. It would have been aimed at the student doing the questioning of the witness. The feedback would have been a "real time" experience, and rather than serving as merely another audiovisual device, the videotape recorder would be a source of information in its own right.

At the University of Michigan Law School, Professor White used audio tape to record students conducting mock negotiations. He played the tapes back in "real time" to provide data for stimulating classroom discussion. This discussion concerned the pervasiveness and efficacy of the stereotyped negotiating techniques; it also covered the full range of the psychological materials from a consideration of the effect of emotions upon negotiations to an examination of the importance and utility of non-verbal communications.\textsuperscript{224}

"Real time" feedback of videotaped interviews was the method used by Professor Gozansky at Emory Law School. He used videotape as a "vehicle to aid the student develop the skills to interview his client and gather the necessary information so that he could identify problems."\textsuperscript{225} Camera placement attained much better results. In this attempt the philosophy was not to capture the total action, but to concentrate on the student-lawyer.

\begin{itemize}
\item \textsuperscript{222} Teldec, the flat video disc, promises to make this type of information more readily accessible.
\item \textsuperscript{223} Highlighting of specific examples out of the total context, or in other than "real time," requires editing. This can be a very useful teaching tool and can be done with video tape, which will be discussed in the next section.
\item \textsuperscript{224} White, \textit{supra} note 48, at 344.
\item \textsuperscript{225} Professor Gozansky chose videotape as the vehicle to obtain nonverbal communications that he felt would be lost on audiotape alone.
\end{itemize}
Part of Professor Gozansky's course called for the student to participate in at least two videotaped interviews with real clients. The class would then meet twice weekly to watch the playbacks of all of the interviews with a clinical staff attorney or a clinical psychologist.

The student attorney then discussed the case, including a self-appraisal of his performance; the videotape was re-run, occasionally being stopped to catch a particular sequence; the student made whatever additional comments he felt were worthy in light of having viewed his performance; and finally, members of the class and others present were invited to comment and criticize.

After a few sessions the class began to develop a sense of comfort and camaraderie so that they became open and candid in their remarks to each other. They were encouraged to appreciate that complete frankness could yield substantial benefits. The use of videotape feedback in supervised situations provides an affirmative answer to the question of whether "lawyers' skills in dealing with others can be improved through formal training." The student is able to perceive himself in a manner that was never before possible. Through feedback of the information about himself he can correct any misconception of himself he may have and acquire new insight into the way he functions. The monitor of his outer physiological activity coupled with his memory, fresh as to what he was thinking at the time he was performing a given action, allows him to gain control of his activity. It is the relation of this emotional reaction to the rest of the class that can help to provide them with insight into human conditions that was never before possible.

3. Playback

The third way in which the videotape recorder can be used is to playback into any number of situations the information that has been

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vieronment. In addition, a great deal of teacher time would be required for his actual presence at each student interview. A videotape record was capable of the most careful review, not only for interviewing and counseling skills purposes but also for substantive matter. Finally, it was believed that the student could learn a great deal about himself and his interviewing and counseling techniques if he had an opportunity to view himself rather than merely hear the appraisal of those who viewed him. CLEPR, supra note 59, at 1-2.

226. Id. at 2-3.
227. See generally Sacks, Human-Relations Training For Law Students And Lawyers, 11 J. LEGAL ED. 316, 320 (1959) [hereinafter cited as Sacks].
228. The Internal Revenue Service has instituted a program of videotaping its agents-in-training while they engage in role playing. At the same time the image is being directed to any of twelve classrooms where any number of students can observe. Their program has proven so successful that the Service intends to install videotape recorders at its seven regional centers. Each of these will be equipped with two cameras for a continuation of the process of self awareness by the agents. COMMUNICATION NEWS, supra note 143, at 40.
previously gathered. This use facilitates the exchange of information between schools and calls for the development of programming. Not only will students be able to go out, gather information and synthesize it in a communicable form, but they also will be able to exchange this information with other schools. Likewise, faculty members will be able to gather information for distribution throughout the legal community. Before all of this comes about, however, there will have to be a recognition by the legal educators of the value of video information.

The value of this information can be measured in relation to the way the use of videotape can enhance legal education in ways not otherwise possible. The consideration of the value of videotape becomes extremely important in view of the acknowledged failures of the traditional approach to legal education, i.e., the failure to teach the student to synthesize or to deal with raw facts, or to teach the basic skills of the profession. The value of videotape lies in its potential to correct these specific shortcomings of legal education. Beyond this, the use of the videotape recorder is limited only by the imagination of its user.

To demonstrate the benefits of the videotape recorder to legal education, several “high leverage” areas have been selected. The first of these involves videotaped courses designed to show to law students the theory and practice of law and to teach the synthesis of raw facts, interviewing techniques, and legal research. These courses have three aspects. The

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229. This is the basis of the new industry in video cassettes. See Variety, Jan. 6, 1971, at 68, col. 1.

230. The general availability of videotape recorders, their low cost, and their usefulness as a means of distributing and gathering wide varieties of information makes it likely that institutions and individuals around the country will begin to purchase them.

231. The most serious problems of using TV in education ... are not intimately connected with either satellites or alternative ways of transmitting signals ... or with the rest of the hardware. Rather they involve a host of software factors; developing good and effective programming, getting support from schools and teachers, organizing and training people to use television effectively, and many others.

Rostow, Satellite Communications and Educational Television in less Developed Countries, 72 (Staff Papers) President's Task Force on Communications Policy.

232. Television offers a resource not unlike the university press, making its own contributions in terms it can freely honor. It is not merely a matter of calling upon the scholar for an account of his accomplishments, but of making for him a place within television to which he can repair as he is accustomed to turn to the printing press.


Electronic technology generally, and the videotape recorder in particular, call upon the educator to perform a new role—the preparation of relevant informational materials on videotape.

233. Videotaped information can be produced for presentation at three levels—enrichment, supplementary and basic.

Enrichment materials ... are defined as information which is nice to know but not part of the specified learning objectives of a given course. Supplementary material is information which is in the “need to know category” ... bringing into the classroom things that would not ordinarily be presented there. ... Basic ... materials are generally complemented by the classroom teacher.

Future Opportunities for Television, supra note 133, at 13.

234. “A course combining the problem approach with data on bibliography and techniques of research would be very useful.” Fuller, supra note 34, at 311.
first deals with interviewing techniques and human relations. Its format could include real or simulated interviews; group interaction such as at a zoning board, a legislative committee or even a trial. The second aspect of the course demonstrates the process by which the lawyer deals with the raw facts presented and arrives at the legal issues. Finally, the course demonstrates the way the lawyer works at solving the problem, by doing the legal research and whatever else may be required. The course could easily be extended to include aspects of civil procedure and trial tactics, and can include discussions by experts in many diverse fields. The course could be arranged in segments allowing individual professors to use the material in any way they wished. The videotaped course could be supplemented with the use of printed material, thus presenting a multi-media approach to legal education.

The advantages of courses of this nature are directly related to the potentials of the television image. The real life drama of the law is transported to the classroom giving the student the opportunity to come face to face with real situations in a supervised setting. The television image can convey emotions and impressions to an extent that would be impossible to achieve in any other medium. The combination of the close-up exposure made possible by the television camera and the proximity of the student to the monitor allows each gesture to become a meaningful communication. There are some, however, who would contend that for the experience to be meaningful the student must be exposed in person. Yet, as Professor Kitch points out, the educated man is the one who is able to understand situations he has not himself experienced, and moreover "[t]he crucial educational problem is . . . to teach students to make effective use of second-hand, non-immediate information sources to obtain a solid understanding of the causes and cures of problems they have not themselves experienced."

235. "What the student needs for a rounded understanding of law and the judicial process is an insight into the process by which facts are sifted, analyzed, and reported." Fuller, supra note 34, at 279. This process invokes inductive reasoning and not the deduction analysis the case method teaches as the basic legal skill. Watson, supra note 36, at 138.

236. This approach calls for completely unstructured fact patterns including real estate transactions, business problems, family law situations, poverty law, etc.

237. The student can be made explicitly aware of what he sees, and the inferences that he draws; and he can learn to interpret the possible significance of what specialists are able to report. Law students do not have time to become experimental psychologists, or mental and aptitude test experts, or clinically competent interviewers. But they can hear how to apply some of the products of scientific research to the daily process of judging men. Lasswell & McDougal, supra note 53, at 281 (footnotes omitted).

238. Bennet & Morley, Presenting Actuality, Progress in Television 217 (1967) Problem-method types of fact situations involving pages of detail in an attempt to present the full picture still have a static quality about them. See Fuller, supra note 34, at 280-81.


240. Kitch, supra note 51, at 473.
The absence of firsthand experience is a basic difference between the videotaped course and the clinical experience, but the difference goes even deeper. The clinical approach involves the student in the "real time" practice of law, with the necessity of classroom synthesis of experiences so that those students who have not had the luck of having a rewarding clinical experience can at least share vicariously the experiences of other students. However, the very nature of clinical work makes it difficult to synthesize these experiences into a meaningful classroom presentation. Videotaped clinical experiences can be arranged in segments for presentation in any order the teacher wishes. The segments are edited so that only educationally rich materials are presented to the whole class at one time. Thus videotaped clinical education exposes law students to a "stratum of our society from which they are otherwise insulated," but with the option for school to maintain the same student teacher ratios as with the Socratic method. That is because the videotaped examples are conducive to Socratic discussion. This was demonstrated at Harvard Law School by showing several of John Marshall's cinema verite films on the Pittsburgh Police Department in Professor Vorenberg's class, Issues in Law Enforcement and the Administration of Justice. After each film, Professor Vorenberg pressed his class for the issues involved. The discussion was lively and exciting and proved that a film, as well as a case, could serve as the basis of a Socratic dialogue.

The use of videotape offers a means of recapturing the virtues of apprenticeship training and of presenting them within the classroom. It offers the potential of exposing the student to a great variety of the day to day situations he will encounter as a lawyer, and thereby helps to develop his skill in dealing with people. The videotape can record group processes

241. There is little reason to suppose that the two programs would be combined, offering the student real life, real time clinical experience, and packaged videotaped examples. However, there are many schools which cannot afford a clinical program. For them the alternative is complete reliance on videotaped examples.


244. A problem with the clinical program is that proper supervision requires faculty to student ratios of between 1 to 13 to 1 to 18. See 1970 Clinical Report, supra note 68, at 6-7. The only expenditure required with the videotaped courses is the acquisition of the videotaped recorder(s), scheduling costs, and programming expenditures.


246. The class discussion was itself being filmed by two cameramen while two sound technicians were busy tape recording the discussion. Their presence did not noticeably affect normal classroom discussion. This demonstrated that classes could be filmed without distraction within the class. At Colorado State University, both the SURGE and CO-TIE projects involve videotaping of actual courses. Maxwell and Lord report that the fact that the students are in a television studio being videotaped has not adversely affected the normal procedure. Maxwell & Lord, supra note 178.

as well as individuals. It is possible to include on these same tapes the observations of members of other disciplines about these same groups and individuals.\textsuperscript{248} Thus, these tapes will train the future lawyer in the skills necessary to effectively deal with people,\textsuperscript{249} whether in his office, in the courtroom or at the city council meeting.\textsuperscript{250} He will develop a knowledge of “a jurisprudence of lawyers’ operations.”\textsuperscript{251}

Not only will the videotaped course be useful in teaching basic skills, it will also expose the student to a large number of lawyers.\textsuperscript{252} This facilitates a number of educational goals, primary among which is the provision of an example for the student to model himself after. Professor Watson has pointed out that the current method of legal education fails to provide the student with an identity.\textsuperscript{253} “One of the critical events which should occur during legal education is the incorporation into identity of a model for professional behavior.”\textsuperscript{254} Watson points out that “means for bringing about identification are to be found in some of our modern electronic gadgets.”\textsuperscript{255} The nature of the television image as a “cool” medium and its one-to-one capacity tends to encourage the high degree of emotional involvement needed to provide psychological insight. The lawyer himself, how he acts, how he talks, and how he moves are all bits of information that can be processed first on videotape and then on the student’s consciousness.\textsuperscript{256} Through this use of the videotape recorder many members of the legal community are provided an opportunity to expose their skills, ideas and techniques. Beyond this, videotape provides a basic medium onto which the voices and images of our great legal thinkers

\textsuperscript{248} This is an inexpensive way of expanding the interdisciplinary approach.

\textsuperscript{249} Consider random movements. Everyone is sensitive to blushing, perspiring, fidgeting, and doodling, usually without insight. We act on the vague inference that the other person is trustworthy, shifty, poised or flustered. Are these “hunches” valid? And can we learn to see even more in random movement than the ordinary man in the street sees in them?

\textsuperscript{250} “By closely observing the interplay among those who participate in courts, committees and other recurrent situations, we may discover many valuable facts.” Lasswell & McDougal, supra note 53, at 283. Skills developed through observation of group processes “help the student become more effective as a participant in the various small group situations he will encounter in his practice.” Sacks, supra note 226, at 326.

\textsuperscript{251} Rutter, A Jurisprudence of Lawyer’s Operations, 13 J. LEGAL ED. 301 (1961) in Watson, supra note 36, at 153.

\textsuperscript{252} They could be famous national figures or merely representatives of the local bar. The unique virtue of simplicity of the videotape recorder allows each school to produce their own version of this course.

\textsuperscript{253} Watson, supra note 36, at 103, 152-53.

\textsuperscript{254} Id. at 103.

\textsuperscript{255} Id. at 158.

\textsuperscript{256} Hopper, One Way, One Time, EDUCATIONAL TELEVISION, March 1971, at 11.

\textsuperscript{257} Electronic technology tends to make all of us information in one way or another. This is an example of how to use information theory in software production—providing relevant data.
should be inscribed. How much more informative it would be to see and hear the Roscoe Pound lectures than to merely read them.

The videotaping of courses facilitates the distribution of teaching talent beyond the narrow confines of any particular law school. Famous teachers would be in high demand. This not only improves education by providing more information to more people in more places, but it also equalizes educational opportunity. While the videotape recorder can breathe life into what Professor Stevens calls “the American myth of equality,” it can also destroy what he calls “the American Bar’s myth of a unitary profession... [that has helped] to keep the law schools looking and talking as if they were all performing the same function, and producing virtually individual products for a homogenized profession.”

The videotape recorder will allow for a proliferation of courses that will enable each school to become a production center for its own specialty. New York University Law School will produce tapes on tax, Yale on sociology, and the University of Miami on ocean law. “It is more difficult to provide uniqueness and diversity than to impose the uniform patterns of mass education; but it is uniqueness and diversity that can be fostered under electric conditions as never before.” There will come a recognition that different law schools perform different functions, “and that within a single law school there may be room for different tracks—professional, public service, and scholarly.” Within these tracks the teachers will be able to share their information immediately and directly with the students viewing their tapes. The videotape ceases to be conceived of as an audio-visual device but becomes a source for data about the various legal constituencies. Courses which typically have low enrollment can be recorded and catalogued. The student can send for the course and take it for credit, with the teacher who made the tape grading his paper (or tape) through the mail. Or the course might not be offered for credit, but only for information, or still the tape might not be a course at all, only information about a topic.

The more information there is, the greater the need for the creation of new skills. This creates a continuing need for education if only to keep in step with a changing society. The rapid pace militates against a busy

258. If it is desired to keep the image and voice for any length of time, a film should be made of the videotape. Videotapes tend to lose information with time and use.
259. Schools like Harvard, Yale, and the University of Miami have many resources to offer other schools and the legal community generally.
260. It would be very instructional to see the man who wrote the book talk about it. This fact tends to be forgotten by the “big” schools because the men that wrote the books are at these schools, but smaller schools could certainly make use of this service.
261. This was the motive that lead to Project “CO-TIE,” a videotape exchange program between Colorado State University and participating colleges. See Maxwell & Lord, supra note 178 and accompanying text.
262. Stevens, supra note 58, at 30.
263. M. McLuhan, supra note 4, at 316.
264. Stevens, supra note 58, at 55.
265. See, e.g., Id. at 56.
practitioner returning to school to play Socratic games designed to teach him how to "think legally."

Furthermore the law school's "traditional two or three day institute...[the] legal equivalent of the war-time courses for 'ninety-day wonders' will [not] suffice to meet the needs of the bar and beyond that, of society." But videotape offers a solution to the problems of the practicing lawyer who wants to improve his knowledge of a particular field of law, who wants an intensive course of specialization, who wants to expand his appreciation of the cultural setting of the law, or who wants to learn the techniques of other disciplines, such as economics, sociology, computer science, psychology or what have you.267

The Internal Revenue service has been using videotaped lectures to continue the education of its field personnel and have covered courses such as corporate law and tax law.268 Colorado State University's project, SURGE, is designed to continue the education of engineers in the field and has enabled a number of them to obtain masters' degrees.269 A cable television company in New York has "a professional channel for providing up-to-date medical data to registered physicians."270 A firm, Gridtronics Incorporated, has already begun to package software for doctors. Interestingly enough, this has been subsidized by leading pharmaceutical companies. "Material will include a 'weekly presentation of news' by pharmaceutical manufacturers; a 'drug detailing hour' will present 'products and their properties by various individual pharmaceutical manufacturers.'"271 Smith warns that the drug companies have been "waging promotional war on the nation's doctors for years. Now, instead of being visited in person by the industry's detail men, doctors will be solicited by remote control, and will pay for it themselves by the month."272

Although the legal profession is not quite in the same position as the medical profession vis-a-vis advertisers, the message is the same. Someone is going to produce the software. The legal profession must fill the vacuum and begin the production of software for its graduates as well as its undergraduates. The efforts of Internal Revenue Service and the South Carolina Law Enforcement Division prove that legal software can be produced.273 As hardware systems proliferate there will be an even greater demand. The form of usable information has changed as its major

267. Id. at 591.
268. See note 143 supra.
269. Maxwell & Lord, supra note 179.
271. Smith, supra note 154, at 589.
272. Id.
273. See notes 141-45 supra.
distribution system has evolved. But as the system changes, so does the power structure, and unless the schools, whose function has always been the processing of information, keep step with these technological developments, they will be processing irrelevant data.

Carnegie-Mellon Graduate School of Industrial Administration, aware of the fact that technology was outstripping its graduates, altered its educational goal to teach their graduates the capacity to learn independently.

Carnegie wants to psychologically attune its masters graduates to learn on their own in unclear and ambiguous situations. And one day soon, thanks to videotape and a computer hookup, these new managers . . . may be able to update or to begin their education on the job . . . .

The teacher's role has also changed.

Teachers should be amplifiers, . . . not power sources. In many courses, formal classroom sessions are not held. Students in Alan Weinstein's course . . . have no lectures and work only with reading material. "I can assign readings that are just as good as my lectures . . . ."

There are several lectures that are basic and that are given every year. These Carnegie is putting on videotape.

There are courses of a similar nature at law schools. Putting them on videotape would free much faculty time for research and consultation with students. One such course is legal research. Research is a process that requires a series of steps. Its teaching is repetitive in nature. Furthermore, it would be a great aid to any person doing research in a specialized area of law with which he was unfamiliar to check out a videotape in, say tax, from the research librarian and watch a demonstration of the research process. Videotape is particularly suited to such demonstrations since it does involve a process. It is possible to see the book, to see its use, as

274. "[E]xecutives must completely retool their management knowledge at least two times in their careers or become obsolete." Business Week, Dec. 5, 1970, at 58.

275. Id.

276. Id. at 59.

277. "David Klahr, who directs Carnegie's research into educational technology . . . estimates that 30% to 60% of the . . . course content can be put on videotape." Id.

278. It could show color also. This author does not believe that the added information is worth the added expense of color equipment at this time. However, the trend for the last several years has been a reduction in cost of about 25 percent a year. The question to be kept in mind when buying any equipment is its proposed use. The tendency to purchase high performance, high quality, high definition, high price equipment should be resisted. When one talks about video, one talks about information. More information than is needed for a particular application causes redundancy. The equipment used should be enough to convey the message. Does conveying the message of legal research necessitate a demonstration that Am. Jur. is green? No doubt, one day it will.
V. Conclusion

The demonstrations of the uses of the videotape recorder in law school could go on ad infinitum. That is because the law is a process, and the television image is most conducive to demonstrating processes. There are no sharp lines in the legal process, everything is a blend. Our legal system has its roots in the "cool" generalist age of the manuscript. It was specialized and complicated by print which attempted to give it sharp lines and rigid structures. Now the "cool" image of the television set and the speed of electricity offers to complete the circle in an age of total information and to make law relevant to all of life. Life like law, is a seamless web.

The lawyer's traditional storehouse of learning is already too tightly stuffed with legacies from the past to be thoroughly mastered . . . in a lifetime of devoted scholarship; a student must, if he is not to choke on triviality, have extrinsic criteria of relevance. There comes a time, as Mr. Justice Holmes long ago remarked, when energy can be more profitably spent than in the reading of cases.280

279. This author produced one such tape. It was a demonstration of research into governmental documents. It is on file at UNITEL Corp. at M.I.T.
280. Lasswell & McDougal, supra note 53, at 216.